October 2005 Meeting Announcement:

Should the Teaching-Motivation-Suggestion Test Continue to Guide Determinations of Patentability of Combinations?

In *KSR International Co. v. Teleflex, Inc.*, U.S., No. 04-1350, the petitioner has petitioned for *certiorari* from a non-precedential decision in which the Federal Circuit reversed the District Court's entry of summary judgment of invalidity for obviousness., holding that "the lower court diluted beyond recognition the barriers that the Federal Circuit has erected to a finding of obviousness." The petitioner asserts that the teaching-motivation-suggestion test contradicts Supreme Court precedent interpreting 35 U.S.C. § 103. The panel will present a mock oral argument of the case at the Supreme Court.

Panelists:	**Dennis Corgill**	*Mayer Brown Rowe & Maw*
	Ian N. Feinberg	*Mayer Brown Rowe & Maw*
	Deborah Fishman	*Day Casebeer Madrid & Batchelder*
	William Milks	*Russo & Hale*
	Shelley K. Wessels	*Wessels Law Group*

Time and Location: October 19, 2005 at 6:00pm
Townsend and Townsend and Crew
379 Lytton Avenue (at Waverley Street)
Palo Alto
650.326.2400

Dinner to Follow at: Restaurant Zibibbo
430 Kipling Street
Palo Alto
650.614.9131

No. 04-

IN THE

Supreme Court of the United States

KSR INTERNATIONAL CO.,

Petitioner,

—against—

TELEFLEX INC. and
TECHNOLOGY HOLDING CO.,

Respondents.

ON PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

PETITION FOR A WRIT OF CERTIORARI

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April 6, 2005

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QUESTION PRESENTED

Whether the Federal Circuit has erred in holding that a claimed invention cannot be held "obvious", and thus unpatentable under 35 U.S.C. § 103(a), in the absence of some proven "'teaching, suggestion, or motivation' that would have led a person of ordinary skill in the art to combine the relevant prior art teachings in the manner claimed."

CORPORATE DISCLOSURE STATEMENT

Petitioner hereby identifies KSR Industrial Corp. as a parent corporation owning 10% or more of Petitioner's stock. No publicly held company owns 10% or more of the stock of Petitioner.

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KSR International Co. ("KSR") hereby petitions for a writ of certiorari to review the judgment of the United States Court of Appeals for the Federal Circuit entered in this action on January 6, 2005.

OPINIONS BELOW

The opinion of the Court of Appeals is unreported and is set forth in the Appendix ("App.") at 1a-17a. The opinion and final judgment of the United States District Court for the Eastern District of Michigan is reported at 298 F. Supp. 2d 581 and appears at App. 18a-49a.

JURISDICTION

The judgment of the Court of Appeals was entered on January 6, 2005. No petition for rehearing was filed. This Court's jurisdiction is invoked under 28 U.S.C. § 1254(1).

The District Court had jurisdiction to hear Respondent's claim for alleged patent infringement under 28 U.S.C. § 1338(a). The Federal Circuit had jurisdiction to hear Respondent's appeal under 28 U.S.C. § 1295(a)(1).

STATUTORY PROVISION INVOLVED

This case concerns the standard of patentability set forth in § 103(a) of the Patent Act, 35 U.S.C. § 103(a), which provides:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

STATEMENT OF THE CASE

This case raises a question of broad and general importance: What is the proper interpretation of the patentability standard set forth in § 103 of the Patent Act? The answer to this question affects every pending U.S. patent application, every issued U.S. patent, and every U.S.

federal court challenge to the validity of a patent. It is a matter of concern to every company and member of the public affected by the grant of a U.S. patent.

Section 103 was first enacted in 1952; it provides that a patent cannot issue on subject matter that would have been "obvious" to a hypothetical "person having ordinary skill in the art." This Court first interpreted § 103 in *Graham v. John Deere Co.*, 383 U.S. 1 (1966), which unanimously "conclude[d] that the section was intended merely as a codification of judicial precedents embracing the *Hotchkiss* [*v. Greenwood*, 52 U.S. 248 (1852)] condition, with congressional directions that inquiries into the obviousness of the subject matter sought to be patented are a prerequisite to patentability."[1] *Id.* at 17. Section 103 was, the Court instructed, to be followed "realistically" so as to establish a "practical test of patentability." *Id.*

In its subsequent decisions in *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 60-61 (1969) and *Sakraida v. Ag Pro, Inc.*, 425 U.S. 274, 281-82 (1976), this Court unanimously held that § 103 precludes patent protection where, as in this case, a claimed "invention" consists of "a combination which only unites old elements with no change in their respective functions." *Sakraida*, 425 U.S. at 281 (quoting *Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147, 152 (1950)). *Sakraida* and *Anderson's-Black Rock* reflected a practical judgment—grounded in more than a century of this Court's precedents[2]—that as a matter of

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[1] As the *Graham* Court explained earlier in its opinion, *Hotchkiss v. Greenwood* is the "cornerstone" decision in which this Court first formulated "a general condition of patentability." 383 U.S. at 11.

[2] *See, e.g.*, *Toledo Pressed Steel Co. v. Standard Parts, Inc.*, 307 U.S. 350, 356 (1939) (holding that a "mere aggregation of two old devices" is unpatentable where each part "served as separately it had done"); *Lincoln Engineering Co. v. Stewart-Warner Corp.*, 303 U.S. 545, 549 (1938) ("mere aggregation of a number of old parts or elements which, in the aggregation, perform or produce no new or different function or operation than that theretofore performed or produced by them, is not patentable invention"); *Adams v. Bellaire Stamping Co.*, 141 U.S. 539, 542 (1891) (holding the standard of patentability requires "something more than a mere aggregation of old

(Cont'd)

law, the statutory "person having ordinary skill in the art" is deemed capable of assembling or rearranging "old elements with each performing the same function it had been known to perform." *Sakraida*, 425 U.S. at 282.

The practical test of patentability developed by the precedents of this Court, codified by Congress in § 103, and reaffirmed in this Court's decisions in *Graham*, *Anderson's-Black Rock,* and *Sakraida,* has been eviscerated by the Federal Circuit during the past two decades. As exemplified by the decision below, Federal Circuit has engrafted onto § 103 a new test—referred to below as the "teaching-suggestion-motivation test" (App. at 8a)—under which a claimed "invention" cannot be held "obvious" under § 103 in the absence of some proven "'suggestion, teaching, or motivation' that would have led a person of ordinary skill in the art to combine the relevant prior art teachings in the manner claimed." App. at 6a (citing prior Federal Circuit authorities).

The Federal Circuit's "teaching-suggestion-motivation test" has been applied in hundreds of cases since 1985, including in the decision below. App. at 16a-17a. The Federal Circuit has repeatedly held that a "teaching or suggestion or motivation" to combine prior art references is an "essential evidentiary component" of any obviousness holding. *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1351-52 (Fed. Cir. 1998). *See also In re Dembiczak*, 175 F.3d 994, 998 (Fed. Cir. 1999). The Federal Circuit applies this "teaching-suggestion-motivation test" even where, as in this case, a patent claims nothing more than a combination of pre-existing, off-the-shelf components in which each component performs exactly the same function that it had been known and was designed to perform.

(Cont'd)

results"); *Reckendorfer v. Faber*, 92 U.S. 347, 357 (1876) (holding that a "combination, to be patentable, must produce a different force or effect, or result in the combined forces or processes, from that given by their separate parts" and must also produce "a new result"); *Hailes v. Van Wormer*, 87 U.S. 353, 368 (1874) ("bringing old devices into juxtaposition, and there allowing each to work out its own effect without the production of something novel, is not invention").

The difference between this Court's interpretation of § 103 (which at least seven (7) Circuits have abided, as described *infra*), and the Federal Circuit's interpretation of § 103, is plain: Under this Court's precedents, a combination of pre-existing elements does not constitute an "invention", and does not meet the "condition for patentability" specified in § 103(a), if each element in the claimed combination does nothing more than what it was previously known or designed to do.

In sharp contrast, the Federal Circuit holds that a combination of pre-existing elements *will always* constitute an "invention", and *will always* meet the "condition for patentability" specified in § 103, unless there is proven "some 'suggestion, teaching, or motivation' that would have led a person of ordinary skill in the art to combine the relevant prior art teachings in the manner claimed." App. at 6a.

The Federal Circuit's so-called "teaching-suggestion-motivation test" has no basis in the text of § 103 or in any decision of this Court. Indeed, it is—as numerous commentators have noted—quite inconsistent with this Court's interpretations § 103. The Federal Circuit itself has expressly acknowledged that its test splits from other circuit court precedent. The Federal Circuit's precedents on this "teaching-suggestion-motivation test" have also drawn criticism in two recent national studies, one undertaken by the Federal Trade Commission and one by the National Academies of Sciences. This issue is ripe for review by this Court, and this case provides a good vehicle to do so.

The Technology at Issue

This case involves a simple and ubiquitous technology: "gas pedals" used to operate passenger cars and light trucks. Petitioner supplies gas pedals to General Motors Corp. ("GM") for installation in various Chevrolet (e.g., Silverado, Tahoe, Suburban, Trailblazer), GMC (e.g., Sierra, Envoy, Yukon), Buick (Rainier), Cadillac (e.g., Escalade), and other GM vehicle models sold in United States commerce. Some of these gas pedals are alleged to infringe one claim in a patent owned by Respondents.

The claimed invention at issue in this case is a straightforward combination of (i) a pre-existing type of "adjustable pedal," and (ii) a pre-existing type of "electronic control" that is commonly used on newer cars. Both of these components are explained below.

Adjustable Pedals

The particular gas pedals at issue here are "adjustable" pedals, which are pedals whose resting position can be moved, or "adjusted," relative to a driver's seating position. Adjustable foot pedals permit drivers of short stature to operate a motor vehicle with the driver's seat pushed further back from the steering wheel (and air bag) than may be possible with non-adjustable pedals. Adjustable foot pedals also permit taller drivers to achieve a more comfortable driving position than may be possible with seat adjustment alone. Adjustable pedals are old in the art; they were a common technology at least twenty-five (25) years before the alleged invention at issue here.

The Transition From Cable-Actuated to Electronically-Actuated Fuel Systems

Prior to the mid-1990's, most new vehicles sold in the United States were equipped with engines whose throttles were actuated by mechanical cables. In vehicles equipped with cable-actuated throttle controls, depression of a gas pedal typically causes a cable to pull on a valve housed in a carburetor or fuel injection unit, thereby increasing the amount of fuel and air entering the engine and hence raising the engine speed.

Commencing in the mid-1990's, increasing numbers of vehicles sold in the United States were equipped with engines whose throttles were controlled electronically, by computerized systems commonly known as "electronic throttle controls" or ETC's. Electronic throttle controls can accommodate improved traction control and vehicle directional stability systems, simplified cruise controls, and on-board computer-controlled systems for improving fuel economy and reducing tailpipe emissions.

In vehicles whose engines are equipped with electronic throttle controls, the gas pedal is typically coupled to an

electronic sensor that engages the pivot point of the gas pedal. Thus, in newer cars, stepping on the gas pedal does not pull a cable; instead, the electronic sensor detects the motion of the pedal and generates an electronic signal. The electronic signal travels via wire into the engine compartment where, typically, it is input into the electronic throttle control.

The '565 Patent

Respondents are the owners of U.S. Patent No. 6,237,565 B1 entitled "Adjustable Pedal Assembly With Electronic Throttle Control" (the "'565 patent"). Only one of the '565 patent's claims is at issue in this litigation. That claim—numbered claim 4 in the patent—comprises nothing more than (i) a pre-existing "adjustable pedal assembly," combined with (ii) a pre-existing "electronic control."

The simplicity of alleged invention covered by the '565 patent is confirmed by the patent document itself. The patent states that the claimed "adjustable pedal assembly" may "be any of various adjustable pedal assemblies known in the art" (col. 2, lines 55-56). The patent further states that the claimed "electronic throttle control mechanism" may "be any of various electronic throttle control mechanisms known in the art" (*id.* at col. 3, lines 22-24).

The claimed "invention" of the '565 patent thus admittedly and literally comprises nothing more than the combination of (a) a pre-existing "adjustable pedal assembly," and (b) a pre-existing "electronic control", with the latter being "attached" to the "support" of the former.

The Proceedings Below

By its lawsuit below, Respondents sought to exclude Petitioner from supplying GM with adjustable gas pedals designed to actuate modern GM engines equipped with ETC's, no matter how dissimilar might be (a) the mechanical configuration of the accused adjustable pedal assemblies developed and supplied (and independently patented) by Petitioner,[3] and (b) the mechanical configuration of the

[3] The mechanical configuration of adjustable pedal assemblies that Petitioner supplies for mid-sized Chevrolet, Buick, and GMC vehicles is disclosed in Petitioner's own U.S. Patent No. 6,655,231.

"adjustable pedal assembly" described and claimed in the '565 patent.

The District Court Action

Respondents commenced this civil action for alleged patent infringement on November 18, 2002. Respondents accused Petitioner of making unauthorized use of the invention defined by Claim 4 of the '565 patent. Petitioner denied infringement and argued, among other things, that the Claim 4 of the '565 patent was invalid under 35 U.S.C. § 103(a).

Following the completion of discovery, Petitioner moved for summary judgment of invalidity. Petitioner contended that the subject matter recited in Claim 4 of the '565 patent was unpatentable under 35 U.S.C. § 103(a) in view of undisputed prior art, namely, (a) a 1991 patent to Asano (referred to hereinafter as the "Asano" patent, or simply "Asano") that disclosed the exact type of adjustable pedal assembly described in Claim 4 of the '565 patent, and (b) an off-the-shelf, modular electronic pedal position sensor that was designed to engage the pivot shaft of any type of gas pedal. It is undisputed that the Asano patent was never cited to, or considered by, the PTO during the prosecution of the '565 patent.

In its response to Petitioner's motion for summary judgment, Respondents made no claim that the pre-existing components comprising the alleged invention of Claim 4 of the '565 patent performed any "'new or different function' . . . within the test of validity of combination patents." *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282 (1976) (quoting *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 60 (1969)). Rather, Respondents contended that the undisputed prior art references cited by Petitioner were insufficient to support a legal conclusion of obviousness under § 103, in view of what Respondents candidly referred to as "the barriers that the Federal Circuit has erected to a finding of obviousness." Brief for Plaintiffs-Appellants filed March 8, 2004, at 4. In particular, Respondents relied on the purported requirement of a "motivation to combine" prior art references, as purportedly giving rise to an issue of fact

precluding summary judgment as to the invalidating effect of the prior art cited by Petitioner.

The District Court's Decision

Although Petitioner urged the District Court to follow and apply this Court's long-establish "test of validity of combination patents," *Sakraida*, 425 U.S. at 282 (quoting *Anderson's-Black Rock*, 396 U.S. at 60), the District Court elected to assess the validity of Respondents' patent claim under the Federal Circuit's "teaching-suggestion-motivation test." In a comprehensive published opinion, Chief Judge Zatkoff concluded that there was no patentable difference between the subject matter recited in Claim 4 of the '565 patent, on the one hand, and the combined teachings of the prior art on adjustable pedals and the prior art on electronic pedal position sensors, on the other. The District Court observed (298 F. Supp. 2d at 593 & 596; App. at 41a, 48a):

> It is undisputed that in the mid-1990's more cars required the use of an electronic device, such as a pedal position sensor, to communicate driver inputs to an electronically managed engine. It is also undisputed that adjustable pedal assemblies have existed in the art since the late 1970's. Clearly it was inevitable that adjustable pedal assemblies would be joined with an electronic device to work in conjunction with modern electronically controlled engines.
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> . . . .
>
> [T]he Court finds that a hypothetical person with an undergraduate degree or an equivalent amount of industry experience who has familiarity with pedal control systems for vehicles would have found it obvious to attach a modular pedal position sensor to Asano's support member, with the pedal position sensor being responsive to the pedal assembly's pivot shaft.

The Federal Circuit's Decision

Respondents timely appealed to the Federal Circuit, complaining that "the lower court diluted beyond recognition the barriers that the Federal Circuit has erected to a finding of obviousness." Brief for Appellant at 4. Respondents argued that, as bars to patentability under § 103, the invalidating legal effect of multiple prior art references (in this case, a pre-existing adjustable pedal assembly, Asano, and an off-the-shelf pedal position sensor) purportedly could not be determined without a jury trial of whether a hypothetical "person having ordinary skill in the art" would have had a hypothetical "motivation to combine" the references cited by the District Court.

In response, Petitioner once again cited and relied on this Court's *Sakraida* and *Anderson's-Black* decisions. In the alternative, Petitioner urged affirmance even under the Federal Circuit's "teaching-suggestion-motivation test" of invalidity.

On January 6, 2005, a panel of the Federal Circuit vacated the District Court's judgment and remanded for further proceedings. The Federal Circuit declined to acknowledge the existence of, to follow, or to distinguish *Sakraida* or any other of this Court's precedents applying the "test of validity of combination patents", *Sakraida*, 495 U.S. at 282 (quoting *Anderson's-Black Rock*, 396 U.S. at 60). The Federal Circuit also elected not to publish its decision even though it was vacating a comprehensive reported decision by the District Court.[4]

Instead, citing to only its own precedents, the Federal Circuit held that the District Court "did not apply the correct teaching-suggestion-motivation test". App. at 8a. And applying the purportedly "correct" "test" to the undisputed prior art references cited by the District Court, the Federal

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[4] The Federal Circuit's action in this case is similar to what it did in *Holmes Group, Inc v. Vornado Air Circulation Sys., Inc.*, 535 U.S. 826 (2002), where arguments challenging the Federal Circuit's jurisdiction were ignored in an unpublished decision that vacated a comprehensive reported District Court decision. The undersigned counsel of record for Petitioner here was counsel of record for the prevailing Petitioner in *Holmes*.

Circuit held that the prior art of record not only did not support the District Court's grant of summary judgment to Petitioner, but that the undisputed prior art purportedly did not make out even "a *prima facie* case of obviousness." *Id.* at 14a.

The Federal Circuit did not question the District Court's conclusion that one prior art reference on adjustable pedals (namely, Asano) disclosed "all of the structural limitations of [Respondents' patent claim] with the exception of the electronic control". App. at 9a, citing 298 F. Supp. 2d at 592. The Federal Circuit also did not question the District Court's conclusion that "[e]lectronic controls were well known in the prior art." *Id.*, citing 298 F. Supp. 2d at 592. The Federal Circuit also did not question that Claim 4 of the '565 patent claimed (a) a pre-existing adjustable pedal assembly, combined with (b) a pre-existing electronic control, with each claimed element performing exactly the same function, in combination, that it had been designed to perform individually.

Nevertheless, in the Federal Circuit's view, the undisputed prior art of record did not render the Respondents' claimed "invention" unpatentable under § 103, because Petitioner had not gone further and proved, beyond genuine dispute and by "clear and convincing evidence", that "there was a suggestion or motivation to combine the teachings of Asano with an electronic control in the particular manner claimed by claim 4 of the '565 patent." App. at 12a. The Federal Circuit accordingly remanded for determination "whether a person of ordinary skill in the art *would have been motivated*, at the time the invention was made, to attach an electronic control to the support structure of the pedal assembly disclosed by the Asano patent". *Id.* at 16a-17a (emphasis added).

As exemplified by the decision below, the Federal Circuit "teaching-suggestion-motivation test" represents both (a) a major downward departure from the substantive standard of patentability prescribed in § 103 as construed by this Court, and (b) an all but insuperable barrier to any predictable, quick, or inexpensive determination of

patentability under § 103 even where, as here, the contents of documentary prior art are completely undisputed.

As articulated and applied by the Federal Circuit, the "teaching-suggestion-motivation test" purportedly enables a patent applicant or patentee to contest the invalidating legal effect of prior art references, and to claim patent protection for the most trivial of differences between a claimed "invention" and prior art, through the simple expedient of asserting that a hypothetical "person having ordinary skill in the art" purportedly would have lacked "motivation to combine" prior art references in "the particular manner claimed" in a patent or patent application.

If such an assertion is made, then the ultimate question of patent validity under § 103 effectively ceases to be question of law, *Graham*, 383 U.S. at 17, but is made to depend, instead, on the outcome of hugely costly and unpredictable litigation over whether a hypothetical "person having ordinary skill in the art" would have had hypothetical "motivation to combine" pre-existing components for a particular application at a point in time.

The Federal Circuit construes § 103(a) as purportedly *precluding* a legal conclusion of invalidity in the absence of specific factual findings that satisfy that court's "teaching-suggestion-motivation test". In practical effect, the Federal Circuit has recast § 103 as providing, not "conditions for patentability" (as its title states), but rather "conditions for *challenges* to patentability." The result is a radically circumscribed statute and an exceptionally low standard of patentability mandated by neither Congress nor this Court.

REASONS FOR GRANTING THE PETITION

The decision below is in direct conflict with this Court's precedents, the law of at least seven (7) regional Circuits, and the text of § 103 itself. The divergence between this Court's precedents and existing Federal Circuit precedent is so blatant that commentators and casebook editors in the field of patent law routinely describe the Federal Circuit's

precedents on § 103 as "abolish[ing]," "ignor[ing]," or "dismissing" controlling Supreme Court precedent.

The Federal Circuit has itself acknowledged that there is a circuit split on this issue. Furthermore, in contrast to the "practical test of patentability" envisioned by this Court in *Graham,* the Federal Circuit has held that even the expert fact finders at the Patent and Trademark Office are forbidden from using "common sense" in applying § 103. *See In re Lee*, 277 F.3d 1338, 1345 (Fed. Cir. 2002). Two national studies on reform of the patent system have identified the § 103 precedents of the Federal Circuit as ripe for reform. Review by this Court is urgently needed in this area; this case provides a good vehicle to provide such review.

I. THE FEDERAL CIRCUIT HAS DEPARTED FROM THIS COURT'S PRECEDENTS CONSTRUING § 103.

This Court has applied the standard of patentability set forth in § 103 in six cases; in five cases of those cases, the Court held that the claimed subject matter was unpatentable under § 103. In none of those cases did this Court hold that the statute was inapplicable to a claimed invention in the absence of some proven "teaching, suggestion, or motivation" to combine or modify prior art references.

In *Graham v. John Deere Co.*, the Court invalidated a patent on a novel clamp for attaching a plough shank to the frame of the plough. This Court recognized that "all of the elements" in Graham's patent could be found in the prior art, but the arrangement of those elements in Graham's patent was somewhat different ("the position of the shank and hinge plate appears reversed" in the prior art, *see* 383 U.S. at 26). Nevertheless, this Court held that the "mere" reversal in the arrangement of two elements from the prior art "presents no operative mechanical distinctions, much less nonobvious differences." *Id*. The Court did not require, as the Federal Circuit did in the panel decision below, "specific findings showing a teaching, suggestion, or motivation to combine prior art teachings in the particular manner claimed by the patent at issue." If that standard had been applied, *Graham* would have been decided

differently because Graham's patent combined prior art elements in a particular manner (with two elements reversed in position) and the Court had no factual findings concerning any prior art teaching, suggestion, or motivation to combine the prior art element in that particular manner.

Similarly, *Calmar, Inc. v. Cook Chemical Co.* (a companion case decided with *Graham*, *see* 383 U.S. at 26), this Court held obvious, and thus invalid, a patent on a "combination of admittedly old elements," *id.* at 29. The invalidated patent covered a novel type of overcap for use with an insecticide pump sprayer (i.e., a cap for a can of bug spray). One difference between the patented combination and the prior art was that the patented cap included a "rib" seal; such seals had previously been used with caps for pour spouts but not for pump sprayers. Nevertheless, this Court held that "[t]he substitution of a rib built into a collar likewise presents no patentable difference above the prior art" because that type of seal was "fully disclosed" in an earlier patent on a pour spout. *Id.* at 35. The Court did not require any specific factual findings that the prior art included a teaching, suggestion, or motivation to combine the rib seal with existing pump sprayer caps.

United States v. Adams, 383 U.S. 39 (1966), is the third of the cases argued on the same day as *Graham*; it is the only case in which this Court has ever sustained a patent as nonobvious under the § 103 standard. As in *Graham* and *Cook Chemical*, the patent in *Adams* (which covered a new type of battery) consisted of a novel combination of pre-existing elements from the prior art. In sustaining Adams' patent, however, this Court did not merely note that the prior art failed to include a suggestion to combine the relevant elements in the particular manner claimed by Adams. Rather, this Court considered many factors, including (i) that the operating characteristics of Adams' battery were "wholly unexpected[]" and had "certain valuable operating advantages over other batteries," *id.* at 51; (ii) that the particular type of battery Adams had sought to invent was considered "not practical" prior to his

discovery, *id.* at 52; and (iii) that "noted experts expressed disbelief" that the Adams battery could possibly work, *id.*

In *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969), the alleged invention was a machine for paving a road with blacktop; it was merely a combination of "four elements known in the prior art [mounted] on one chassis." *Id.* at 59. Again, this Court required no "specific findings" that the prior art contained some teaching, suggestion, or motivation for combining the elements in the particular manner claimed in the patent. Rather, this Court reaffirmed its longstanding doctrine that, where a patent covers merely a combination of old elements, the patent will not be valid unless the combination produces "a new or different function" or demonstrates a "synergistic result," which the Court defined "an effect greater than the sum of the several effects taken separately." *Id.* at 60-61. The Court identified this requirement as the "the test of validity of combination patents." *Id.* at 60.

Dann v. Johnson, 425 U.S. 219, 222 (1976), concerned a patent application on a computerized system for "provid[ing] bank customers with an individualized and categorized breakdown of their transactions during the period in question." The PTO rejected the application on several grounds, including that the alleged invention was obvious. The Court of Customs and Patent Appeals (CCPA)—a predecessor court of the Federal Circuit—reversed and held that the invention was not obvious. This Court granted certiorari and reversed the CCPA. In holding the alleged invention obvious under § 103, this Court cautioned that "it is important to remember that the criterion is measured not in terms of what would be obvious to a layman, but rather what would be obvious to one 'reasonably skilled in [the applicable] art.'" *Id.* at 229. The Court frankly acknowledged that "[t]here may be differences between respondent's invention and the state of the prior art." *Id.* Nonetheless, the Court—without demanding any "specific findings" of the sort now routinely demanded by the Federal Circuit—held that "[t]he gap between the prior art and respondent's system is simply

not so great as to render the system nonobvious to one reasonably skilled in the art." *Id*. at 230.

Finally, in *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 274 (1976), the Court invalidated a patent covering a novel "water flush system to remove cow manure from the floor of a dairy barn." As this Court noted, the idea of using water to flush animal stalls dates back ancient times. *See id*. at 275 n.1 (citing the Hercules' fifth labor—cleaning the Augean stables). Because all of the relevant elements of the patented combination existed in the prior art, *see id.* at 275, this Court applied "the test of validity of combination patents" that had been applied in *Anderson's-Black Rock*, *id.*, at 282. The Court rejected the argument that "the combination of these old elements to produce an abrupt release of water directly on the barn floor from storage tanks or pools can properly be characterized as synergistic." *Id*. "Rather," the Court held, "this patent simply arranges old elements with each performing the same function it had been known to perform," and "[s]uch combinations are not patentable under standards appropriate for a combination patent." *Id*.

Prior to the creation of the Federal Circuit in 1982, at least seven (7) of the regional Courts of Appeals had cited and followed *Sakraida*, *Anderson's-Black Rock,* and their many predecessor cases, when analyzing the validity of combination patent claims such as the patent claim at issue in this case.[5] These Courts of Appeals were following the wisdom set forth in this Court's opinion in *Sakraida*:

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[5] *E.g., Shakelton v. J. Kaufman Iron Works, Inc.*, 689 F.2d 334, 339 (2d Cir. 1982) (citing *Sakraida* for the propositions that "[t]he starting point for a court's judgment on the obviousness of a combination patent is to examine the function of the components in their prior context alongside the functions they perform in their new combination" and that "[a] change of function for a well known element of a combination patent is a benchmark of nonobviousness"); *Carson Mfg. Co. v. Carsonite Int'l Corp*., 686 F.2d 665 (9th Cir. 1981) ("A combination patent will be upheld only if it produces an 'unusual' or 'surprising' result"); *John Zink Co. v. National Airoil Burner Co.*, 613 F.2d 547, 551 (5th Cir. 1980) ("The combined elements must perform a new or different function, produce 'unusual or surprising consequences,' or cause a synergistic result"); *Reinke Mfg. Co. v. Sidney Mfg. Corp*., 594 F.2d

(Cont'd)

> Courts should scrutinize combination patent claims with a care proportioned to the difficulty and improbability of finding invention in an assembly of old elements. . . . A patent for a combination which only unites old elements with no change in their respective functions . . . obviously withdraws what already is known into the field of its monopoly and diminishes the resources available to skillful men.

Sakraida, 425 U.S. at 281.

The Federal Circuit, however, has simply refused to accept or abide "[t]he prevailing law in this and other courts as to what is necessary to show a patentable invention when a combination of old element is claimed," *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518, 530 (1972), notwithstanding that this law "was clearly evident from the cases when the [1952 Patent] Act was passed." *Id*.

Less than a year into its history, in 1983, the Federal Circuit boldly repudiated the "test of validity of combination patents" that this Court had applied in *Sakraida* and *Anderson's-Black Rock*, and numerous prior cases over a 100+ year period, on the basis that there purportedly was "no warrant" for this Court's case law treatment of combination patents and the very concept of a "combination patent" was purportedly "meaningless":

> There is no warrant for judicial classification of patents, whether into 'combination' patents and

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(Cont'd)

644, 648 (8th Cir. 1979) ("if the claims cover a structure that combines old and well known elements, one of the factors this court must look for in determining whether the patents meet section 103 requirements is synergism: that which results in an effect great than the sum of the several effects taken separately"); *Deere & Co. v. Hesston Corp.*, 593 F.2d 956, 962 (10th Cir. 1979) ("in order for the combination of old elements to prevail, there must be a synergistic effect"); *American Seating Co. v. National Seating Co.*, 586 F.2d 611, 620 (6th Cir. 1978) ("the combination, in order to be patentable, must produce a synergistic effect or result"); *Scully Signal Co. v. Electronics Corp. of Am.*, 570 F.2d 35, 360 n.5 (1st Cir. 1977) ("a combination patent must achieve an effect greater than the sum of the several effects taken separately").

> some other unnamed and undefined class or otherwise. Nor is there warrant for different treatment or consideration of patents based on a judicially devised label. Reference to 'combination' patents is, moreover, meaningless.

Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 1566 (Fed. Cir. 1983). *See also Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d at 1563, 1566 (Fed. Cir. 1984) ("It but obfuscates the law to posit a non-statutory, judge-created classification labeled 'combination patents'").[6]

Having thus peremptorily rejected this Court's entire body of case law on combination patents (exemplified by the Federal Circuit's failure in this case to cite or distinguish *Sakraida*, *Anderson's-Black Rock*, or other of this Court's cited by Petitioner below), the Federal Circuit then proceeded, in the mid-1980's, to fashion a new and radical re-interpretation of § 103(a), one that purported to recast that statute as limiting only *challenges* to patent claims, as distinct from limiting what can be claimed as a patentable "invention" in the first instance.

Under the Federal Circuit's re-interpretation of § 103(a), an article of manufacture described in a patent application—no matter what its nature—is automatically presupposed to constitute an "invention" that can be patented. Far from limiting what an applicant can claim as an "invention", the Federal Circuit construes § 103(a) as imposing significant hurdles that an accused infringer challenging a patent, or an Examiner passing on a patent application, must clear before any patent claim, whether in an application or in an issued patent, can be held obvious.

In particular, the Federal Circuit holds that "prior art" cannot render claimed subject matter unpatentable under 35 U.S.C. § 103(a) unless a challenger proves with

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[6] Contrary to the Federal Circuit's suggestion, the Patent Act of 1952, 35 U.S.C. §§ 101-376, expressly acknowledges the existence of "combination" patents as a distinct category of patents. *E.g.*, 35 U.S.C. § 112 ("An element in a claim for a combination may be expressed. . . ."); 35 U.S.C. § 271(c) ("Whoever offers . . . a component of a patented . . . combination. . . .").

"evidence"—and the PTO or a court makes "specific findings"—demonstrating the existence of "some 'suggestion, teaching, or motivation' that would have led a person of ordinary skill in the art to combine the relevant prior art teachings in the particular manner claimed". App. at 8a.

Under this standard, a patent application claiming nothing more than an aggregation of pre-existing elements *must* be held to meet the patentability standard of § 103 unless the PTO can meet the difficult factual burden imposed on it by the Federal Circuit. Moreover, in meeting that burden, the PTO must produce detailed evidence and it is forbidden to rely on "common sense." *In re Lee*, 277 F.3d 1338 (Fed. Cir. 2002).

Once a patent has issued, the Federal Circuit construes 35 U.S.C. §§ 103(a) and 282(2) as precluding a challenge to validity of a patent claim in the absence of proof by "clear and convincing evidence" that a hypothetical person having ordinary skill in the art would have had a hypothetical "motivation to combine the prior art teachings in the particular manner claimed". App. at 8a. The Federal Circuit imposes this "clear and convincing evidence" burden of proof even where, as here, a challenger relies on documentary prior art that was never considered by the PTO during the prosecution of a patent, and the question is what legal consequences flow from undisputed prior art.

The advent of the Federal Circuit's "teaching-suggestion-motivation test" has meant, among other things, the death of this Court's holdings in *Anderson's-Black Rock* and *Sakraida*. Since 1985 (when the "teaching-suggestion-motivation test" emerged in the Federal Circuit), no Federal Circuit judge has cited *Anderson's-Black Rock. Sakraida* has been cited only twice, with the most recent citation coming ten years ago in a dissent, and then the citation was only for the uncontroversial point that obviousness is a question of law. *See Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512 (Fed. Cir. 1995) (Nies, J., dissenting).

Numerous commentators and casebook authors have noted the divergence between the Federal Circuit's

precedents and this Court's decisions in *Sakraida* and *Anderson's-Black Rock*. As one of the leading patent law casebooks candidly puts it, "[i]n its early decisions, the Federal Circuit essentially repudiated the holdings of *Anderson's-Black Rock* and *Sakraida*." Martin J. Adelman, Randall R. Rader, John R. Thomas, & Harold C. Wegner, *Cases and Materials on Patent Law* 345 (2d ed. 2003). Remarkably, this casebook is co-authored by Judge Randall Rader who currently sits on the Federal Circuit.

Many other commentators have noted the divergence between Federal Circuit and this Court's precedents on the construction of 35 U.S.C. § 103(a). They have viewed the Federal Circuit's action as "abolish[ing]," "ignor[ing]," or "dismissing" Supreme Court precedent, as exemplified by the quotations below:

> "The impact of *Anderson's-Black Rock* and *Sakraida*, however, has not been significant. The Court of Appeals for the Federal Circuit, which exercises exclusive jurisdiction over patent appeals, essentially has ignored these decisions. . . ." A. Samuel Oddi, *Beyond Obviousness: Invention Protection in the Twentieth Century*, 38 Am. U. L. Rev. 1097, 1123 (1989).
>
> "[T]he Federal Circuit has neatly abolished such Supreme Court pronouncements [on obviousness] as . . . [listing the "synergism" test from *Sakraida*, among others]. . . . The end result is that the Federal Circuit has expressly dismantled many of the mechanisms the Supreme Court relied upon when deciding obviousness questions." Paul M. Janicke, *The Federal Circuit and Antitrust: To Be or Not to Be: The Long Gestation of the U.S. Court of Appeals for the Federal Circuit (1887-1982)*, 69 Antitrust L.J. 645, 661-62 (2002).
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> "In rejecting 'synergism' as a requirement of invention, and the notion of a separate category of for 'combination patents,' the *Stratoflex* court [*Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530

> (Fed. Cir. 1983)] confronted substantial Supreme Court authority. The Court had historically held mechanical inventions that combined old elements—'combination' patents—to a more stringent standard than other inventions." Paul Goldstein, *Copyright, Patent, Trademark and Related State Doctrines* 459 (2002).
>
> "The Federal Circuit simply ignored without comment these intervening opinions [in *Anderson's-Black Rock* and *Sakraida*]. . . ." Roger E. Schechter and John R. Thomas, *Intellectual Property: The Law of Copyrights, Patents and Trademarks* § 17.3.2.1, at 380 (2003).
>
> "Completely dismissing the Supreme Court's 'synergistic results' rule, the Federal Circuit requires that for a combination invention to be obvious, the suggestion or motivation to make the specific combination must be found in the prior art." Phillipe Ducor, *Recombinant Products and Obviousness: A Typology*, 13 Santa Clara Computer & High Tech. L. J. 1, 58 (1997).

Although the divergence between this Court's § 103 precedents and the Federal Circuit's can best be seem by comparing the Federal Circuit's precedents on combination patents with *Sakraida* and *Anderson's-Black Rock*, the tension runs deeper. As Professor Robert Merges has noted, "implicit in the Supreme Court's Graham v. John Deere analysis is a 'rejection of some of the more extreme Federal Circuit cases on the so-called suggestion test.'" FTC Report, Chap. 4, at 12 n.72 (quoting testimony of Professor Robert P. Merges). The basic point here is that this Court held invalid the patent in *Graham* without the sort of detailed evidentiary showing that the Federal Circuit now requires as a matter of course before any modification of the prior art can be deemed unpatentable under § 103.

II. THERE IS AN ACKNOWLEDGED CIRCUIT SPLIT.

In *Allen Engineering Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336 (Fed. Cir. 2002), the Federal Circuit acknowledged that its "teaching-suggestion-motivation test" conflicts with the

precedents of at least one other Circuit. In that case, the party challenging patent validity relied on precedents from the Fifth Circuit, which is one of the many circuits that have interpreted this Court's decisions in *Anderson's-Black Rock* and *Sakraida* as requiring a combination of old elements to "produce 'unusual or surprising consequences,' or cause a synergistic result" in order for the combination to be patentable. *John Zink Co. v. National Airoil Burner Co.*, 613 F.2d 547, 551 (5th Cir. 1980). The *Allen Engineering* Court stated that the "Fifth Circuit 'synergism' test for the patentability of combination inventions [is] a test which was specifically abrogated in this Circuit by *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1540 (Fed. Cir. 1983)."

The Fifth Circuit's "synergism" test was, of course, drawn directly from the language this Court used in *Anderson's-Black Rock* and *Sakraida*. *See* 425 U.S. at 282. Unsurprisingly then, the Fifth Circuit is not the only Circuit to adhere to the *Sakraida* "synergism" test for determining the validity of combination patents. As previously noted (see note 5, *supra*), at least seven of the regional circuits have followed this test.

The split here is not just a matter of semantics. As discussed above, the decisions of this Court preclude patent protection for combinations of pre-existing elements, unless the combination exhibits something more than each old element "performing the same function it had been known to perform." *Sakraida*, 425 U.S. at 282. The regional Circuits that require synergistic effects are following that doctrine.

Under the Federal Circuit's "teaching-suggestion motivation test", by contrast, showing that each element in a claimed combination performs "the same function it had been known to perform," *id.*, is not enough to establish a legal conclusion of unpatentability under § 103—as this case well-illustrates. Rather, the Federal Circuit makes patentability depend on the outcome of costly and unpredictable litigation over the existence or non-existence of some "teaching, suggestion, or motivation" to combine pre-existing elements, regardless of whether the combination yields any new or different function or effect.

Proof that this circuit split matters is found in the *Allen Engineering* opinion itself, where the Federal Circuit went out of its way to chastise the litigants for even raising the synergism test.

The decisions of the circuits adhering to the "synergism" test arose out of appeals filed before most patent appeals were consolidated in the Federal Circuit. Nonetheless, there are good reasons for giving significant weight to this acknowledged circuit split.

First, under *Holmes Group, Inc. v. Vornado Air Circulation Sys., Inc.*, 535 U.S. 826 (2002), the Federal Circuit does not have exclusive jurisdiction of all cases presenting patent validity issues. Rather, as the Court held in *Holmes*, regional Circuits continue to have jurisdiction over cases (e.g., antitrust, contract, unfair competition cases) in which patent claims and issues are raised only in a defendant's counterclaim.

The implications of *Holmes* have been noted in academic commentary in the field. As one commentator described it, Federal Circuit precedents are likely to provoke circuit conflicts because the regional circuits "may" decide that they are bound by Supreme Court precedents rather than those of the Federal Circuit:

> "[T]he Federal Circuit for many years has flatly rejected the rule that a combination patent must reflect 'synergism' to be valid when faced with an obviousness challenge, so the Supreme Court has never needed to overrule its older pronouncements regarding the synergism requirement. Nevertheless, a regional circuit exercising jurisdiction over a counterclaim for patent validity may decide that it is bound to follow those pronouncements, because, of course, only the Supreme Court is empowered to overrule its prior precedents." Elizabeth I. Rogers, *The Phoenix Precedents: The Unexpected Rebirth of Regional Circuit Jurisdiction Over Patent Appeals and the Need for a Considered Congressional Response*, 16 Harv. J. Law & Tech. 411 (2003).

Second, in his concurring opinion in *Holmes*, Justice Stevens stated that one benefit of some decentralization in patent appeals is that circuit splits could be helpful to this Court in identifying cases for granting certiorari:

> "Necessarily, therefore, other circuits will have some role to play in the development of this area of the law. An occasional conflict in decisions may be useful in identifying questions that merit this Court's attention. Moreover, occasional decisions by courts with broader jurisdiction will provide an antidote to the risk that the specialized court may develop an institutional bias."

535 U.S. at 839. This concurrence suggests that the Court will continue to use circuit splits to help decide which patent cases to review. Prior practice suggests that this Court does continue to use circuit splits in this way. For example, in *Pfaff v. Wells Electronics, Inc.*, 525 U.S. 25 (1998), the petitioner argued, as one reason for granting certiorari, that the Federal Circuit had diverged from the approach taken by regional circuits prior to the creation of the Federal Circuit. *See* Petition for a Writ of Certiorari in *Pfaff v. Wells Electronics, Inc.*, 1998 WL 34081020, at *9-10 & n.10. This Court granted certiorari and, in its opinion, specifically noted the circuit split as one factor justifying the court's grant of certiorari. *See* 525 U.S. at 60.

Finally, the circuit split is only one of several factors that make this case fit comfortably within the category of patent cases in which this Court has recently granted review. Since 1995, this Court has reviewed patent cases at a rate of roughly one case per Term. *See* John F. Duffy, *The* Festo *Case and the Return of the Supreme Court to the Bar of Patents*, 2002 S. Ct. Rev. 273, 297-98 (2003) (collecting data).[7] Review of these cases suggest that this Court has been willing to "assert some degree of supervision over the Federal

[7] This article charts the five year average of this Court's rate of review in patent cases from the 1950 through 2001 Terms. If the chart were extended to the 2004 Term, the current rate of review in patent cases would .8 per term (averaged over five years) or .9 per term (averaged over ten years).

Circuit—even on statutory issues of patent policy", and even where review is not necessary "to maintain the uniform application of federal law" or "to resolve a conflict between the Federal Circuit and the legal position of the Executive Branch." *Id.* at 298-99.

In this case, of course, a circuit split does exist, as in *Pfaff*. There is also a serious claim that lower court precedents have "strayed beyond the parameters of the Court's patent jurisprudence," *id.* at 340, as there was in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushuki Co.*, 535 U.S. 722 (2002). And, as in *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred Int'l, Inc.*, 534 U.S. 124 (2001), the issue here involves a fundamental legal principle that controls the scope of the patent system. The need for certiorari is at least as great in this case as it was in those prior cases; indeed, the need here is greater because the issue in each of those prior cases affected only a subset of patents, while the issue here is relevant to all patents.

III. TWO NATIONAL STUDIES HAVE IDENTIFIED THE FEDERAL CIRCUIT'S PRECEDENTS ON OBVIOUSNESS AS BEING IN NEED OF REFORM.

The Federal Circuit's interpretation of § 103 is now the subject of increasing criticism in government, industry, and the academy. Within the past two years, national institutions have completed two comprehensive studies of the patent system. Both studies recommended a small number of specific reforms; both identified the obviousness doctrine as an area in need of reform. These studies provide additional confirmation of the importance of this issue.

In October 2003, the Federal Trade Commission (FTC) released a comprehensive study of the U.S. patent system. See Federal Trade Commission, *To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy* (Oct. 2003) ("FTC Report"). The FTC is one of the nation's chief enforcers of federal competition policy, and the FTC Report has its genesis in a series of hearings, undertaken jointly by the FTC and the U.S. Department of Justice, with the goal of "understand[ing] better the current relationship between competition and patent law and policy." FTC

Report, Executive Summary at 2. The FTC study further confirms the importance and ripeness of this Court's review of that controversial Federal Circuit-created "test".

The FTC recognized "the Federal Circuit's 'suggestion test' as a core issue in assessing nonobviousness and a focal point of current debate." FTC Report, Chap. 4, at 11. One key issue stressed in the FTC Report is a matter well presented in this case—the demanding standard of proof that the Federal Circuit applies to lower level fact finders. As the PTO's Deputy Commissioner for Examination Policy describes it, the Federal Circuit is "insisting that the PTO . . . 'connect the dots . . . very, very clearly.'" *Id*.

It is on this very point that the FTC recommended that the nonobviousness standard be reformed: "The Commission urges that in assessing obviousness, the analysis should ascribe to the person having ordinary skill in the art an ability to combine or modify prior art references that is consistent with the creativity and problem solving skills that in fact are characteristic of those having ordinary skill in the art." *Id*. at 15. This recommendation is consistent with the "practical test of patentability" mandated by this Court in *Graham*, but it is not the way that the Federal Circuit is applying § 103.

When the Report was issued, the Commission had hoped that the Federal Circuit might have been "mov[ing] away" from its previous "rigid application of the suggestion test." *Id*. at 14. But it was able to cite only "one very recent case" to support this optimistic view. Cases such this case—where the Federal Circuit overturned in an unpublished opinion the thoughtful and thorough opinion of a District Court with a demand that the lower court make more "specific findings" concerning suggestions in the prior art—demonstrate that the FTC was overly optimistic in expecting the Federal Circuit to reform its own jurisprudence. Rather, the Federal Circuit has continued to persist in "rigidly applying" its precedents to the point of "assum[ing] away . . . typical levels of creativity and insight" ordinarily found in the art. *Id*. As the FTC noted, such a test "supports

findings of nonobviousness even when only a modicum of additional insight is needed." *Id.*

In 2004, the National Research Council of the National Academies of Science and Engineering released a report calling for various reforms of the current patent system. *See* National Research Council, *A Patent System for the 21st Century* (2004) (available at http://www.nap.edu/html/patentsystem/0309089107.pdf). The report was produced by a committee of distinguished lawyers, economists, legal academics and corporate executives. The President of Yale University served as the Chair of the committee, and the report was funded by a broad cross-section of government agencies, foundations, and private corporations.[8] This distinguished committee "support[ed] seven steps to ensure the vitality and improve the functioning of the patent system." *Id*. at 5 (executive summary). The second recommendation was to "Reinvigorate the Non-Obviousness Standard." *Id*. at 6 (executive summary).

As detailed in that National Academies' Report, there is good reason for "concern[]" that recent court decisions have led to "some dilution of the non-obviousness standard." *Id*. at 59. The Report notes that "a number of legal scholars view the evolution of the law over the last generation as reducing the size of the step required for patentability under the non-obviousness standard and as allowing the issuance of patents on obvious inventions." *Id*. at 60 (citing the work over six scholars). The Report concludes that "there are reasons to be concerned about both the courts' interpretations of the substantive patent standards, particularly non-obviousness, and the USPTO's application of the standards in examination." *Id*.

The Report focused significant attention on the application of the nonobviousness standard to business method patents. In studying that area, the committee recognized one of the most important problems with the

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[8] The study was funded by the National Aeronautics and Space Administration, the U.S. Department of Commerce, the Andrew W. Mellon Foundation, the Center for the Public Domain, Pharmacia Corporation, Merck & Company, Procter & Gamble, and IBM.

Federal Circuit's insistence on evidentiary proof that the prior art contains a "teaching, suggestion or motivation" demonstrating that certain combinations are obvious: "[C]reative people generally speaking strive to publish *non*-obvious information. So if it is obvious to those of skill in the art to combine references, it is unlikely that they will publish such information." *Id.* at 90. Though the Report singled out business method patents as one area where the excessively lax nonobviousness doctrine was having particularly bad consequences, the Report recognized that the problem with nonobviousness doctrine was likely to be more general. Indeed, the Report noted that some of the "apparently obvious patents" it had examined from outside the business method field "may have been approved not carelessly but under the prevailing rule that references should not be combined for the purpose of proving non-obviousness unless the examiner can point to a specific piece of prior art that says the references should be combined." *Id*.

IV. THIS CASE IS A GOOD VEHICLE FOR RESOLVING THE QUESTION PRESENTED.

For a variety of reasons, this case presents a good opportunity for the Court to review the Federal Circuit's "teaching-suggestion-motivation test." First, there is no reason to wait for further percolation of the Circuit split. The Federal Circuit's "test" is now at least two decades old, *see Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297 (Fed. Cir. 1985) (reversing a district court's conclusion of obviousness because the court did not make findings to show that the prior art included "any factual teachings, suggestions or incentives . . . that showed the propriety of [patented] combination"), and the Federal Circuit has itself acknowledged the split between its precedents and those of at least one other circuit.

The "teaching-suggestion-motivation test" is so settled in the Federal Circuit that the court below did not even publish its decision vacating the District Court's judgment in this case. However, the decision not to publish should, if anything, be viewed as a reason to grant rather than to deny

certiorari, because non-publication confirms that the Federal Circuit precedents in this area are no longer in a formative and uncertain stage. In past cases, this Court has not hesitated to grant certiorari in cases with unpublished appellate opinions that have applied settled circuit law in conflict with the law of other circuits, *see, e.g., Spectrum Sports v. McQuillan*, 506 U.S. 447 (1993) (reviewing an unpublished court of appeals decision applying settled circuit law that was in conflict with the law of other circuits), or that have decided important issues of federal law, *see, e.g., Holmes Group, Inc. v. Vornado Air Circulation Sys., Inc.*, 535 U.S. 826 (2002) (reversing an unpublished opinion applying settled Federal Circuit law).

Second, the District Court issued a detailed published opinion holding that Claim 4 of the '565 patent was invalid under § 103 in view of undisputed prior art. 298 F. Supp. 2d 581; App. at 18a-49a. The District Court's opinion demonstrates that the challenge to this patent claim's validity is substantial.

Third, this case has a good factual setting for deciding these issues. Respondents' appeal involved one claim in one patent. The '565 patent involves familiar technology (gas pedals in automobiles) that can be readily understood. The subject matter of the action involves goods of importance to the nation (high volume GM vehicles). And there is no question but that the '565 patent is a "combination patent" within the meaning of this Court's precedents which the Federal Circuit has repudiated.

Fourth, the facts of this case well illustrate how, in practice, the Federal Circuit's "teaching-suggestion-motivation test" both (a) severely weakens § 103 as a substantive limitation on what can be claimed as a purported "invention", and (b) virtually precludes summary adjudication of whether claimed subject matter satisfies the § 103 condition for patentability in a given case, or not. The Federal Circuit "test" ignores that exogenous changes — i.e., economic, regulatory or technological changes not attributable to the work of the alleged inventor — can create new possibilities that can be exploited, or new

needs that can be satisfied, with technological trivial combinations of existing technology. *See, e.g.,* Robert P. Merges and John F. Duffy, *Patent Law and Policy* 655 (3rd ed. 2002) (noting that "[e]xogenous economic forces, rather than technical achievement," may explain the emergence of a new combination that may be quite valuable in the market even though technically trivial); William M. Landis and Richard A. Posner, *The Economic Structure of Intellectual Property Law* 304 (Harvard 2003) (explaining that "sometimes an idea is unknown not because it would be costly to discover but because it has no value" and that "[i]f an exogenous shock gives it value, it will be discovered more or less simultaneously by a number of those who can exploit it"); John F. Duffy, *Rethinking the Prospect Theory of Patents*, 71 U. Chi. L. Rev. 439 (2004) (noting that an unexpected development like the rise of internet commerce in the mid-1990's can create many opportunities for "new but obvious ideas that have suddenly come to have evident economic value" and that, if the nonobviousness requirement is not well enforced, society could face a flood of patents which will exact a heavy price for obvious ideas).

So here, an exogenous development — a switch by automobile manufacturers to electronic throttle controls in the mid-1990's — created a need to combine pre-existing accelerator pedals with a pre-existing pedal position sensors, with each component doing what it was designed to do. This Court's precedents, and the precedents of at least seven (7) regional Circuits (see note 6 *supra*), clearly preclude patent protection for such technically trivial combinations. But under the Federal Circuit "teaching-suggestion-motivation test", truly obvious responses to exogenous developments can very easily be characterized as "inventions", for the "prior art" may not anticipate the exogenous development in question or specific details of obvious responses to it.

Finally, throughout this litigation Petitioner has cited and relied on this Court's *Sakraida* and *Anderson's-Black Rock* decisions and the "test of validity of combination patents" that those and prior Supreme Court cases have applied. This

case therefore provides this Court with a clear opportunity to review these important issues without concern that new issues are being raised for the first time in a petition for certiorari. Such opportunities are likely to be increasingly rare because the Federal Circuit has expressed its displeasure with counsel who cite precedents that conflict with the Federal Circuit's re-interpretation of § 103(a).

For example, in *Allen Engineering*, the Federal Circuit upbraided counsel for even citing a Fifth Circuit case that followed this Court's *Sakraida* decision. Citing such authority was, according to the Federal Circuit, an example of "obfuscation, deflection and mischaracterization," 299 F.3d at 1357, and demonstrated that counsel "have sought to cloud rather than clarify the central legal issues and to draw the court's attention to peripheral matters." *Id.* at 1356. Since the Federal Circuit has exclusive appellate jurisdiction over the vast majority of patent appeals, such rebukes are likely to be effective in deterring counsel from preserving their legitimate challenges to the existing Federal Circuit precedents in this area.

CONCLUSION

For the reasons stated, the petition for a writ of certiorari should be granted.

Respectfully submitted,

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APPENDIX A — DECISION OF THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT DECIDED JANUARY 6, 2005

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

04-1152

TELEFLEX, INCORPORATED and
TECHNOLOGY HOLDING COMPANY,

Plaintiffs-Appellants,

v.

KSR INTERNATIONAL CO.,

Defendant-Appellee.

DECIDED: January 6, 2005

Before MAYER,* SCHALL, and PROST, *Circuit Judges.*

SCHALL, *Circuit Judge.*

DECISION

Teleflex Incorporated and Technology Holding Company (collectively, Teleflex") sued KSR International Co. ("KSR") in the United States District Court for the Eastern District of

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* Judge Haldane Robert Mayer vacated the position of Chief Judge on December 24, 2004.

Michigan for infringement of U.S. Patent No. 6,237,565 B1 ("the '565 patent"). On December 12, 2003, the district court granted summary judgment in favor of KSR, after determining that claim 4 of the '565 patent, the sole claim at issue, was invalid by reason of obviousness. *Teleflex Inc. v. KSR Int'l Co.,* 298 F. Supp. 2d 581 (E.D. Mich. 2003). Teleflex now appeals the district court's decision. For the reasons set forth below, we *vacate* the grant of summary judgment and *remand* the case to the district court for further proceedings.

DISCUSSION

I.

Claim 4 of the '565 patent relates to an adjustable pedal assembly[1] for use with automobiles having engines that are controlled electronically with a device known as an electronic throttle control. As such, the assembly of claim 4 incorporates an electronic pedal position sensor (referred to in claim 4, and throughout this opinion, as an "electronic control"). The electronic control is responsive to the pedal pivot and thereby generates an electrical signal corresponding to the relative position of the gas pedal between the rest and applied positions. Claim 4 specifically provides for an assembly wherein the electronic control is mounted to the support bracket of the assembly. This configuration avoids movement

1. An adjustable pedal assembly (e.g., gas, break, or clutch) allows the location of the pedal to be adjusted to accommodate a particular driver's height.

of the electronic control during adjustment of the pedal's position on the assembly. Claim 4 reads:

> A vehicle control pedal apparatus (12) comprising:
>
> a support (18) adapted to be mounted to a vehicle structure (20);
>
> an adjustable pedal assembly (22) having a pedal arm (14) moveable in force [sic] and aft directions with respect to said support (18);
>
> a pivot (24) for pivotally supporting said adjustable pedal assembly (22) with respect to said support (18) and defining a pivot axis (26); and
>
> an electronic control (28) attached to said support (18) for controlling a vehicle system;
>
> said apparatus (12) characterized by said electronic control (28) being responsive to said pivot (24) for providing a signal (32) that corresponds to pedal arm position as said pedal arm (14) pivots about said pivot axis (26) between rest and applied positions wherein the position of said pivot (24) remains constant while said pedal arm (14) moves in fore and aft directions with respect to said pivot (24).

The numbers in claim 4 correspond to the numbers in Figure 2 of the '565 patent.

Appendix A

The specification of the '565 patent indicates that prior-art pedal assemblies incorporating an electronic control suffered from being too bulky, complex, and expensive to manufacture. *See* '565 patent, col. 1, ll. 48-53. It was this problem that the '565 patent set out to address. *See id.* col. 2, ll. 2-5.

Teleflex sued KSR in the Eastern District of Michigan, alleging that KSR's adjustable pedal assembly infringed claim 4 of the '565 patent. KSR moved for summary judgment of invalidity of claim 4 based on obviousness under 35 U.S.C. § 103. The district court granted KSR's motion after determining that claim 4 was obvious in view of a combination of prior art references. Teleflex timely appealed the district court's decision. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

II.

This court reviews a district court's grant of summary judgment *de novo*. *Torpharm Inc. v. Ranbaxy Pharms., Inc.,* 336 F.3d 1322, 1326 (Fed. Cir. 2003). "In a patent case, as in any other, summary judgment may be granted when there are no disputed issues of material fact, . . . or when the non-movant cannot prevail on the evidence submitted when viewed in a light most favorable to it." *Knoll Pharm. Co. v. Teva Pharms. USA, Inc.,* 367 F.3d 1381, 1383 (Fed. Cir. 2004). The movant carries the initial burden of proving that there are no genuine issues of material fact. *Celotex Corp. v. Catrett,* 477 U.S. 317, 322-24, 106 S.Ct. 2548, 91 L.Ed.2d 265 (1986). If the movant shows a *prima facie* case for summary judgment, then the burden of production shifts to

the nonmovant to present specific evidence indicating there is a genuine issue for trial. *Anderson v. Liberty Lobby, Inc.,* 477 U.S. 242, 250, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986). "When ruling on a motion for summary judgment, all of the nonmovant's evidence is to be credited, and all justifiable inferences are to be drawn in the nonmovant's favor." *Caterpillar Inc. v. Deere & Co.,* 224 F.3d 1374, 1379 (Fed.Cir.2000). "Where the evidence is conflicting or credibility determinations are required, the judgment should be vacated rather than reversed, and the case should be remanded for further proceedings." *Jones v. Hardy,* 727 F.2d 1524, 1531 (Fed. Cir. 1984).

"The grant of summary judgment of invalidity for obviousness must be done on a claim by claim basis." *Knoll Pharm.,* 367 F.3d at 1383. Because patents are presumed valid, "[t]he accused infringer must prove by clear and convincing evidence that each claim that is challenged cannot reasonably be held to be non-obvious." *Id.*; *see also Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH,* 139 F.3d 877, 881 (Fed. Cir. 1998). Clear and convincing evidence exists when the movant "place[s] in the mind of the ultimate fact finder an abiding conviction that the truth of its factual contentions are 'highly probable.' " *Colorado v. New Mexico,* 467 U.S. 310, 316, 104 S.Ct. 2433, 81 L.Ed.2d 247 (1994).

A patent claim is obvious, and thus invalid, when the differences between the claimed invention and the prior art "are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. § 103; *see also Graham v. John Deere Co.,* 383 U.S. 1, 14, 86 S.Ct. 684, 15 L.Ed.2d

545 (1966); *In re Dembiczak,* 175 F.3d 994, 998 (Fed. Cir. 1999). While obviousness is ultimately a legal determination, it is based on several underlying issues of fact, namely: (1) the scope and content of the prior art; (2) the level of skill of a person of ordinary skill in the art; (3) the differences between the claimed invention and the teachings of the prior art; and (4) the extent of any objective indicia of non-obviousness. *See Graham,* 383 U.S. at 17-18. When obviousness is based on the teachings of multiple prior art references, the movant must also establish some "suggestion, teaching, or motivation" that would have led a person of ordinary skill in the art to combine the relevant prior art teachings in the manner claimed. *See Tec Air, Inc. v. Denso Mfg. Mich. Inc.,* 192 F.3d 1353, 1359-60 (Fed. Cir. 1999); *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.,* 75 F.3d 1568, 1572 (Fed. Cir. 1996). The nonmovant may rebut a *prima facie* showing of obviousness with evidence refuting the movant's case or with other objective evidence of nonobviousness. *See WMS Gaming, Inc. v. Int'l Game Tech.,* 184 F.3d 1339, 1359 (Fed. Cir. 1999).

"The reason, suggestion, or motivation to combine [prior art references] may be found explicitly or implicitly: 1) in the prior art references themselves; 2) in the knowledge of those of ordinary skill in the art that certain references, or disclosures in those references, are of special interest or importance in the field; or 3) from the nature of the problem to be solved, 'leading inventors to look to references relating to possible solutions to that problem.' " *Ruiz v. A.B. Chance Co.,* 234 F.3d 654, 665 (Fed.Cir.2000) (quoting *Pro-Mold,* 75 F.3d at 1572). "Our case law makes clear that the best defense against the subtle but powerful attraction of a

hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references." *Dembiczak,* 175 F.3d at 999; *see also Ruiz,* 234 F.3d at 665 (explaining that the temptation to engage in impermissible hindsight is especially strong with seemingly simple mechanical inventions). This is because "[c]ombining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight." *Dembiczak,* 175 F.3d at 999. Therefore, we have consistently held that a person of ordinary skill in the art must not only have had some motivation to combine the prior art teachings, but some motivation to combine the prior art teachings in the particular manner claimed. *See, e.g., In re Kotzab,* 217 F.3d 1365, 1371 (Fed.Cir.2000) ("Particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination *in the manner claimed."* (emphasis added)); *In re Rouffet,* 149 F.3d 1350, 1357 (Fed. Cir. 1998) ("In other words, the examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination *in the manner claimed."* (emphasis added)).

III.

On appeal, Teleflex argues that we should vacate the district court's grant of summary judgment and remand the case because the district court committed multiple errors in

its obviousness determination. First, Teleflex urges that the district court erred as a matter of law by combining prior art references based on an incorrect teaching-suggestion-motivation test. Second, it contends that genuine issues of material fact still remain as to whether a person of ordinary skill in the art would have considered it obvious to combine prior art in the manner stated in claim 4. Finally, Teleflex argues that the district court erred by not properly considering the commercial success of Teleflex's patented assembly and by failing to give adequate deference to the patentability determination of the U.S. Patent and Trademark Office ("PTO").

KSR responds that the district court did apply the correct teaching-suggestion-motivation test, and that, under that test, the court correctly concluded that no genuine issues of material fact existed so as to prevent the grant of summary judgment. KSR contends that the district court properly discounted the declarations of Teleflex's experts because their opinions were based on mere legal conclusions. KSR also contends that the district court properly dismissed Teleflex's evidence of commercial success because Teleflex failed to establish a nexus between commercial success and the claimed invention. Finally, KSR argues that the district court gave proper deference to the PTO.

We agree with Teleflex that the district court did not apply the correct teaching-suggestion-motivation test. We also agree that, under that test, genuine issues of material fact exist, so as to render summary judgment of obviousness improper. For these reasons, we vacate the decision of the district court and remand for further proceedings consistent with this opinion.

IV.

After comparing the teachings of the prior art with claim 4 of the '565 patent, the district court concluded that, at the time of the invention, all of the limitations of claim 4 existed in the prior art. The court explained that U.S. Patent No. 5,010,782, issued to Asano et al. ("the Asano patent"), disclosed all of the structural limitations of claim 4 with the exception of the electronic control. *Teleflex,* 298 F. Supp. 2d at 592 ("Asano teaches an adjustable pedal assembly pivotally mounted on a support bracket with the pedal moving in a fore and aft directions with respect to the support and the pivot remaining in a constant position during movement of the pedal arm."). Electronic controls were well known in the prior art. *Id.* Consequently, after finding a person of ordinary skill in the art would have been motivated to combine Asano and electronic control references, the district court granted KSR's motion for summary judgment of invalidity by reason of obviousness.

The district court based its finding of a suggestion or motivation to combine largely on the nature of the problem to be solved by claim 4 of the '565 patent. *Id.* at 593-94. The court determined from the patent's specification that the invention of the '565 patent was intended to "solve the problem of designing a less expensive, less complex and more compact [assembly] design." *Id.* at 593. The court then explained that U.S. Patent No. 5,819,593, issued to Rixon et al. ("the Rixon '593 patent''),[2] also "suffered from being too

2. As explained by the district court, the Rixon '593 patent teaches the combination of an electronic control with an adjustable (Cont'd)

complex because the pedal position sensor is located in the pedal housing and its fore and aft movement with the adjustment of the pedal could cause problems with wire failure. Thus, the solution to the problem required an electronic control that does not move with the pedal arm while the pedal arm is being adjusted by the driver." *Id.* at 594. The court then concluded that "a person with ordinary skill in the art with full knowledge of Asano and the modular pedal position sensors would be motivated to combine the two references to avoid the problems with Rixon '593." *Id.*

The district court also found an express teaching to attach the electronic control to the support bracket of a pedal assembly based on the disclosure of U.S. Patent No. 5,063,811, issued to Smith et al. ("the Smith patent"). The court explained that Smith teaches the use of a "rotary potentiometer . . . attached to a fixed support member and responsive to the pedal's pivot shaft." *Id.* Moreover, the court stated that Smith provided express teachings as to the desirability of attaching the electronic control to a fixed support member in order to avoid the wire failure problems disclosed in the Rixon '593 patent and solved by the '565 patent: "[T]he wiring to the electrical components must be secure from the possibility of chafing which will eventually

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(Cont'd)

pedal assembly. The Rixon '593 patent and claim 4 differ, however, in that the electronic control of Rixon is attached to the pedal housing instead of the support bracket. *See Teleflex,* 298 F.Supp.2d at 594. The electronic control of the Rixon reference consequently moves during adjustment of the pedal assembly. *Id.* The electronic control of claim 4 does not move during adjustment of the pedal assembly.

result in electrical failure. Thus, the pedal assemblies must not precipitate any motion in the connecting wires themselves. . . ." *Id.* (quoting the Smith patent, col. 1, ll. 33-38).

Finally, the district court explained that the prosecution history of the '565 patent bolstered its finding of a suggestion or motivation to combine the Asano and electronic control references. The court explained that the patent examiner initially rejected the '565 patent in view of the teachings of U.S. Patent No. 5,460,061, issued to Redding et al. ("the Redding patent"), and the Smith patent. The examiner stated that the Redding patent disclosed the assembly structure of claim 4 and that Smith disclosed the electronic control attached to the assembly support structure. The patentee overcame the rejection, the court explained, by adding the limitation requiring the position of the assembly's pedal pivot to remain constant during adjustment of the assembly. (The position of the pedal pivot of the Redding patent does not remain constant during adjustment of the assembly position.) However, the Asano patent discloses an assembly where the position of the pivot remains constant during adjustment of the pedal assembly. Therefore, the district court reasoned, had Asano been cited to the patent examiner, the examiner would have rejected claim 4 as obvious in view of the Asano and Smith patents. *Id.* at 595.

We agree with Teleflex that the district court's analysis applied an incomplete teaching-suggestion-motivation test in granting KSR summary judgment. This is because the district court invalidated claim 4 of the '565 patent on obviousness grounds without making "finding[s] as to the

specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of [the] invention to make the combination in the manner claimed." *Kotzab,* 217 F.3d at 1371. Under our case law, whether based on the nature of the problem to be solved, the express teachings of the prior art, or the knowledge of one of ordinary skill in the art, the district court was required to make specific findings as to whether there was a suggestion or motivation to combine the teachings of Asano with an electronic control in the particular manner claimed by claim 4 of the '565 patent. *See Kotzab,* 217 F.3d at 1371; *Rouffet,* 149 F.3d at 1357. That is, the district court was required to make specific findings as to a suggestion or motivation to attach an electronic control to the support bracket of the Asano assembly.

The district court correctly noted that the nature of the problem to be solved may, under appropriate circumstances, provide a suggestion or motivation to combine prior art references. However, the test requires that the nature of the problem to be solved be such that it would have led a person of ordinary skill in the art to combine the prior art teachings in the particular manner claimed. *See Rouffet,* 149 F.3d at 1357. We have recognized this situation when two prior art references address the precise problem that the patentee was trying to solve. *See Ruiz,* 357 F.3d at 1276 ("This record shows that the district court did not use hindsight in its obviousness analysis, but properly found a motivation to combine because the two references address precisely the same problem of underpinning existing structural foundations."). In this case, the Asano patent does not address the same problem as the '565 patent. The objective of the

'565 patent was to design a smaller, less complex, and less expensive electronic pedal assembly. The Asano patent, on the other hand, was directed at solving the "constant ratio problem."[3] The district court's reliance on the problems associated with the Rixon '593 patent similarly fails to provide a sufficient motivation to combine. This is because the Rixon '593 patent does not address the problem to be solved by the '595 patent; rather, it suffers from the problem. The court did not explain how suffering from the problem addressed by the '595 patent would have specifically motivated one skilled in the art to attach an electronic control to the support bracket of the Asano assembly.

Neither do we agree with the district court's reliance on the express teachings of the Smith patent. This is because the statement in the Smith patent that "the pedal assemblies must not precipitate any motion in the connecting wires," does not necessarily go to the issue of motivation to attach the electronic control on the support bracket of the pedal assembly. In other words, solving the problem of wire chafing is a different task than reducing the complexity and size of pedal assemblies. What is more, the Smith patent does not relate to adjustable pedal assemblies; therefore, it does not address the problem of wire chafing in an adjustable pedal assembly.

Our view of the case is not altered by the '565 patent's prosecution history. That is because a court's task is not to

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3. The constant ratio problem refers to the problem of creating an assembly where the force required to depress the pedal remains constant irrespective of the position of the pedal on the assembly. *See* Asano patent, col. 1, l. 48-col. 2, l. 13.

speculate as to what an examiner might have done if confronted with a piece of prior art. Rather, a court must make an independent obviousness determination, taking into account the statutory presumption of patent validity. *See Torpharm,* 336 F.3d at 1329-30 ("[W]here the factual bases of an examiner's decision to allow a claim have been undermined—as in other cases where prior art not before the examiner is brought to light during litigation—a court's responsibility is not to speculate what a particular examiner would or would not have done in light of the new information, but rather to assess independently the validity of the claim against the prior art under section 102 or section 103. Such determination must take into account the statutory presumption of patent validity.").[4]

We also agree with Teleflex that the presence of genuine issues of material fact rendered summary judgment inappropriate. KSR, in the first instance, failed to make out a *prima facie* case of obviousness. The only declaration offered by KSR—a declaration by its Vice President of Design Engineering, Larry Willemsen—did not go to the ultimate issue of motivation to combine prior art, i.e. whether one of ordinary skill in the art would have been motivated to attach an electronic control to the support bracket of the assembly disclosed by Asano. Mr. Willemsen did state that

4. Noting Teleflex's argument that the district court did not give adequate deference to the PTO, we do not discern anything in the record indicating the district court failed to properly defer to the PTO. Nevertheless, we reiterate that, on remand, the district court must independently assess the evidence and determine whether KSR has provided clear and convincing evidence indicating invalidity of claim 4 by reason of obviousness.

an electronic control "could have been" mounted on the support bracket of a pedal assembly. (Willemsen Decl. at ¶ 33, 36, 39.) Such testimony is not sufficient to support a finding of obviousness, however. *See, e.g., In re Deuel,* 51 F.3d 1552, 1559 (Fed. Cir. 1995) (" 'Obvious to try' has long been held not to constitute obviousness."). Mr. Willemsen also provided the following as a "specific motivation to combine" an electronic control with an adjustable pedal assembly:

> [A]n increasing number of vehicles sold in the United States came equipped with electronic throttle control systems because such systems offered various operational advantages over cable-actuated throttle control systems. . . . In order to function in a vehicle whose engine incorporated an electronic throttle control, the adjustable pedal assembly . . . would have had to be coupled to an electronic pedal position sensor.

(Willemsen Decl. at ¶ 34, 37, 39.) This statement may be factually correct. However, the issue is not whether a person of skill in the art had a motivation to combine the electronic control with an adjustable pedal assembly, but whether a person skilled in the art had a motivation to attach the electronic control to the support bracket of the pedal assembly.

In addition, Teleflex offered two declarants—Clark J. Radcliffe, Professor of Mechanical Engineering at Michigan State University; and Timothy L. Andresen, a former engineer at Ford Motor Company and McDonnel-Douglas

Corporation—in rebuttal of the declaration of Mr. Willemsen. Mr. Radcliffe stated, *inter alia,* that "[t]he location of the electronic control" (Radcliffe Decl. at ¶ 15) in claim 4 "was a simple, elegant, and novel combination of features," (Radcliffe Decl. at ¶ 16) as opposed to the Rixon '593 patent's attachment of the electronic control to the assembly housing, which was both electrically and mechanically complex (Radcliffe Decl. at ¶ 17). Mr. Andresen also stated that the non-obviousness of claim 4 was reflected in Rixon's choice to mount the electronic control to the assembly housing instead of the assembly's support bracket. (Andresen Decl. at ¶ 5.) At the summary judgment stage of a proceeding, it is improper for a district court to make credibility determinations. *See, e.g., Jones,* 727 F.2d at 1531. Therefore, by crediting KSR's expert declarant and discrediting the two declarants offered by Teleflex, the district court erred as a matter of law.

V.

In sum,

(1) We hold that, in granting summary judgment in favor of KSR, the district court erred as a matter of law by applying an incomplete teaching-suggestion-motivation test to its obviousness determination. The correct standard requires a court to make specific findings showing a teaching, suggestion, or motivation to combine prior art teachings in the particular manner claimed by the patent at issue.

(2) Under this standard, we hold that genuine issues of material fact exist as to whether a person of ordinary skill in

the art would have been motivated, at the time the invention was made, to attach an electronic control to the support structure of the pedal assembly disclosed by the Asano patent.

(3) We consequently *vacate* the decision of the district court and *remand* the case for further proceedings on the issue of obviousness, and, if necessary, proceedings on the issues of infringement and damages.

Each party shall bear its own costs.

APPENDIX B — OPINION AND ORDER OF THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF MICHIGAN FILED DECEMBER 12, 2003

CASE NO. 02-74586
HON. LAWRENCE P. ZATKOFF

TELEFLEX INCORPORATED, and
TECHNOLOGY HOLDING COMPANY,

Plaintiffs,

v.

KSR INTERNATIONAL CO.,

Defendant.

OPINION AND ORDER

AT A SESSION of said Court, held in the United States Courthouse, in the City of Detroit, State of Michigan, on December 12, 2003.

PRESENT: THE HONORABLE LAWRENCE P. ZATKOFF
CHIEF UNITED STATES DISTRICT JUDGE

I. INTRODUCTION

This matter is before the Court on Plaintiffs' *Ex Parte* Motion for Oral Argument, Plaintiffs' Motion for Summary Judgment of Infringement and Defendant's Motion for Summary Judgment of Invalidity. All motions have been fully

briefed by the parties. The Court finds that the parties have adequately set forth the relevant law and facts, and that oral argument would not aid in the disposition of the instant motion. *See* E.D. MICH. L.R. 7.1(e)(2). Accordingly, Plaintiffs' motion for oral argument is DENIED and the Court ORDERS that the motions be decided on the briefs submitted. For the reasons stated below, Defendant's Motion for Summary Judgment of Invalidity is GRANTED and Plaintiffs' Motion for Summary Judgment of Infringement is DENIED as moot.

II. BACKGROUND

Plaintiffs filed a three-count Complaint on November 18, 2002, alleging the following:

Count I	Infringement of United States Patent No. 6,237,565 (hereinafter "'565" or the "Engelgau patent");
Count II	Infringement of United States Patent No. 6,305,239 (hereinafter "'239"); and
Count III	Infringement of United States Patent No. 6,374,695 (hereinafter "'695").

See Complaint. On August 11, 2003, however, the Court ordered, with stipulation, dismissal of Count II and Count III. Thus, the only remaining infringement claim relates to the '565 patent, (Count I). The '565 patent describes and claims a position-adjustable vehicle pedal assembly that allows the driver of a vehicle to adjust the pedal assembly to achieve greater driving comfort. The pedal assembly

incorporates an electronic pedal position sensor for use in vehicles sold with electronically controlled engine and braking systems that require the use of an electronic sensor. Plaintiffs contend that two of Defendant's adjustable pedal assemblies infringe on claim 4 of the '565 patent.

A. Facts and Procedural History

Plaintiff Teleflex Incorporated (hereinafter "Teleflex") is a Delaware corporation and a manufacturer and supplier of adjustable pedal systems that the automotive industry uses in automobile platforms. Plaintiff Technology Holding Corporation (hereinafter "THC") is a Delaware subsidiary of Plaintiff Teleflex and is the current assignee of the '239, '695, and '565 patents. Defendant KSR International Company (hereinafter "KSR") is a Canadian company and a manufacturer and supplier of automotive components, including adjustable pedal systems, to the automotive industry. Plaintiff Teleflex and Defendant KSR are direct competitors.

This action involves position-adjustable vehicle pedal assemblies, comprising of gas and brake pedals, that a motor vehicle driver uses to actuate the motor vehicle's fuel and brake systems. The pedal assembly may also include a clutch pedal if the vehicle is equipped with a manual transmission. Defendant has offered evidence that adjustable pedal assemblies have been produced since the 1970's. It is undisputed that earlier adjustable pedal assemblies were designed to work in vehicles using cable-actuated throttle controls. In vehicles using cable-actuated throttle controls, depression of the vehicle's gas pedal causes a cable to actuate a carburetor or fuel injection unit, thereby increasing the

amount of fuel and air entering the engine. It is also undisputed that in the mid-1990's, however, increasing numbers of vehicles sold in the United States were manufactured with computer controlled engines requiring the use of "electronic throttle controls" (hereinafter "ETC's"), instead of cable-actuated throttle controls. Unlike a cable-actuated throttle control, ETC's require the use of an electronic sensor to read the position of the gas pedal and vary the engine speed based on the position of the gas pedal. According to Defendant, ETC's allow improved traction control, simplified cruise controls, and greater use of on-board computer systems to improve fuel efficiency and reduce emissions.[1]

Defendant alleges that in mid-1998, it was chosen by Ford to supply adjustable pedal systems for the Ford Crown Victoria, Mercury Grand Marquis, and Lincoln Town Car lines, commencing with the 2001 model year. According to Defendant, the Ford engines installed in these vehicles use cable-actuated throttle controls and, accordingly, the adjustable pedal assemblies supplied by Defendant included cable-attachment arms. Defendant alleges that it was awarded U.S. Patent No. 6,151,986 for the design of the adjustable pedal systems supplied to Ford commencing with the 2001 model year. It has not been alleged that this design infringes on any of Plaintiffs' patents.

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1. Defendant alleges that ETC's require the use of an electronic sensor to communicate pedal input to the ETC in order to vary engine speed. Defendant refers to that electronic sensor as a "potentiometer" or "pedal position sensor." Plaintiff refers to the sensor as an "electronic control." To avoid any confusion, the Court will refer to the electronic sensor as a "pedal position sensor."

Appendix B

Defendant further alleges that in mid-2000, it was chosen by General Motors to supply adjustable pedal assemblies for the Chevrolet and GMC light truck lines, commencing with the 2003 model year. Unlike the cable-actuated Ford engines, the General Motors engines installed in the 2003 light truck lines require the use of an ETC. Defendant alleges that to be compatible with the General Motors engines, it supplied its adjustable pedal assemblies with an off-the-shelf pedal position sensor that had previously been used in 1994 and later Chevrolet and GMC pick-up trucks with optional diesel engines. Defendant alleges that it has patents pending for this design. Plaintiffs allege that this design, i.e., an adjustable pedal assembly incorporating an electronic pedal position sensor, infringes on their adjustable pedal assembly patents. By letter dated March 28, 2001, Plaintiff Teleflex stated the following to Defendant:

> We understand that you have made several proposals to General Motors Corporation based on an adjustable pedal product in combination with an electronic throttle control .... Teleflex believes that any supplier of a product that combines an adjustable pedal with an electronic throttle control necessarily employs technology covered by one or more of the above Teleflex patents and applications.

Willemsen Dec., at Ex. 2. After failing to persuade Defendant enter into a "royalty arrangement," Plaintiff Teleflex filed the present patent infringement action on November 18, 2002.

Appendix B

Before filing its Complaint on November 18, 2002, however, Plaintiff Teleflex assigned the '239, '695' and '565 patents to Plaintiff THC, a subsidiary corporation. On April 2, 2003, Defendant moved to dismiss the action for lack of subject matter jurisdiction because at that point, Plaintiff THC was not a party to the case. Defendant argued that Plaintiff Teleflex lacked standing to sue for infringement because the patents had been assigned to Plaintiff THC. The Court denied Defendant's motion as to the '565 patent finding that an exclusive license granted to Plaintiff Teleflex by Plaintiff THC afforded Plaintiff Teleflex sufficient rights in the patent to satisfy the standing requirement, notwithstanding the absence of Plaintiff THC from the action. Plaintiff Teleflex did not, however, attach sufficient documentation to prove that it had been granted an exclusive license for the '239 and '695 patents and the Court ordered the parties to show cause as to whether such exclusive licenses had been granted to Plaintiff. Instead of responding to the order to show cause, the parties stipulated to the dismissal of the '239 and '695 patents, Plaintiffs dedicating both patents to the public under 35 U.S.C. § 253. Thus, the only remaining patent-in-suit is the '565 patent, invented by Steven Englegau on February 14, 1998. The parties also stipulated to the joinder of Plaintiff THC on September 26, 2003, and Plaintiff THC has agreed to be bound by all of the papers filed by Plaintiff Teleflex in this action.

Plaintiffs allege that two of Defendant KSR's adjustable pedal systems being produced for the General Motors GMT-800 and GMT-360 vehicle platforms literally infringe on each requirement of claim 4 of the '565 patent. Defendant argues that its adjustable pedal assemblies do not infringe on the

'565 patent. Moreover, according to Defendant, the '565 patent is invalid because it would have been obvious to someone with ordinary skill in the art of designing pedal systems to combine an adjustable pedal system with an electronic pedal position sensor to work with electronically controlled engines increasingly being used in motor vehicles. The Court finds Defendant's invalidity argument persuasive and because it disposes of the case only Defendant's Motion for Summary Judgment of Invalidity will be addressed.

III. LEGAL STANDARD

Summary judgment is appropriate only if the answers to interrogatories, depositions, admissions, and pleadings combined with the affidavits in support show that no genuine issue as to any material fact remains and the moving party is entitled to a judgment as a matter of law. *See* Fed. R. Civ. P. 56(c). A genuine issue of material fact exists when there is "sufficient evidence favoring the non-moving party for a jury to return a verdict for that party." *Anderson v. Liberty Lobby, Inc.,* 477 U.S. 242, 249 (citations omitted). In application of this summary judgment standard, the Court must view all materials supplied, including all pleadings, in the light most favorable to the non-moving party. *See Matsushita Elec. Indus. Co., Ltd. v. Zenith Radio Corp.,* 475 U.S. 574, 587 (1986). "If the evidence is merely colorable or is not significantly probative, summary judgment may be granted." *Anderson,* 477 U.S. at 249-50, (citations omitted).

The moving party bears the initial responsibility of informing the Court of the basis for its motion and identifying those portions of the record that establish the absence of a

genuine issue of material fact. *See Celotex Corp. v. Catrett,* 477 U.S. 317, 323 (1986). Once the moving party has met its burden, the nonmoving party must go beyond the pleadings and come forward with specific facts to demonstrate that there is a genuine issue for trial. *See* Fed. R. Civ. P. 56(e); *Celotex,* 477 U.S. at 324. The non-moving party must do more than show that there is some abstract doubt as to the material facts. It must present significant probative evidence in support of its opposition to the motion for summary judgment in order to defeat the motion for summary judgment. *See Moore v. Philip Morris Companies,* 8 F.3d 335, 339-40 (6th Cir.1993).

IV. ANALYSIS

A. Claim 4 of the '565 Patent

The invention disclosed in the '565 patent is described in the patent's specification as a "simplified vehicle control pedal assembly that is less expensive, and which uses fewer parts and is easier to package within the vehicle." *See* '565 patent, col. 2, lines 2-4, attached to Plaintiffs' Response Brief, at Ex. J. Although the specification is useful for interpretation of claims, it is the claims that actually measure the invention. *See W.L. Gore & Assoc., Inc. v. Garlock, Inc.,* 721 F.2d 1540, 1548 (Fed.Cir.1983) (citations omitted). Claim 4 of the '565 patent broadly claims the following:

> A vehicle control pedal apparatus (12) comprising:
>
> a support (18) adapted to be mounted to a vehicle structure (20);

> an adjustable pedal assembly (22) having a pedal arm (14) moveable in force [sic] and aft directions with respect to said support (19);
>
> a pivot (24) for pivotally supporting said adjustable pedal assembly (22) with respect to said support (18) and defining a pivot axis (26); and
>
> an electronic control (2) attached to said support (18) for controlling a vehicle system;
>
> said apparatus (12) characterized by said electronic control (28) being responsive to said pivot (24) for providing signal (32) that corresponds to pedal arm position as said pedal arm (14) pivots about said pivot axis (26) between rest and applied positions wherein the position of said pivot (24) remains constant while said pedal arm (14) moves in fore and aft directions with respect to said pivot (24).

'565 patent, col. 6, lines 17-36.

According to the above-quoted language, claim 4 of the '565 patent describes a position-adjustable pedal assembly with an electronic pedal position sensor attached to the support member of the pedal assembly. Attaching the sensor to the support member allows the sensor to remain in a fixed position while the driver adjusts the pedal. Plaintiffs allege that this feature results in a pedal assembly that is less expensive, less complex, and more compact than its predecessors. Defendant, however, argues that claim 4 is

drafted so broadly as to render the "invention" an obvious combination of an adjustable pedal assembly and pedal position sensor already well known in the art.

B. Obviousness

A patent is presumed valid. *See* 35 U.S.C. § 282. Therefore, a party challenging the validity of a patent bears the burden of proving facts that establish invalidity by clear and convincing evidence. *See Moba, B.V. v. Diamond Automation, Inc.,* 325 F.3d 1306, 1319 (Fed.Cir.2003). Under 35 U.S.C. § 103, prior art invalidates a patent for obviousness when the "subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains." 35 U.S.C. § 103(a). An obviousness inquiry under section 103 ultimately presents a question of law based on several underlying factual inquiries including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the prior art and the claimed invention; and (4) the extent of any objective indicia of non-obviousness. *See Graham v. John Deere Co.,* 383 U.S. 1, 17-18 (1966); *Winner Int'l Royalty Corp. v. Wang,* 202 F.3d 1340, 1348 (Fed.Cir.2000). Moreover, the central inquiry under section 103 is "whether the combined teachings of the prior art, taken as a whole, would have rendered the claimed invention obvious to one of ordinary skill in the art." *In re Napier,* 55 F.3d 610, 613 (1995). Defendant argues that claim 4 is invalid for obviousness in light of the relevant prior art at the time of the invention. Plaintiffs argue that genuine issues of material fact exist that preclude summary judgment on the issue of obviousness.

Appendix B

1. The Scope and Content of the Prior Art

Under the first element of the *Graham* test for obviousness, the Court must determine the scope and content of the prior art. The scope of prior art is only that art which is analogous. *See In re Clay,* 966 F.2d 656, 658-59 (Fed.Cir.1992). Analogous art is art that is not "too remote to be treated as prior art." *In re Clay,* 966 F.2d at 657. In addition, a prior art reference is analogous if it is from the same " 'field of endeavor,' even if it addresses a different problem, or, if not within the same field, if the reference is 'reasonably pertinent' to the particular problem with which the inventor is involved." *In re Conte,* 36 Fed. Appx. 446, 450, 2002 WL 1216965, *4 (Fed.Cir.2002) (citing *In re Clay,* 966 F.2d at 658-59). The determination of relevant prior art is a question of fact. *In re Clay,* 966 F.2d at 658.

Relevant prior art is further defined by 35 U.S.C. §§ 102(a) and (b), which limit the time frame within which prior art can be found. Sections 102(a) and (b) provide:

> A person shall be entitled to a patent unless -
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States.

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According to interrogatory answers served by Plaintiff Teleflex, the inventions claimed in the '565 patent were made on February 14, 1998. Under section 102(a), the prior art of the '565 patent includes any analogous patents or printed publications issued prior to February 14, 1998. Furthermore, the '565 patent issued from a "continuation" application that claimed priority to a "parent" application filed January 26, 1999. Thus, under section 102(b), the prior art of the '565 patent also includes any analogous products that were in public use or on sale in the United States on or before January 26, 1998, a year prior to the application date of the '565 patent. It is undisputed that the prior art alleged by Defendant conform to the time limitations of 35 U.S.C. §§ 102(a) and (b).

In fact, Plaintiffs' only dispute the relevance of one prior art reference asserted by Defendant, U.S. Patent No. 5,010,782 (hereinafter "Asano"). Like the patent-in-suit, Asano discloses a position adjustable pedal assembly. The pedal assembly is pivotally mounted on a support which is connected to the vehicle. A pedal arm moves forward and backward along a guide member by way of a screw drive mechanism. The position of the support pivot remains in a constant position while the pedal arm moves forward and backward along the guide member. Depression of the foot pedal causes the pedal assembly to pivot and actuate a cable operated throttle control. Plaintiffs argue that because Asano depicts a complex pedal assembly design, an inventor presented with Engelgau's problem of how to design a less complex and less expensive adjustable pedal assembly "would shun Asano." *See* Plaintiff Teleflex's Response Brief, at 20. Defendant responds by arguing that none of the features

that allegedly make the '565 patent less complex or less expensive are claimed in claim 4 of the invention. Therefore, according to Defendant, the alleged features that make the patent-in-suit less complex or less expensive are legally irrelevant.

Each party asserts that relevant art is defined by the nature of the problem confronting the would-be inventor. *See Ryko Mfg. Co. v. Nu-Star, Inc.,* 950 F.2d 714, 716 (Fed.Cir.1991); *Stratoflex, Inc. v. Aeroquip Corp.,* 713 F.2d 1530, 1535 (Fed.Cir.1983). Determining relevant prior art, however, involves determining the scope of the inventor's "field of endeavor" before turning to the question of the nature of the problem confronting the inventor. As the Federal Circuit explained in *In re Wood:*

> The determination that a reference is from a nonanalogous art is ... two-fold. First, we decide if the reference is within the field of the inventor's endeavor. If it is not, we proceed to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved.

In re Wood, 599 F.2d 1032, 1036 (Cust. & Pat.App.1979). Thus, an inquiry into the problem facing the inventor only arises if the alleged prior art is not within the inventor's same field of endeavor. Furthermore, if the alleged prior art exists in the inventor's field of endeavor, it constitutes relevant prior art "regardless of the problem addressed." *In re Clay,* 966 F.2d at 658-59.

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The Court finds that Asano is within Engelgau's field of endeavor. Engelgau's field of endeavor is the position-adjustable pedal assembly area of the automotive component industry. Engelgau admits in his affidavit that before designing the '565 patent he "was generally aware of the various designs in the fields of fixed and adjustable pedal assemblies as well as electronic controls." Plaintiff's Response Brief, at Ex. A. Furthermore, references in the first paragraph of the background section of the patent-in-suit to position-adjustable pedal assemblies in general, apart from their use with electronic pedal position sensors or electronic throttle controls, supports a finding that cable-actuated position-adjustable pedal assemblies such as Asano are within Engelgau's field of endeavor. *See In re Wood,* 599 F.2d at 1036 (finding that reference in the patent's specification to a field of art encompassing the alleged prior art supported a finding that the alleged prior art was within the inventor's field of endeavor.) Accordingly, the Court finds Asano to be analogous prior art to the '565 patent.

Other than Asano, Plaintiffs have not disputed that the prior art cited by Defendant is analogous. The Court finds the following to be analogous prior art and sufficient to establish obviousness by clear and convincing evidence:

1. U.S. Patent No. 5,010,782 filed July 28, 1989 (hereinafter "Asano");

2. U.S. Patent No. 5,998,892 filed September 4, 1996 (hereinafter " '892");

3. U.S. Patent No. 5,408,899 filed June 13, 1993 (hereinafter " '899");

4. U.S. Patent No. 5,241,936 filed September 9, 1991 (hereinafter " '936");

5. U.S. Patent No. 5,460,061 filed September 17, 1993 (hereinafter "Redding");

6. U.S. Patent No. 5,063,811 filed July 9, 1990 (hereinafter "Smith");

7. Various modular self-contained pedal position sensors, including U.S. Patent No. 5,385,068 filed December 18, 1992 (hereinafter " '068") and the "503 Series" pedal position sensor manufactured by CTS Corporation; and

8. A non-position adjustable pedal assembly installed in certain 1994 Chevrolet pick-up trucks comprising of a CTS 503 Series pedal position sensor attached to the pedal assembly support bracket, adjacent to the pedal and engaged with the pivot shaft about which the pedal rotates in operation.

The Court will briefly describe each of the above prior art.

a. The Asano patent

As the Court previously described, Asano discloses a position adjustable pedal assembly pivotally mounted on a

support member. A pedal arm moves forward and backward along a guide member by way of a screw drive mechanism depending on the driver's desired pedal position. The position of the support pivot remains constant while the pedal arm moves forward and backward along the guide member. The design also discloses an attachment for a mechanical throttle cable, the cable being responsive to the pivoting motion of the pedal assembly caused by depression of the accelerator pedal.

b. The '892 and '899 patents

The '892 and '899 patents disclose electronic pedal position sensors. Each patent teaches the desirability of electronic throttle controls and electronic connections, as distinguished from mechanical throttle controls and mechanical connections, between vehicle accelerator pedals and engine throttles.

c. The '936 patent

The '936 patent discloses a non-adjustable pedal assembly incorporating a pedal position sensor. The '936 patent teaches the desirability of placing the pedal position sensor inside the vehicle's passenger compartment mounted on the pedal support member adjacent to a vehicle's accelerator pedal, rather than in a vehicle's engine compartment.

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d. The Redding patent

The Redding patent discloses an adjustable accelerator pedal assembly in which the accelerator pedal arm slides back and forth along a guide member, but in contrast to Asano and the patent-in-suit, the accelerator pedal pivot moves during pedal adjustment.

e. The Smith patent

The Smith patent discloses an electronic pedal position sensor attached to an accelerator pedal support bracket and engaged with a pivot shaft. During the prosecution history of the '565 patent, the Patent Examiner held the combination of Redding and Smith to be obvious.

f. The 503 Series pedal position sensor used in certain 1994 Chevrolet pick-up trucks and the pedal position sensor described in the '068 patent.

These modular pedal position sensors teach the advantage of using a pedal position sensor that is engaged with the pivot shaft of an accelerator pedal to send an electronic signal to an electronic throttle control based on the degree the pivot shaft turns in response to depression of the accelerator pedal. In the case of the pedal assembly in certain 1994 Chevrolet pick-up trucks, the modular 503 Series pedal position sensor is mounted to the pedal assembly's support bracket and engaged with the pedal's pivot shaft. The 503 Series pedal position sensor and the pedal position sensor disclosed in the '068 patent will hereinafter collectively be referred to as "the modular pedal

position sensors." As previously stated, the Court finds all of the above described prior art to be relevant and analogous to the patent-in-suit.

ii. The Level of Ordinary Skill in the Art

The second element in the *Graham* test for obviousness requires determining the level of ordinary skill in the pertinent art. *See Graham,* 383 U.S. at 17-18, 86 S.Ct. 684. Ascertaining the level of ordinary skill in the art is necessary for maintaining objectivity in the obviousness inquiry. *See Ryko,* 950 F.2d at 719. Factors to consider include the educational level of the inventor, the educational level of those who work in the relevant industry, and the sophistication of the technology involved. *See id.*

The parties' experts dispute the level of ordinary skill in the art of designing adjustable pedal assemblies. Plaintiff's expert, Professor Clark J. Radcliffe, argues that "a person of ordinary skill in the art would be one with an undergraduate degree in mechanical engineering (or an equivalent amount of industry experience) who has familiarity with pedal control systems for vehicles." *See* Plaintiff's Response Brief, at Ex. H, ¶ 7. Defendant's expert, Larry Willemsen, argues that a person of ordinary skill in the art would have had "a minimum of two (2) years of college level training in mechanical engineering and two-three years' work experience spanning at least one complete pedal design 'cycle.' " Willemsen Decl., at ¶ 20. The Court finds little difference between these two positions. Furthermore, Defendant has agreed to adopt Professor Radcliffe's understanding of the level of ordinary skill in the art to the extent it differs from Mr. Willemsen's.

Therefore, the Court finds the level of ordinary skill in the art to be a hypothetical person with an undergraduate degree in mechanical engineering or an equivalent amount of industry experience who has familiarity with pedal control systems for vehicles.

iii. Differences Between the Prior Art and the ClaimedInvention

The third element in the *Graham* analyses requires the determination of any differences between the teachings found in the prior art and the claimed invention, from the vantage point of a hypothetical person with ordinary skill in the art. *See Graham,* 383 U.S. at 17-18, 86 S.Ct. 684; *Velander v. Garner,* 2003 WL 2249519 (Fed.Cir.2003). The claims of the patent-in-suit must be considered "as a whole." *W.L. Gore & Assoc., Inc. v. Garlock, Inc.,* 721 F.2d 1540, 1547-48 (Fed.Cir.1983). It is "[t]he claims, not [the] particular embodiments [that] must be the focus of the obvious inquiry." *Jackson Jordan, Inc. v. Plasser American Corp.,* 747 F.2d 1567, 1578 (Fed.Cir.1984). The Federal Circuit has expressed the significance of claims in defining an invention:

> The claims of the patent provide the concise formal definition of the invention. They are the numbered paragraphs which particularly point out and distinctly claim the subject matter which the applicant regards as his invention. It is to these wordings that one must look to determine whether there has been infringement. Courts can neither broaden nor narrow the claims to give the patentee something different than what he has set forth.

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> No matter how great the temptations of fairness or policy making, courts do not rework claims. They only interpret them.

E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1433 (Fed.Cir.1988) (quoting *Autogiro Co. of America v. United States,* 181 Ct.Cl. 55, 384 F.2d 391, 395-96 (1967)) (internal quotations and alterations omitted). Thus, while it is entirely proper to use the specification of the patent to interpret what the patentee meant by a word or phrase in a claim, adding to the claim an extraneous limitation appearing in the specification is improper. *See E.I. du Pont de Nemours & Co.,* 849 F.2d at 1433 (citations omitted).

Review of prior art, however, is not limited to claims asserted in the prior art. Differences between prior art and the claimed invention are "ascertained by interpretation of the *teachings* of the prior art and of the *claims* of the patent." CHISUM ON PATENTS, § 5.03[5], 5-239 (2003) (emphasis added). In other words, a prior art reference must be considered in its entirety in an obviousness inquiry and must include a "full appreciation of what such reference fairly suggests to one of ordinary skill in the art." *W.L. Gore,* 721 F.2d at 1550.

The claims of the patent-in-suit are the starting point for determining any differences between the patent-in-suit and the prior art. Claim construction is a question of law for the Court to resolve. *See Markman v. Westview Instruments, Inc.,* 52 F.3d 967, 979 (Fed.Cir.1995). Some courts routinely hold *Markman* hearings to determine the proper interpretation of claim language. This procedure is not always necessary,

however. *See e.g. Rogers v. Desa Int'l, Inc.* 166 F.Supp.2d 1202, 1204 (E.D.Mich.2001). The subject matter of the '565 patent is not technologically or linguistically complex. Furthermore, neither party disputes any language of claim 4 in the context of Defendant's motion for invalidity. Accordingly, the Court finds a *Markman* hearing to be unnecessary. *See Rogers,* 166 F.Supp.2d at 1205.

In addition, the Court is not faced with disputed claim language to resolve. *See U.S. Surgical Corp. v. Ethicon, Inc.,* 103 F.3d 1554, 1568 (Fed.Cir.1997). As the court in *U.S. Surgical Corp.* stated:

> Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement. It is not an obligatory exercise in redundancy. [C]laim construction may occasionally be necessary in obviousness determinations, when the meaning or scope of technical terms and words of art is unclear and in dispute and requires resolution in order to determine obviousness ....

U.S. Surgical Corp., 103 F.3d at 1568. Accordingly, the Court will base its decision on the plain, ordinary, and undisputed language of claim 4 and any ambiguities will be resolved against the moving party. *See Electronic Planroom, Inc. v. McGraw-Hill Companies,* 135 F.Supp.2d 805, 832 (E.D.Mich.2001).

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As described above, claim 4 of the '565 patent broadly discloses the following: an adjustable pedal assembly comprising of a support member with a pivot supporting the pedal assembly with respect to the support member, the pivot remaining in constant position while the pedal moves in fore and aft directions with respect to the pivot. The '565 patent further discloses an electronic pedal position sensor attached to the support member and being responsive to the pivot of the pedal assembly for providing a signal to the engine based on the position of the pedal as the pedal assembly pivots about its pivot axis.

The Court finds little difference between the teachings of the prior art and claims of the patent-in-suit. Asano teaches the structure and function of each of the claim 4 limitations, except those relating to an electronic pedal position sensor. Specifically, Asano teaches an adjustable pedal assembly pivotally mounted on a support bracket with the pedal moving in a fore and aft directions with respect to the support and the pivot remaining in a constant position during movement of the pedal arm. Thus, Asano "fairly suggests" the same mechanical assembly design asserted in claim 4 of the patent-in-suit. *W.L. Gore,* 721 F.2d at 1550.

Plaintiffs argue that Asano is vastly different from the patent-in-suit. This may be a correct observation based on the preferred embodiment of each patent; however, none of the structural features asserted in claim 4, with the exception of the electronic pedal position sensor, result in an invention that is structurally different from Asano. As Defendant correctly points out, it would be improper to import extraneous limitations from the specification of the '565

patent to avoid a finding of obviousness. *See E.I. du Pont de Nemours & Co.,* 849 F.2d at 1433. Accordingly, the Court finds that Asano teaches every limitation contained in claim 4, with the exception of the limitation referring to an electronic pedal position sensor.

The electronic pedal position sensor asserted in claim 4, however, is fully disclosed by other prior art references. Both the 503 Series pedal position sensor and the '068 patent teach an electronic pedal position sensor being responsive to the pedal pivot shaft and causing a signal to be sent to the engine to increase or decrease engine speed based on the rotation of the pivot shaft. In other words, the 503 Series pedal position sensor and the pedal position sensor disclosed in the '068 patent are designed to be responsive to a pedal's pivot shaft in the same manner as the electronic pedal position sensor described in claim 4 of the '565 patent. Accordingly, prior art expressly teaches both the pivotally mounted pedal assembly and the electronic pedal position sensor asserted in claim 4.

a. Suggestion to combine

The fact that Asano and the modular pedal position sensors teach the invention disclosed in claim 4 does not render their combination obvious, however, unless there is "some motivation or suggestion to combine the prior art teachings," either in the prior art itself, or by reasonable inference from the nature of the problem, or from the knowledge of those of ordinary skill in the art. *See Al-Site Corp., v. VSI Int'l, Inc.,* 174 F.3d 1308, 1324 (Fed.Cir.1999); *see also Yamanouchi Pharmaceutical Co., Ltd., v. Danbury*

Pharmacal, Inc., 231 F.3d 1339, 1343 (Fed.Cir.2000) ("[T]he suggestion to combine requirement stands as a critical safeguard against hindsight analysis and rote application of the legal test for obviousness."); *ACS Hospital Sys., Inc. v. Montefiore Hospital,* 732 F.2d 1572, 1577 (Fed.Cir.1984) ("Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination.") It is undisputed that in the mid-1990's more cars required the use of an electronic device, such as a pedal position sensor, to communicate driver inputs to an electronically managed engine. It is also undisputed that adjustable pedal assemblies have existed in the art since the late 1970's. Clearly it was inevitable that adjustable pedal assemblies would be joined with an electronic device to work in conjunction with modern electronically controlled engines. This fact is displayed in the prior art by Rixon '593, which discloses an adjustable pedal assembly operating in conjunction with an electronic throttle control. *See* Plaintiffs' Response Brief, at Ex. L. According to one of Plaintiffs' experts, Timothy Andresen, unlike the patent-in-suit, Rixon '593 discloses an adjustable pedal assembly with an electronic sensor that is not attached to the pedal mounting bracket and moves during pedal adjustment. *See* Andresen Decl., at ¶¶ 5-6. Andresen states that placing the electronic sensor "where it moves during pedal adjustment can be undesirable due to the potential for electrical connector wire fatigue failure and/or insulation abrasion." *Id.* at ¶ 6. It is undisputed that Engelgau sought to improve on this design. *See* Plaintiff's Response Brief, at Ex. J, Col. 1, lines 43-52. According to Andresen, Engelgau's mounting of the electronic pedal position sensor to the pedal assembly support

bracket separated the pedal adjustment movement from the electronic sensor. Andresen Decl. at ¶ 7. Andresen argues that this is the "critical feature" of the design that would not have been obvious to someone familiar with the state of art. *See* Andresen Decl. at ¶ 7. It is also this feature which, according to Andresen, "optimizes package space requirements, minimizes weight, and simplifies the overall design." *Id.* at ¶ 9. Thus, the issue is whether something in the prior art suggests combining the teachings of Asano, a pedal assembly in which the pivot does not move with pedal adjustment, with the teachings of the various modular pedal position sensors known in the art to solve the problem of designing a less expensive, less complex and more compact design.[2]

The incentive to combine prior art references can come from the prior art itself or be reasonably inferred from the "nature of the problem to be solved, leading inventors to look to references related to solutions to that problem."

2. Plaintiffs' experts agree that the alleged novelty of the '565 patent is found in the fact that the electronic control is mounted to the pedal assembly support member and responsive to the pivotal motion of the pedal pivot shaft. *See* Radcliffe Decl. at ¶ 15; Andresen Decl. at ¶ 5-7. This feature is asserted in claim 4. In addition, however, Plaintiffs argue that the problem of designing a less complex, less expensive, and more compact design was also solved by the simplified adjustable pedal assembly disclosed in the preferred embodiment of the '565 patent. Plaintiffs make the argument in an attempt to distinguish Asano. This argument, however, is unavailing because, as the Court noted above, claim 4 contains none of the limitations that allegedly make the preferred embodiment of the pedal assembly structurally less complex than the Asano pedal assembly. *See E.I. du Pont de Nemours & Co.,* 849 F.2d at 1433 (citations omitted).

Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1573 (Fed.Cir.1996). According to Plaintiff's experts, prior art such as the Rixon '593 suffered from being too complex because the pedal position sensor is located in the pedal housing and its fore and aft movement with the adjustment of the pedal could cause problems with wire failure. Thus, the solution to the problem required an electronic control that does not move with the pedal arm while the pedal arm is being adjusted by the driver. The Court finds that a person with ordinary skill in the art with full knowledge of Asano and the modular pedal position sensors such as the CTS 503 Series would be motivated to combine the two references to avoid the problems with Rixon '593.

In addition, the fact that Asano and the modular pedal position sensors both relate to the art of vehicle pedal systems is a factor suggesting their combination. *See In re Harmon,* 42 C.C.P.A. 921, 222 F.2d 743, 746 (1955) ("That the references would have suggested doing what appellant has done to anyone skilled in the art seems beyond doubt since both references relate to coating . . . ."); *In re Marx,* 43 C.C.P.A. 880, 232 F.2d 638, 640 (1956) ("since both patents relate to the same art, it would readily have occurred to one having cognizance of the features of the references that it might be desirable to [combine them]."); *Display Technologies, Inc. v. Paul Flum Ideas, Inc.,* 60 Fed.Appx. 787, 794, 2002 WL 32066815 (Fed.Cir.2002) ("The district court did not err in combining the prior art references in this case. The [prior art references] all are within the same field of gravity-fed beverage dispensers.") Furthermore, the prior art contains express teachings with respect to the desirability of attaching pedal position sensor to the support member of

a pedal assembly with the sensor being responsive to the pedal's pivot shaft in the same manner as the invention claimed in the '565 patent. *See* U.S. Patent No. 5,063,811 to Smith (hereinafter "Smith"), attached to Defendant's Reply Brief, at Ex. 5. Smith reveals a rotary potentiometer, which provides basically the same function as the 503 Series pedal position sensor, attached to a fixed support member and responsive to the pedal's pivot shaft. Additionally, Smith contains express teachings as to the desirability of attaching an electronic control to a support member in order to avoid the wire failure problems identified with Rixon '593 and allegedly solved by the patent-in-suit: "[T]he wiring to the electrical components must be secure from the possibility of chafing which will eventually result in electrical failure. Thus, the pedal assemblies must not precipitate any motion in the connecting wires themselves . . . ." *Id.* at Col. 1, lines 33-38. Accordingly, the Court finds that Defendant has offered sufficient evidence of a suggestion to combine a pivotally mounted adjustable pedal assembly with an off-the-shelf modular pedal position sensor to solve the problem of designing a less expensive, less complex, and more compact adjustable pedal assembly for use with electronically controlled vehicles.

A finding of obviousness is further supported by the prosecution history of the patent-in-suit. Defendant points out that during prosecution of the '565 patent before the Patent and Trademark Office, the Examiner rejected a claim similar to claim 4 as an obvious combination of prior art. Specifically, the Examiner cited Redding for its disclosure of an adjustable pedal assembly comprising of a pedal movable in fore and aft directions on a pivotally movable

guide rail mounted to a support member. The Examiner cited Smith for is disclosure of an electronic pedal position sensor attached to a pedal assembly support member, which the Examiner described as "old and well known in the art." *See* Office Action of November 13, 2000, attached to Defendant's Reply Brief, at Ex. 3. The Examiner stated his obviousness conclusion in the following manner:

> Since the prior are [sic] references are from the field of endeavor, the purpose disclosed by Brown [sic] would have been recognized in the pertinent art of Redding. Therefore it would have been obvious at the time the invention was made to provide the device of Redding with the electronic throttle control means attached to a support member as taught by Smith.

Id. at 3.

Claim 4 of the '565 patent was allowed by the Examiner, however, because of an added structural limitation, "wherein the position of said pivot (24) remains constant while said pedal arm (14) moves in fore and aft directions with respect to said pivot (24)." '565 patent, col. 6, lines 33-36. Adding this structural limitation distinguished the patent-in-suit from Redding because the pedal pivot described in Redding does not remain constant while the pedal arm moves in fore and aft directions. Asano, however, discloses a pivot that does remain in a constant position while the pedal arm moves back and forth. Thus, the Court finds persuasive Defendant's argument that if Asano had been cited to the Examiner, he would have found the combination of Asano and Smith to

be obvious, just as he found the combination of Redding and Smith to be obvious.

i. Secondary Considerations

The final element of the *Graham* test for obviousness requires ascertaining the extent of any objective indicia of non-obviousness. *See Graham,* 383 U.S. at 17-18, 86 S.Ct. 684. These so-called "secondary considerations" include commercial success, long-felt need, failure of others, skepticism and unexpected results. *See 3M v. Johnson & Johnson Orthopaedics, Inc.,* 976 F.2d 1559, 1573 (Fed.Cir.1992). In some cases, such evidence is the most probative of obviousness. *See Richardson-Vicks, Inc. v. Upjohn Co.,* 122 F.3d 1476, 1483 (Fed.Cir.1997) (citing *Stratoflex,* 713 F.2d at 1538). Secondary considerations, however, do not control the obviousness inquiry. *See Richardson-Vicks,* 122 F.3d at 1483 (citing *Newell Companies, Inc. v. Kenney Mfg. Co.,* 864 F.2d 757, 768 (Fed.Cir.1988)). In other words, secondary considerations "are but a part of the 'totality of the evidence' that is used to reach the ultimate conclusion of obviousness." *See Richardson-Vicks,* 122 F.3d at 1483.

Plaintiffs argue that the commercial success of the design depicted in the Engelgau patent supports a finding of non-obviousness. Commercial success, however, "is relevant only if it flows from the merits of the *claimed* invention." *Sjolund v. Musland,* 847 F.2d 1573, 1582 (Fed.Cir.1988). In other words, the party asserting commercial success must prove a nexus between the commercial success and the claimed invention. *See Simmons Fastener Corp. v. Illinois Tool Works, Inc.,* 739 F.2d 1573, 1575 (Fed.Cir.1984).

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Plaintiffs offer the declaration of Plaintiff Teleflex's Director of Pedal Engineering, Charles Meier. *See* Plaintiffs' Response Brief, at Ex. M. According to Mr. Meier, the "adjustable pedal assembly design referenced in the Engelgau patent has been placed in Ford's U-137/P-131 program." *Id.* at ¶ 3. Furthermore, according to Mr. Meier, Plaintiff Teleflex has "shipped approximately 150,000 adjustable pedal units to Ford for the U-137/P-131 program." *Id.* at ¶ 5. The Court finds this evidence insufficient to overcome Defendant's strong showing of obviousness.

Plaintiff has offered an overall sales figure for the adjustable pedal assembly design "referenced in the Engelgau patent." *Id.* at ¶ 3. As Defendant correctly notes, the pedal assembly design referenced in the Engelgau patent describes two embodiments, one comprising of a optional "cable attachment member 78" for use with engines utilizing a cable-actuated throttle control, and a second comprising of an "electronic throttle control 28." The embodiment comprising of a "cable attachment member 78" is not protected by claim 4. Without knowing what amount, if any, of the 150,000 units allegedly sold incorporated an electronic throttle control protected by claim 4, it is impossible to gauge the commercial success of the invention. Furthermore, even if the Court was presented with enough evidence to find some or all of the unit sales to be of a pedal assembly protected by claim 4, the evidence would still amount to simple sales figure with no evidence of nexus. *See Kansas Jack, Inc. v. Kuhn,* 719 F.2d 1144, 1151 (Fed.Cir.1983) (upholding the district court's invalidity ruling and holding the patent obvious when "the evidence of commercial success consisted solely of the number of units sold"); *In re Baxter Travenol Labs.,* 952

F.2d 388 (Fed.Cir.1991) (citing *Kansas Jack, Inc.,* 719 F.2d at 1151) ("information solely on numbers of units sold is insufficient to establish commercial success.")

In addition, Plaintiffs have not attempted to offer evidence of any other secondary consideration, such as long-felt need or failure of others. The Federal Circuit has found that this fact warrants giving less weight to an argument based on commercial success. *See Merck & Co. v. Biocraft Laboratories, Inc.,* 874 F.2d 804, 809 (Fed.Cir.1989) ("Commercial success is an indication of nonobviousness that must be considered in a patentability analysis ... but in the circumstances of this case, where it is the only such indication, it is insufficient to render Merck's claimed invention nonobvious."). Therefore, the Court finds the evidence of commercial success insufficient to overcome Defendant's clear and convincing evidence of obviousness.

5. Conclusion

Accordingly, the Court finds that a hypothetical person with an undergraduate degree in mechanical engineering or an equivalent amount of industry experience who has familiarity with pedal control systems for vehicles would have found it obvious to attach a modular pedal position sensor to Asano's support member, with the pedal position sensor being responsive to the pedal assembly's pivot shaft. Therefore, claim 4 of the '565 is invalid for obviousness. *See* 35 U.S.C. § 103(a).

V. CONCLUSION

For the reasons set forth above, Defendant's Motion for Summary Judgment of Invalidity is GRANTED. Plaintiffs' *Ex Parte* Motion for Oral Argument is DENIED. Plaintiffs' Motion for Summary Judgment of Infringement is DENIED as moot.

IT IS SO ORDERED.

Dated: December 12, 2003

LAWRENCE P. ZATKOFF
CHIEF UNITED STATES
DIRTRICT JUDGE

QUESTION PRESENTED FOR REVIEW

The District Court granted summary judgment in favor of Petitioner, KSR, finding the patent at issue was invalid as obvious. To reach this conclusion, the District Court: (1) considered competing affidavits of experts and chose to credit the affidavit proffered by the moving party, KSR; (2) neglected to make required factual findings relating to obviousness, and (3) concluded as a matter of law that the patent at issue was obvious even though no other prior design or patent disclosed or even suggested the combination of an adjustable pedal coupled with an electronic throttle control that remained stationary during the adjustment process.

The issue here is whether the Federal Circuit Court erred by vacating the District Court's published decision, which revealed glaring errors in the handling and weighing of evidence on summary judgment, and which applied an erroneous legal standard for determining obviousness. The Federal Circuit Court's decision is wholly consistent with firmly-established evidentiary and procedural rules, as well as this Court's standards for determining obviousness. KSR's petition for certiorari is not nearly as significant as it attempts to portray -- it should be denied in the same manner that this Court has denied petitions on this issue for the last twenty-three years.

CORPORATE DISCLOSURE STATEMENT

Respondent Teleflex Inc. is the parent company of Respondent Teleflex Holding Co. and is the only publicly held company that owns 10% or more of the stock of Teleflex Holding Co.

Respondent Teleflex Inc. has no parent corporation and no publicly held company owns 10% or more of its stock.

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STATEMENT OF THE CASE

KSR's Petition for Writ of Certiorari attempts to present this simple infringement dispute between competitors in the automotive supplier industry as a case of major jurisprudential significance. Quite simply, it is not.

On November 18, 2002, Respondent Teleflex Inc.[1] sued Petitioner KSR International Co. ("KSR") for infringement of U.S. Patent No. 6,237,565 (the "'565 Patent"). The District Court granted KSR's motion for summary judgment on obviousness under Section 103 of the Patent Act, 35 U.S.C. § 103, in a published decision.

On appeal, the Federal Circuit Court vacated the District Court's decision and remanded the case for further proceedings on the issue of obviousness, for three principal reasons: (1) the District Court ignored the existence of genuine issues of material fact; (2) the District Court held that the expert affidavit proffered by KSR (the moving party) was more credible than the two affidavits proffered by Teleflex's experts; and (3) the District Court failed to evaluate the evidence using the correct standard for determining obviousness. The Federal Circuit Court did not make any de novo findings on whether the '565 Patent was obvious; it merely vacated the erroneous decision and remanded the case to the District Court for additional factual determinations.

This case is not an appropriate one for this Court to accept KSR's invitation to conduct a sweeping overhaul of

1. Respondent Teleflex Inc. was the original plaintiff in the District Court action. Respondent Teleflex Holding Co., a wholly-owned subsidiary of Teleflex Inc., was later added as a plaintiff (Respondents collectively referred to as "Teleflex").

the "well-settled law" of obviousness, established over the last twenty-five years, for at least three independent reasons.

First, this case does not present a significant interpretation or application of § 103 by the Federal Circuit Court. The record amply demonstrates that the District Court made basic evidentiary errors in granting summary judgment -- "weighing" the evidence, viewing conflicting expert affidavits in the light most favorable to the non-moving party, and generally accepting KSR's version of "the evidence" as undisputed. The Federal Circuit Court correctly determined that there were, in fact, disputes of material fact presented in the expert affidavits and other evidence, and that the District Court should not have granted summary judgment against Teleflex.

Second, this case is not ripe for review. The Federal Circuit Court did not determine whether the '565 Patent was obvious or not. Instead, the Federal Circuit Court merely remanded the case for further proceedings on obviousness, and, if necessary, infringement and damages.

Third, the Federal Circuit Court's decision to vacate the District Court's award of summary judgment and remand the case for further proceedings does not conflict with other relevant circuit court decisions. In 1982, Congress gave the Federal Circuit exclusive jurisdiction over complaints alleging, in whole or in part, claims arising under federal patent law. KSR does not cite to one post-1982 circuit court case that is in conflict with the Federal Circuit Court's decision in the instant case. Moreover, the decision by the Federal Circuit Court here is unreported and cannot be cited as precedent, so no "conflict" with respect to this case can exist. *See* Fed. Cir. R. 47.6.

A. The Product Involved In This Suit

The product at the center of this dispute is an adjustable pedal system combined with an electronic control. An adjustable pedal system is a vehicle pedal (accelerator, brake, or clutch) that can be adjusted by the driver to move the pedal closer to or farther from the driver – much like an adjustable seat moves the driver closer to or farther from the steering wheel. Jt. App. at 1461-1462.[2] Adjustable pedal systems allow a driver to attain maximum comfort while still sitting as far back from the steering wheel as possible to prevent air bag related injuries. Adjustable pedal systems have become a popular vehicle option because of their convenience and safety benefits. Jt. App. at 1462.

An electronic control that is used in conjunction with an accelerator pedal is known in the automotive industry as an electronic throttle control or "ETC." An ETC is connected to the accelerator pedal and uses a sensor to determine the movement of the pedal as applied by the driver. The ETC translates this movement into an electronic signal that is then sent electronically to the throttle. This electronic signal tells the throttle how much fuel and air to release into the engine. This fuel and air mixture, in turn, determines the engine output and subsequent speed of the vehicle. The ETC thus acts as a conduit between the accelerator pedal and the throttle. Jt. App. at 1557.

Teleflex is a leading manufacturer and supplier of adjustable foot pedal systems that are used by the automotive industry in motor vehicles. Jt. App. at 1461. Teleflex's

2. The Petition for a Writ of Certiorari is referred to as "Pet.", the Appendix to the Petition is referred to as "App.", and the Joint Appendix in the Federal Circuit is referred to as "Jt. App."

adjustable pedal systems can be found in the Ford Excursion, among others. KSR is also an automotive supplier and a competitor of Teleflex. KSR, too, manufactures and sells adjustable pedal systems. Jt. App. at 2. KSR's adjustable pedal systems can be found in various General Motors' pickup trucks and sport utility vehicles, among others.

B. The Prior Art In Effect When The Inventor Of The '565 Patent Invented The Teleflex Adjustable Pedal System With Fixed Electronic Controls

Prior to the 1990s, the automobile industry used fixed pedals with cable-actuated throttle control mechanisms. Jt. App. at 1470-1471. Subsequently, inventors replaced cables with electronic throttle controls on these fixed pedal assemblies. Jt. App. at 1471. These electronic controls were integrated with the fixed pedal itself, that is, attached directly to the pivot point of the pedal. The next significant invention in the pedal industry was adjustable pedal systems with cable-actuated throttle controls. The next invention was adjustable pedals with electronic controls. These adjustable pedals with electronic controls had the electronic control attached directly to the pedal, in the same manner that the electronic controls were attached to the fixed pedals. Jt. App. at 1470. In other words, the ETC moved with the pedal during the adjustment process, a so-called "mobile ETC."

However, as evidence submitted by Teleflex demonstrated, there was a major impediment to the manufacture and use of adjustable pedals utilizing ETCs. One critical disadvantage of the prior art mobile ETC was that it required a significant amount of space to permit both the ETC **and** the pedal to move in the area near the pedals. Jt. App. at 1471. (The area surrounding the pedals in a vehicle, called the footwell, is a compact and

tight space that is crowded as a result of the pedals vying with the surrounding system and other driver control devices for space in that area. Jt. App. at 1483-1485.) The prior art mobile ETC takes up more space as it moves through the footwell than would a corresponding adjustable pedal without an attached ETC. Thus, there was a significant known disadvantage with adjustable pedal systems coupled with an ETC given the inherent space and "packaging" constraints described above. This packaging problem confronted Teleflex during the development of an adjustable pedal with ETC for Ford's Excursion vehicle. Jt. App. at 1483-1485. Steve Engelgau, a Teleflex engineer, was given the task of solving the problem. Jt. App. at 1483-1485.

C. Invention Of The '565 Patent

Mr. Engelgau invented the design embodied in the '565 Patent which solved this critical footwell space concern. Under the '565 Patent, the ETC is attached to the **bracket** that mounts the pedal to the vehicle -- **not to the pedal itself**; this placement permits the pedal to be adjusted while the ETC remains stationary. Jt. App. at 1552-1559. The stationary ETC design set forth and claimed in the '565 Patent includes an adjustable pedal system having an ETC that is attached to the mounting bracket and in which the ETC remains fixed during fore and aft movement of the pedal. Jt. App. at 1559. Significantly, as of the date of conception of the '565 Patent in February 1998, no other ETC adjustable pedal system exhibited a stationary (non-mobile) ETC. Jt. App. at 1483-1485.

Counter to KSR's over-simplification of the invention of the '565 Patent, the claim at issue in this litigation (claim 4 of the '565 Patent) does not just claim an adjustable pedal

with an electronic control. Claim 4 requires a specific way to locate and mount the ETC on an adjustable pedal system. As one of Teleflex's experts opined, the invention of the '565 Patent was a simple, elegant and novel combination of features that would not have been obvious to one of ordinary skill in the art. Jt. App. at 1548.

Because the ETC is attached to the mounting bracket as opposed to the pedal arm itself, the pedal arm is more compact and thus can move within a narrower space. The fact that the pedal arm can move within a narrower space allows the vehicle manufacturer to devote more footwell space to other vehicle components. Jt. App. at 1483-1485. Thus, the independence of the pedal and ETC in the '565 Patent makes the design easier to package within vehicles, a significant invention and improvement over prior art.

D. The District Court Decision

On July 7, 2003, Teleflex filed a motion for summary judgment of infringement on the '565 Patent. On the same day, KSR filed a motion for summary judgment of invalidity, requesting in relevant part that the District Court declare the '565 Patent invalid under § 103 for obviousness.

In its obviousness challenge, KSR characterized the legal issue before the District Court as whether there was a *suggestion* in the prior art so that a person of ordinary skill in the art would have *desired* to combine the prior art:

> With regard to the '565 Patent, the legal question raised by this motion is whether, to a person of ordinary skill in the pedal design art as of January 26, 1998, it would have been obvious

> to combine (a) the adjustable pedal assembly of Asano [a prior pedal design], with (b) an off-the-shelf electronic pedal position sensor. . . . Under *well-settled law*, "when determining the patentability of a claimed invention which combines two known elements, 'the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.'" *Ecolochem, Inc. v. Southern Cal. Edison Co.*, 227 F.3d 1361, 1372 (Fed. Cir. 2000) (quoting *In re Beattie*, 974 F.2d 1309, 1311-12 (Fed. Cir. 1992) (quoting *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1462 (Fed. Cir. 1984))).
>
> The record here abounds with evidence suggesting the "desirability" of adding an electronic pedal position sensor to Asano at relevant times.

Brief for KSR, filed July 7, 2003, at 28-29 (emphasis added). KSR made several other references to the test for "obviousness" as including the "motivation" for combining prior art. Brief for KSR, filed July 7, 2003, at 29-30. Finally, KSR concluded that "evidence" suggesting that the "*motivations for combining* Asano with an electronic pedal sensor . . . are at least as clear and convincing as *motivations* that the Federal Circuit has found sufficient to invalidate patent claims under 35 U.S.C. § 103." Brief for KSR, filed July 7, 2003, at 30 (emphasis added).[3]

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3. Of course, now that the KSR has lost its appeal, KSR has disparaged the "well-settled law" and discarded the motivation-based standard that it relied upon in the District Court and Federal Circuit Court proceedings.

A critical issue before the District Court was whether the Asano patent constituted relevant prior art. Petitioner acknowledged that "[t]he relevant art is defined by the nature of the problem confronting the would-be inventor." Brief for KSR, filed July 7, 2003, at 21. Teleflex submitted evidence from the inventor and from two experts that the Asano patent was not relevant prior art relative to the nature of the problem confronted by the inventor of the '565 Patent. *See, e.g.*, Jt. App. at 1551. The District Court reviewed the conflicting evidence and, nonetheless, ruled, as a matter of law, that the Asano patent was relevant prior art. The District Court next reviewed the conflicting evidence, and despite the fact that no other prior design or prior patent, disclosed, taught or even suggested an adjustable pedal coupled with an ETC that remained stationary during the adjustment process, the court found, as a matter of law, that the '565 Patent was obvious. App. at 39a.

E. The Federal Circuit Court Decision

Teleflex timely appealed the District Court decision. In opposing Teleflex's appeal, KSR argued that the District Court properly evaluated obviousness under § 103 because it applied the "teaching-suggestion-motivation" test:

> This Court's precedents hold that "when determining the patentability of a claimed invention which combines two known elements, 'the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness of making the combination.'" *Ecolochem, Inc. v. Southern Cal. Edison Co.*, 227 F.3d 1361, 1372 (Fed. Cir. 2000) (*quoting In re Beattie*, 974 F.2d 1309, 1311-12 (Fed. Cir. 1992)

> (*quoting Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1462 (Fed. Cir. 1984))).

Brief for KSR, filed April 30, 2004, at 27. Furthermore:

> The District Court thus appropriately analyzed the evidence of record to determine whether, as of January 26, 1998, the prior art included "some motivation or suggestion to combine the prior art teachings." 298 F. Supp. 2d at 593 (*quoting Al-Site Corp. v. VSI Int'l, Inc.*, 174 F.3d 1308, 1324 (1999)).

Brief for KSR, filed April 30, 2004, at 32. Finally, KSR hailed the District Court's decision in employing the "motivation or suggestion to combine" test on obviousness, which is the same test that KSR now asserts in its Petition as violating this Court's precedents and the Patent Act:

> In view of the foregoing, the District Court was well-justified in concluding, as a matter of law, that the prior art of record included "some motivation or suggestion to combine" Asano with a modular prior art pedal position sensor . . . .

Brief for KSR, filed April 30, 2004, at 37.

The Federal Circuit Court disagreed; the Federal Circuit Court held that the District Court erred by granting summary judgment in light of the fact that there were material issues of fact on obviousness. App. at 16a-17a. In addition, the Federal Circuit Court also held that the District Court made improper factual and credibility determinations with respect

to affidavits submitted by the parties' experts: the District Court erred as a matter of law because it credited KSR's expert declarant and discredited Teleflex's two expert declarants. App. at 16a. In addition, the Federal Circuit Court ruled that the District Court applied an incorrect obviousness test, and neglected to make specific factual findings relating to obviousness. App. at 16a. Accordingly, the Federal Circuit Court vacated the decision of the District Court and "remand[ed] the case for further proceedings on the issue of obviousness, and, if necessary, proceedings on the issues of infringement and damages." App. at 17a.

KSR timely filed this petition with the Court to review the Federal Circuit Court's determination that issues of material fact existed that precluded summary judgment.

REASONS FOR DENYING THE PETITION

For the following independent reasons, Teleflex respectfully submits that this Court should decline to review the Federal Circuit Court's decision to vacate the District Court's grant of summary judgment on obviousness.

A. The Federal Circuit Has Not Abandoned This Court's Precedent Or Section 103

Before turning to the central issue of whether the Federal Circuit Court made an error in determining that factual disputes existed in this case and that summary judgment was improper, Teleflex addresses KSR's assertions that "[t]he decision below is in direct conflict with this Court's precedents . . . and the text of § 103 itself." Pet. at 11. KSR is wrong. In this case, and in the other cases cited by KSR (several of which this Court has declined to review), the

Federal Circuit has explicitly addressed § 103 and followed the approach this Court set forth for applying that provision.

Section 103 provides, in pertinent part:

> A patent may not be obtained ... if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

35 U.S.C. § 103(a).

This Court held in *Graham v. John Deere Co.*, 383 U.S. 1 (1966):

> While the ultimate question of patent validity is one of law, ... the § 103 condition, which is but one of three conditions, each of which must be satisfied, lends itself to several basic factual inquiries. Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy.

> This is not to say, however, that there will not be difficulties in applying the nonobviousness test. What is obvious is not a question upon which there is likely to be uniformity of thought in every given factual context.

383 U.S. at 17-18 (citations omitted).

The Court also instructed that the standard set forth in *Graham* would go beyond an inquiry of purely technical issues:

> These legal inferences or subtests do focus attention on economic and motivational rather than technical issues and are, therefore, more susceptible of judicial treatment than are the highly technical facts often present in patent litigation. . . . Such inquiries may lend a helping hand to the judiciary which, as Mr. Justice Frankfurter observed, is most ill-fitted to discharge the technological duties cast upon it by patent legislation. . . . They may also serve to "guard against slipping into use of hindsight," . . . and to resist the temptation to read into the prior art the teachings of the invention in issue.

383 U.S. at 35-36 (citations omitted).

Thus, under *Graham*, the obviousness inquiry is highly fact specific, and requires an examination of the following: (1) the scope and content of the prior art; (2) the differences between the patented invention and what already existed in the prior art; (3) the ordinary level of skill of people working in the field; and (4) other objective evidence which may

suggest that the invention would not have been obvious. The Court also warned lower courts to "'guard against slipping into use of hindsight,' . . . and to resist the temptation to read into the prior art the teachings of the invention in issue." 383 U.S. at 36. *See also Ashland Oil, Co. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 291 (Fed. Cir. 1985), *cert. denied* 475 U.S. 1017 (1986).

This Court reaffirmed and relied upon the *Graham* fact-intensive test in its consideration and determination of obviousness in *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273 (1976) and *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969). In *Sakraida,* the Court expressly cited *Graham* throughout its opinion and relied on the test to evaluate the obviousness of the claimed patent. 425 U.S. at 279-280. Likewise, in *Anderson's-Black Rock*, the Court referenced *Graham* as laying out the test for determining obviousness. 396 U.S. at 61-62. Under the fact situations in both cases, the Court examined whether the combination of "old elements" in prior art produced a "synergistic result."

KSR suggests that the test in *Graham*, which the Court relied upon in deciding *Sakraida* and *Anderson's-Black Rock*, should be cast aside in favor of, essentially, a one-prong "synergistic result" test. However, nowhere in the *Sakraida* or *Anderson's-Black Rock* decisions does this Court state that the "synergistic result" inquiry supersedes a finding of nonobviousness or obviousness under the oft-cited, multiple-prong *Graham* test. Indeed, after the Court issued decisions in *Sakraida* and *Anderson's-Black Rock*, it subsequently expressly endorsed *Graham* as relevant precedent for determining obviousness under § 103:

> The nonobviousness requirement extends the field of unpatentable material beyond that which is known to the public under § 102, to include that which could readily be deduced from publicly available material by a person of ordinary skill in the pertinent field of endeavor. *See Graham*, 383 U.S., at 15, 86 S. Ct., at 692.

Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 489 U.S. 141, 150 (1989). Thus, Teleflex respectfully submits that this Court did not intend that *Sakraida* or *Anderson's-Black Rock* override the seminal case of *Graham* on obviousness.

Moreover, the Federal Circuit's so-called "teaching-suggestion-motivation" standard for obviousness is fully consistent with *Graham* and its progeny. Under that standard, there must be some motivation or suggestion to combine specific prior art in such a way as to arrive at the particular combination disclosed in the patent at issue. *See, e.g., Ecolochem, Inc. v. Southern California Edison Co.*, 227 F.3d 1361, 1372 (Fed. Cir. 2000), *cert. denied*, 532 U.S. 974 (2001)[4]; *Ashland Oil*, 776 F.2d at 293. Importantly, as *Graham* instructed, the injection of hindsight in evaluating obviousness must be avoided; the requirement of a suggestion to combine prior art prevents hindsight reconstruction by accused infringers who try to use the patent-in-suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit. *See, e.g., Yamanouchi Pharmaceutical Co., Ltd. v. Danbury Pharmacal, Inc.*, 231 F.3d 1339, 1343 (Fed. Cir. 2000) ("the suggestion to combine requirement stands

4. Teleflex notes that this Court denied certiorari in *Ecolochem*. Indeed, as discussed below, the petition for a writ of certiorari in *Ecolochem* is virtually identical to KSR's Petition in this case.

as a critical safeguard against hindsight analysis and rote application of the legal test for obviousness."); *Ecolochem*, 227 F.3d at 1371-72 ("Combining prior art references without evidence of a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability -- the essence of hindsight.") (citations omitted); *Grain Processing Corp. v. American Maize-Products Co.*, 840 F.2d 902, 907 (Fed. Cir. 1988).

The Federal Circuit's decisions on obviousness, including the decision in the instant case, follow this Court's precedents on obviousness. In addition to following *Graham*, the Federal Circuit has followed this Court's decision in *United States v. Adams*, 383 U.S. 39 (1966). In *Adams*, as KSR notes in its Petition, the patented product (a battery) consisted of a combination of old elements that were well known in the prior art. 383 U.S. at 51. The Court, nonetheless, held that the patented battery was nonobvious. The Court held that "known disadvantages in old devices which would naturally discourage the search for new inventions may be taken into account in determining obviousness." 383 U.S. at 52. The Court also noted that "[i]f such a combination of [old battery elements] is novel, the issue is whether bringing them together as taught by Adams was obvious in the light of the prior art." 383 U.S. at 50. The Federal Circuit has followed the Court's holding in *Adams*. *See, e.g., Kahn v. General Motors Corp.*, 135 F.3d 1472, 1479-80 (Fed. Cir. 1998), *cert. denied*, 525 U.S. 875 (1998) ("In determining obviousness, the invention must be considered as a whole."); *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994) ("a reference will teach away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant.") (citing to *Adams*, 383 U.S.

it 52); *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1354 (Fed. Cir. 2001) ("If references taken in combination would produce a 'seemingly inoperative device,' we have held that such references teach away from their combination."); *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 959 (Fed. Cir. 1986) (a patent will not be deemed invalid merely because it is made up of a 'combination of old elements"); *SmithKline Diagnostics, Inc. v. Helena Labs. Corp.*, 859 F.2d 878, 887 (Fed. Cir. 1988) ("A finding that claims which combine several prior art references are invalid based merely upon the fact that those similar elements exist is 'contrary to statute and would defeat the congressional purpose in enacting Title 35.'"), quoting *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1577 (1987), *cert. denied*, 481 U.S. 1052 (1987).

Finally, as discussed above, KSR's lower court briefs are replete with references to "motivation", "suggestion", and 'desirability" to combine prior art as the proper test and as the "well-settled law" for determining obviousness. Although KSR firmly embraced the "motivation to combine" test in the District Court and Federal Circuit Court proceedings, KSR now argues that the standard it advanced to the lower courts is against this Court's precedents.

In conclusion, this Court has not repudiated *Graham*, *Adams*, and its progeny in favor of a single-factor "synergistic result" test for combination patents. *Graham* and *Adams* remain good law, and the Federal Circuit has followed those cases and the statutory mandate of § 103.

B. The Federal Circuit Did Not Err By Determining That Genuine Issues Of Material Fact Existed, Thereby Precluding Summary Judgment

The Federal Circuit reviews without deference to the district court's grant of summary judgment and draws all reasonable factual inferences in favor of the non-movant. As the Federal Circuit noted in *Beckson Marine, Inc. v. NFM, Inc.*, 292 F.3d 718, 722 (Fed. Cir. 2002), citing *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255 (1986):

> This court decides for itself whether 'the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law.' Fed.R.Civ.P. 56(c).

Beckson Marine, 292 F.3d at 722. Summary judgment is proper on obviousness "only when the underlying factual inquiries present no lingering genuine issues." *Beckson Marine*, 292 F.3d at 723.

Importantly, as the '565 Patent was issued by the United States Patent and Trademark Office, KSR bears the burden of proof on invalidity (in this case obviousness). *See* 35 U.S.C. § 282.[5] This burden of proof is not the standard "preponderance of the evidence" burden; rather, KSR was charged with proving invalidity by clear and convincing evidence. *Ashland Oil*, 776 F.2d at 292; *American Hoist &*

5. 35 U.S.C. § 282 provides in part, that "[a] patent shall be presumed valid. . . . The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity."

Derrick Co. v. Sowa & Sons, Inc., 725 F.2d 1350, 1359 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 821 (1984). Clear and convincing evidence exists when the movant "place[s] in the mind of the ultimate fact finder an abiding conviction that the truth of its factual contentions are 'highly probable.'" *Colorado v. New Mexico*, 467 U.S. 310, 316 (1994).

The clear and convincing burden remains at all times on the party challenging the validity of the patent. *American Hoist*, 725 F.2d at 1360. Furthermore, "[a]lthough the ultimate determination of obviousness is a legal conclusion, 'the presence or absence of a motivation to combine references in an obviousness determination is a pure question of fact.'" *Medical Instrumentation and Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1220 (Fed. Cir. 2003), *cert. denied*, 541 U.S. 959 (2004) (citations omitted). *See also Panduit Corp.*, 810 F.2d at 1566, 1579.

The Federal Circuit Court used these standards in this case to review de novo the District Court's grant of summary judgment on obviousness. **None of these standards are controversial or call into question a compelling legal issue that this Court needs to review.**

Against these standards for review, the Federal Circuit Court determined that the District Court granted summary judgment in error as there were material issues of fact on obviousness. App. at 16a-17a. The Federal Circuit Court also held that the District Court impermissibly weighed the competing expert affidavits in favor of KSR. App. at 16a. In addition, the Federal Circuit Court ruled that the District Court applied an incorrect obviousness test, and, furthermore, that the District Court neglected to make specific factual findings relating to obviousness. App. at 16a. Based on these

District Court errors relating to the District Court's mistreatment of disputed facts at the summary judgment stage, the Federal Circuit Court vacated the decision of the District Court and "remand[ed] the case for further proceedings on the issue of obviousness, and, if necessary, proceedings on the issues of infringement and damages." App. at 17a.

In addition, the Federal Circuit Court also rightfully refused to accept the pivotal conclusions that the District Court drew from the industry and technical expert affidavits. The Federal Circuit Court held that "by crediting KSR's expert declarant and discrediting the two declarants offered by Teleflex, the district court erred as a matter of law." App. at 16a. The District Court's error was compounded as KSR's only expert affidavit was the arguably biased opinion from its chief engineer; Teleflex, on the other hand, provided two independent expert affidavits. App. at 14a-16a. The Federal Circuit Court succinctly and properly noted: "At the summary judgment stage of a proceeding, it is improper for a district court to make credibility determinations." App. at 16a.

Given the mandate that KSR had to prove by clear and convincing evidence that there were no genuine issues of material fact that the '565 Patent was obvious, and given the District Court's errors in handling and weighing the evidence, the Federal Circuit Court properly vacated the District Court's grant of summary judgment and remanded the case for further evidentiary proceedings on obviousness. The District Court should have found a question of fact. This Court need not review the fundamental decision by the Federal Circuit Court

to vacate the District Court's order granting summary judgment.[6]

C. The Court Has Consistently Declined To Review The Federal Circuit's Decisions On Obviousness

KSR's radical plea for this Court to reverse nearly twenty-five years of decisions by the Federal Circuit is far from novel. Since 1985, numerous parties have sought review of the same issues that KSR urges the Court to review in the instant Petition. **Significantly, the Court has not accepted one petition calling into question the Federal Circuit's interpretation of *Graham* or § 103.**

For example, in *Nickson Indus., Inc. v. Rol Mfg. Co.*, 765 F.2d 160 (Fed. Cir. 1985) (table), *cert. denied*, 474 U.S. 843 (1985), soon after the Federal Circuit obtained exclusive jurisdiction for patent appeals, a petitioner urged the Court to review the Federal Circuit Court's decision reversing a finding of invalidity on obviousness. The petition asserted that, as here, the Federal Circuit Court's decision conflicted with *Sakraida* and *Anderson's-Black Rock* and that the Federal Circuit "utilized too low of a threshold of patentability." *See* Petition for a Writ of Certiorari in *Rol Mfg. Co. v. Nickson Indus., Inc.*, 1985 WL 696236, at *6. Unlike the instant case, in *Rol Mfg.*, the petitioner claimed that the Federal Circuit Court had committed an arguably

6. Indeed, on remand, after further proceedings are conducted and additional evidence presented, the District Court (and possibly the Federal Circuit on appeal) may ultimately rule in favor of KSR and find that the '565 Patent is, in fact, obvious and thus invalid. It is also possible that the District Court could dispose of the instant case on remand on several independent grounds, such as non-infringement.

greater offense by engaging in its own fact finding on the issue of obviousness. *See* Petition for a Writ of Certiorari in *Rol Mfg. Co. v. Nickson Indus., Inc.*, 1985 WL 696236, at *10. This Court declined to review the case.[7]

In 2001, the Court was again asked to review the same issues presented in the instant petition, and the Court declined to do so. In *Ecolochem, Inc. v. Southern California Edison Co.*, 227 F.3d 1361 (Fed. Cir. 2000), *cert. denied*, 532 U.S. 974 (2001), the Federal Circuit reversed a district court ruling that a patent was obvious and thus invalid. The petitioner sought review from this Court on the basis that the Federal Circuit has "read into section 103 ... the requirement that the challenger must prove ... the existence of some 'suggestion, motivation, teaching or incentive' that would

7. The Court has consistently refused to review the Federal Circuit's decisions regarding obviousness. *See, e.g., Polaroid Corp. v. Eastman Kodak Co.*, 789 F.2d 1556 (Fed. Cir. 1986), *cert. denied*, 479 U.S. 850 (1986) (petition urged the Court to review Federal Circuit decisions on obviousness, which have purportedly "wrought a sea change in patent law", *see* Petition for a Writ of Certiorari in *Eastman Kodak Co. v. Polaroid Corp.*, 1986 WL 766988, at *2); *see also Medtronic, Inc. v. Daig Corp.*, 789 F.2d 903 (Fed. Cir. 1986), *cert. denied*, 479 U.S. 931 (1986) (petition sought review of Federal Circuit decisions on § 103, *see* Petition for a Writ of Certiorari in *Daig Corp. v. Medtronic, Inc.*, 1986 WL 767041); *see also Modine Mfg. Co. v. Allen Group, Inc.*, 917 F.2d 538 (Fed. Cir. 1990), *cert. denied*, 500 U.S. 918 (1991) (petitioner presented question for review "[w]hether the Federal Circuit ... in this and other cases is systematically ignoring the plain language of 35 U.S.C. section 103", *see* Petition for a Writ of Certiorari in *Allen Group, Inc. v. Modine Mfg. Co.*, 1991 WL 11176960, at *1); *see also Langston v Southwestern Bell Telephone Co.*, 945 F.2d 416 (Fed. Cir. 1991), *cert. denied*, 503 U.S. 914 (1992) (petition sought review of Federal Circuit decisions on § 103, *see* Petition for a Writ of Certiorari in *Southwestern Bell Telephone Co. v. Langston*, 1992 WL 12074335).

have led one of ordinary skill in the art to combine or modify the prior art in the manner of the invention." *See* Petition for a Writ of Certiorari in *Southern California Edison Co. v. Ecolochem, Inc.*, 2001 WL 34124948, at *2. This Court declined to review that issue approximately four years ago -- and this issue is the identical issue now raised by KSR.

D. KSR's So-Called "Circuit Split" Is Overblown And Manufactured

KSR asserts that the Court should grant certiorari because of an "acknowledged circuit split" on interpreting § 103 of the Patent Act (Pet. at 20), in apparent reliance on Supreme Court Rule 10(a).

Simply put, there is no meaningful or relevant circuit court conflict on the precise substantive issues in this litigation. Nearly twenty-five years ago, in 1982, Congress vested the Federal Circuit with exclusive appellate jurisdiction over complaints involving, in whole or in part, claims involving federal patent law. 28 U.S.C. § 1295(a)(1); *Holmes Group, Inc. v. Vornado Air Circulation Systems, Inc.*, 525 U.S. 826 (2002). KSR does not provide any examples using any post-1982 decision from a circuit court other than the Federal Circuit that is in conflict with the Federal Circuit Court's decision in the instant case. Nor does KSR point to any pending cases in other courts of appeal that may create, in the future, a circuit court split. In sum, KSR's claims that there is a split among the circuits is not relevant to any pending proceeding, let alone the instant litigation.

KSR's claim that in *Allen Engineering Corp. v. Bartell Indus.*, 299 F.3d 1336 (Fed. Cir. 2002), the Federal Circuit acknowledged a circuit split, is misplaced.

First, in *Allen Engineering*, the Federal Circuit did not even cite to § 103; that case concerned claim construction under § 112 and the application of the on-sale bar under § 102(b). Second, the portion of the decision in *Allen Engineering* that KSR relies on to demonstrate a so-called "acknowledged" circuit split pertained to the Federal Circuit's admonishment of counsel of record for inaccurately stating the applicable law in post-trial briefs. 299 F.3d at 1356-57. There is no contested circuit split mentioned in *Allen Engineering*. KSR desperately misconstrues *Allen Engineering*, and in elevating the Federal Circuit's reprimand to the parties' counsel as an "acknowledged circuit split" concerning § 103, KSR has demonstrated its inability to meet the Court's standards for grant of a writ of certiorari under Supreme Court Rule 10(a).

CONCLUSION

Teleflex respectfully submits that KSR has not articulated a compelling reason to justify discretionary review by this Court. KSR's petition for a writ of certiorari should be denied.

Respectfully submitted,

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Attorneys for Respondents

No. 04-1350

IN THE

Supreme Court of the United States

KSR INTERNATIONAL CO.,

Petitioner,

v.

TELEFLEX INC. and TECHNOLOGY HOLDING CO.,

Respondents.

ON PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

BRIEF IN OPPOSITION

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zenberger had violated the Authority's Conduct and Discipline Directive (the "Directive"). The Authority specified that Mr. Litzenberger had violated the provision of the Directive which states, in part, that "[e]mployees are not permitted to make irresponsible, false, or defamatory statements which attack, without foundation, the integrity of other individuals or of an organization." In support of the second reason for Mr. Litzenberger's removal, the Authority relied upon the twelve specifications that it cited in support of the first reason. Each of the twelve specifications was based upon statements that Mr. Litzenberger made in a lawsuit that he filed against the Authority in state court in Virginia to require the Authority to remove allegedly false allegations of discrimination from his employment record. The suit ended in a jury verdict in favor of the Authority.

Mr. Litzenberger's employment with the Authority was governed by Virginia law, while his retirement rights under the federal civil service system are governed by federal law. Mr. Litzenberger was removed from his position after he had exhausted all Authority grievance procedures that were available to him. Following his removal, he applied to the Office of Personnel Management ("OPM") for a discontinued service annuity pursuant to 5 U.S.C. § 8336(d)(1). That statute provides that "[a]n employee who is separated from the service involuntarily, except by removal for cause on charges of misconduct or delinquency ... after completing 25 years of service ... is entitled to an annuity." OPM denied Mr. Litzenberger's application because it determined that, although he had 25 years of service and had been separated involuntarily, he had been removed for misconduct. In its reconsideration decision OPM informed Mr. Litzenberger:

> While your allegations that statements which came out of litigation should not be considered may go to the propriety of your former agency's action, it does not pertain to the fact the removal was for conduct. Any challenge of your removal is a separate matter, and OPM has no authority to make a collateral review of your removal in connection with your retirement application. If the removal as described is reversed, the matter may again be reviewed. But, OPM is required to make a determination based on the evidence of record.

Mr. Litzenberger appealed the denial of his application to the Board. Following a hearing, at which Mr. Litzenberger testified, the administrative judge ("AJ") to whom the appeal was assigned affirmed OPM's decision. The AJ's decision became the final decision of the Board when the Board denied Mr. Litzenberger's petition for review. The AJ held that Mr. Litzenberger had failed to establish his entitlement to a discontinued service annuity under 5 U.S.C. § 8336(d)(1) by demonstrating that his separation from the Authority was not, as OPM had determined, "for cause on charges of misconduct." The AJ concluded that, "on their face," the Authority's charges against Mr. Litzenberger and the supporting specifications constituted charges of misconduct. In so concluding, she noted, in particular, the fact that Mr. Litzenberger had been charged with making various accusations against Authority employees, attorneys, and contractors "recklessly and without regard for the truth thereof." The AJ determined that this charge came within the scope of the provision of the Directive that prohibits an Authority employee from making "irresponsible, false, and defamatory statements which attack, without foundation, the integrity of other individuals or of an organization." Finally, the AJ ruled that OPM had correctly determined that it had no authority to review the merits of the Authority's removal action against Mr. Litzenberger.

I would affirm the decision of the Board sustaining OPM's denial of Mr. Litzenberger's application for a discontinued service annuity. In my view, this is a very straightforward case. Section 8336(d)(1) provides that an individual who has 25 years of service and who is separated by his or her agency involuntarily is entitled to a discontinued service annuity unless the individual is removed "on charges of misconduct or delinquency." The language of the statute makes it clear that, as far as the nature of Mr. Litzenberger's involuntary separation was concerned, OPM had to do one thing and one thing only: determine whether the separation was based upon a charge of misconduct or delinquency. As both OPM and the Board recognized, OPM was not empowered to delve into the *merits* of Mr. Litzenberger's separation. Rather, OPM's sole task was to determine the *nature* of the separation. The statute uses the words "except by removal for cause on charges of misconduct or delinquency." It does not use the words "except when it is determined that the applicant was properly removed for cause on charges of misconduct or delinquency." Plainly, Mr. Litzenberger was involuntarily separated because he was removed for misconduct. One of the reasons why Mr. Litzenberger was removed was violation of the provision of the Directive that prohibits an employee from making irresponsible, false, or defamatory statements. Violation of that Directive provision obviously amounts to misconduct, a point which both OPM and the Board correctly recognized In my view, that should be the end of the case.

The majority states that OPM was correct when it concluded that "it could not make a collateral review whether the removal was justified." However, the majority then goes on to state that OPM erred by deciding that the removal was for misconduct without addressing Mr. Litzenberger's claim that the statements that gave rise to his removal were privileged because they were made in the state court litigation. Thus, the majority holds that "OPM could not deny an annuity for misconduct or delinquency without establishing or verifying the misconduct or delinquency, including verifying whether the assertedly culpable statements were privileged under Virginia law." According to the majority, "the Board was required to determine whether such statements can support denial of an annuity under § 8336(d)." It remands the case to the Board for that purpose.

I do not believe that it was necessary for OPM to verify Mr. Litzenberger's misconduct and determine whether the statements he made in the state court litigation were privileged. Indeed, I believe that it would have been improper for OPM to have done so. In my view, the majority is requiring OPM to do something that is contrary to the statute. Section 8336(d)(1) simply required OPM to determine whether, when the Authority removed Mr. Litzenberger, it did so because it (the Authority) believed that he was guilty of misconduct. As set forth above, OPM correctly determined that the Authority removed Mr. Litzenberger for misconduct, and the Board properly affirmed that determination. I believe that the majority errs in requiring OPM and the Board to go beyond that determination.

For the foregoing reasons, I respectfully dissent.

YAMANOUCHI PHARMACEUTICAL CO., LTD., Plaintiff–Appellee,

and

Merck & Co., Inc., Plaintiff–Appellee,

v.

DANBURY PHARMACAL, INC., Schein Pharmaceutical, Inc., and Marsam Pharmaceuticals, Inc., Defendants–Appellants.

No. 99–1521.

United States Court of Appeals, Federal Circuit.

Decided Nov. 3, 2000

Rehearing and Rehearing En Banc Denied Dec. 14, 2000.

Owner of patent for anti-ulcer drug famotidine brought infringement action

against competitor, who had filed Abbreviated New Drug Application (ANDA) for generic version. The United States District Court for the Southern District of New York, Richard Owen, Senior Judge, 21 F.Supp.2d 366, held for owner and awarded attorney fees. On appeal, the Court of Appeals, Rader, Circuit Judge, held that: (1) patent was not invalid as obvious, and (2) filing of baseless ANDA warranted award of attorney fees.

Affirmed.

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1. Patents ⇐16(1), 36.1(1)

Factors relevant to determination of whether patent is invalid due to obviousness are: (1) scope and content of prior art, (2) differences between prior art and claimed invention, (3) level of skill in art, and (4) objective indicia of nonobviousness. 35 U.S.C.A. § 103.

2. Patents ⇐16.25

For chemical compound, prima facie case of patent obviousness requires structural similarity between claimed and prior art subject matter, where prior art gives reason or motivation to make claimed compositions. 35 U.S.C.A. § 103.

3. Patents ⇐36.2(1)

Reasonable expectation of success, not absolute predictability, supports conclusion of patent obviousness. 35 U.S.C.A. § 103.

4. Patents ⇐16.25

Patent for anti-ulcer drug famotidine was not invalid due to obviousness absent showing that one of skill in art would have found motivation to combine piece from one chemical compound in prior art patent with piece of another compound in second prior art patent, and to then alter resulting intermediate compound to create famotidine. 35 U.S.C.A. § 103.

5. Patents ⇐313

Patent invalidity claimant was not deprived of right to be fully heard, on patentee's motion for judgment as matter of law, even though claimant was not allowed to examine inventor; claimant had had opportunity to depose inventor, but chose not to do so, inventor's proposed testimony would have contradicted testimony of claimant's expert, and inventor's proposed testimony would not have been relevant to dispositive issue. Fed.Rules Civ.Proc.Rule 52(c), 28 U.S.C.A.

6. Federal Courts ⇐830

Court of Appeals reviews district court's decision to award attorney fees under abuse of discretion standard, under which decision is affirmed unless it is clearly unreasonable, arbitrary, or fanciful, or based on erroneous conclusion of law or fact.

7. Patents ⇐249.1

Abbreviated New Drug Application (ANDA) filer may infringe prescription drug manufacturer's patent without engaging in any actual commercial activities; mere act of filing ANDA can constitute infringement. 35 U.S.C.A. § 271(e)(2).

8. Patents ⇐325.11(3)

Generic drug manufacturer's filing of unjustified Abbreviated New Drug Application (ANDA), asserting invalidity of ulcer drug manufacturer's patent, as well as its misconduct in ensuing litigation, warranted finding that case was exceptional one justifying award of attorney fees. Federal Food, Drug, and Cosmetic Act, § 505(j)(2)(A)(iv), 21 U.S.C.A. § 355(j)(2)(A)(iv); 35 U.S.C.A. §§ 271(e), 285.

Robert L. Baechtold, Fitzpatrick, Cella, Harper & Scinto, of New York, New York, argued for plaintiff-appellees. With him on the brief were Hugh C. Barrett, Brian V. Slater, William E. Solander, and Amr O. Aly. On the brief for Merck & Co., Inc., were Paul D. Matukaitis and William Krovatin, of Merck & Co., Inc., of Rahway, New Jersey. Also on the brief for Merck & Co., Inc., were John F. Lynch, Nicolas G. Barzoukas, and Gerard M. Devlin, Jr., Arnold, White & Durkee, of Houston, Texas.

William A. Alper, Cohen, Pontani, Lieberman & Pavane, of New York, New York, argued for defendants-appellants. With him on the brief were Thomas C. Pontani, Michael C. Stuart, Myron Cohen, Julia S. Kim, and Martin B. Pavane.

James F. Hurst, Winston & Strawn, of Chicago, Illinois, for amicus curiae National Pharmaceutical Alliance. Of counsel was Christine J. Siwik.

Before NEWMAN, RADER, and GAJARSA, Circuit Judges.

RADER, Circuit Judge.

On a motion for judgment as a matter of law (JMOL), the United States District Court for the Southern District of New York upheld the validity of claim 4 of U.S. Patent No. 4,283,408 (the '408 patent) in favor of Yamanouchi Pharmaceutical Co., Ltd. and Merck & Co., Inc. (collectively, Yamanouchi). *See Yamanouchi Pharm. Co. v. Danbury Pharmacal, Inc.*, 21 F.Supp.2d 366, 370, 48 USPQ2d 1741, 1744 (S.D.N.Y.1998). The district court also found that defendants Danbury Pharmacal, Inc. (Danbury), Schein Pharmaceutical, Inc. (Schein), and Marsam Pharmaceuticals, Inc. (Marsam) willfully infringed the '408 patent and awarded attorney fees to Yamanouchi. *See id.* at 378. Because the district court correctly upheld the validity of the '408 patent and did not abuse its discretion in awarding attorney fees, this court affirms.

I.

The '408 patent, issued to Yamanouchi on August 11, 1981, relates to inhibitors of gastric acid secretion. Claim 4 of the '408 patent, the only claim at issue, claims famotidine for treating heartburn and ulcers. Famotidine belongs to a class of compounds known as histamine$_2$ antagonists (H_2 antagonists), which inhibit production of stomach acid. As Figure 1 illustrates, the general chemical structure of H_2 antagonists includes a "substituted heterocycle" group, a "alkyl containing" chain (called a "bridge"), and a "polar tail," connected in that order:

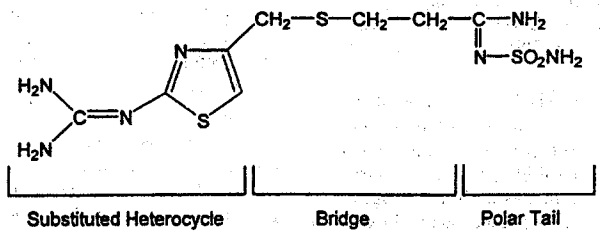


Figure 1 – Famotidine

During the 1960s and 70s, drug manufacturers searched for H_2 antagonists with improved pharmacological properties, including low toxicity, high activity, and lack of side effects. Research revealed hundreds of thousands of potential compounds. Indeed, pharmaceutical companies synthesized more than 11,000 H_2 antagonist compounds. *See Yamanouchi*, 21 F.Supp.2d at 371. Very rarely, however, were these compounds pharmacologically suitable H_2 antagonists. Notable failures include tiotidine, which caused cancer in rats; burimamide, which was ineffective for oral dosing; metiamide, which caused white blood cell loss; lupitidine, which caused pre-cancerous lesions in rats; and oxmetidine, which caused hepatitis.

Of the 11,000 candidates for suitable compounds, fewer than fifty showed enough promise to warrant human clinical trials. Ultimately, the FDA approved only

four for consumer use: cimetidine,[1] ranitidine,[2] famotidine,[3] and nizatidine.[4] Famotidine, the claimed compound at issue, has been extremely successful. In 1996, for example, prescription sales of famotidine in the United States alone reached over 690 million dollars.

Danbury is a subsidiary of Schein, which produces and markets generic drugs. In January 1997, Danbury filed an Abbreviated New Drug Application (ANDA) with the Food and Drug Administration (FDA) seeking approval to market generic famotidine. Under the ANDA procedure, an applicant seeks FDA approval to market a generic drug. The Hatch–Waxman Act, also known as The Drug Price Competition and Patent Term Restoration Act, Pub.L. No. 98–417, 98 Stat. 1585 (1984) (codified as amended at 21 U.S.C. § 355 and 35 U.S.C. § 271(e) (1994)), amended the Federal Food, Drug, and Cosmetic Act (FDCA), Pub.L. No. 52–675, 52 Stat. 1040 (1938) (codified as amended at 21 U.S.C. §§ 301–397 (1994)), to permit filing of an ANDA to expedite FDA approval of a generic version of a drug previously approved by the FDA. *See, e.g., Bayer AG v. Elan Pharm. Research Corp.*, 212 F.3d 1241, 1244, 54 USPQ2d 1711, 1712 (Fed. Cir.2000).

Under the FDCA, an ANDA filer must certify one of the following four statements concerning the previously approved drug: it is not patented (paragraph I certification), its patent has expired (paragraph II certification), its patent soon will expire on a specified date (paragraph III certification), or its patent "is invalid or will not be infringed by the manufacture, use, or sale of the new drug" covered by the ANDA (paragraph IV certification). *See* 21 U.S.C. § 355(j)(2)(A)(vii)(I)-(IV). To obtain approval of an ANDA, the FDCA requires only that the generic drug is the "bioequivalent" of the previously approved drug. *See* 21 U.S.C. § 355(j)(2)(A)(iv).

1. The FDA approved cimetidine in 1977; SmithKline Beecham sells it as TAGAMET®.

2. The FDA approved ranitidine in 1983; Glaxo–Wellcome sells it as ZANTAC®.

In Danbury's ANDA for famotidine, Danbury made a paragraph IV certification that claim 4 of the '408 patent is invalid. *See* 21 U.S.C. § 355(j)(2)(A)(vii)(IV). As the statute requires, Danbury, on March 26, 1997, sent Yamanouchi a Patent Certification Notice Letter. This certification letter informed Yamanouchi of Danbury's paragraph IV ANDA filing. Accompanying the certification letter were affidavits from Drs. Bernard Loev and John K. Siepler supporting Danbury's invalidity certification. The Notice Letter contained, as the statute requires, an analysis of the prior art and the reasons for the asserted invalidity.

Within forty-five days of receiving the certification letter, Yamanouchi filed suit against Danbury alleging infringement of the '408 patent under 35 U.S.C. § 271(e)(2)(A), and willful infringement under 35 U.S.C. § 285 (1994). *See* 35 U.S.C. § 271(e)(4). During this period, Marsam filed a number of paragraph IV ANDAs seeking FDA approval to market injectable versions of famotidine. Yamanouchi then filed suit against Marsam, and the two suits were consolidated (Danbury, Schein, and Marsam are hereinafter collectively referred to as Danbury). The parties agreed to a bench trial.

After Danbury presented its last witness on obviousness, Yamanouchi moved for JMOL under Fed.R.Civ.P. 52(c) (Rule 52(c)). With that motion, Yamanouchi argued that Danbury had not shown by clear and convincing evidence that claim 4 of the '408 patent would have been obvious at the time of invention. The district court granted Yamanouchi's JMOL motion. *See Yamanouchi*, 21 F.Supp.2d at 370. Specifically, the district court found that Danbury had not shown any motivation to combine selected portions of various prior art compounds to create the specific compound famotidine and to obtain its extraordinary properties. *See id.* at 373. The district court characterized Danbury's case for obviousness as largely hindsight, speculation, and argument without an adequate foundation. *See id.* at 370, 373, 376. Based on those findings, the district court determined that Danbury willfully infringed the '408 patent. The district court thus found the case "exceptional" and awarded attorney fees and costs to Yamanouchi. *See id.* at 378.

3. The FDA approved famotidine in 1986; Merck sells it as PEPCID®.

4. The FDA approved nizatidine in 1988; Eli Lilly sells it as AXID®.

II.

To grant a JMOL under Rule 52(c), a district judge must weigh the evidence and resolve credibility. *See* Fed.R.Civ.P. 52(a) and (c); *Lemelson v. United States*, 752 F.2d 1538, 1547, 224 USPQ 526, 530–31 (Fed.Cir.1985). Therefore, this court reviews the district court's JMOL findings as if entered at the conclusion of all the evidence. *See Lemelson*, 752 F.2d at 1547; *Woods v. North Am. Rockwell Corp.*, 480 F.2d 644, 645–46 (10th Cir.1973). This court reviews the conclusion on obviousness, a question of law, without deference, and the underlying findings of fact for clear error. *See Univ. of Colo. Found., Inc. v. Am. Cyanamid Co.*, 196 F.3d 1366, 1370, 52 USPQ2d 1801, 1803 (Fed.Cir. 1999).

A.

[1–3] Obviousness rests on several critical factual underpinnings: (1) the scope and content of the prior art, (2) the differences between the prior art and the claimed invention, (3) the level of skill in the art, and (4) the objective indicia of nonobviousness. *See Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1566–67, 1 USPQ2d 1593, 1595–96 (Fed.Cir. 1987); *Graham v. John Deere Co.*, 383 U.S. 1, 17, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966). For a chemical compound, a prima facie case of obviousness requires "structural similarity between claimed and prior art subject matter ... where the prior art gives reason or motivation to make the claimed compositions." *In re Dillon*, 919 F.2d 688, 692, 16 USPQ2d 1897, 1901 (Fed. Cir.1990) (*en banc*). "[A] reasonable expectation of success, not absolute predictability" supports a conclusion of obviousness. *In re Longi*, 759 F.2d 887, 896, 225 USPQ 645, 651–52 (Fed.Cir.1985).

As noted earlier, the district court discerned that Danbury had not proven any motivation to combine prior art references to produce the claimed invention. This court has recently reemphasized the importance of the motivation to combine:

> As this court has stated, "virtually all [inventions] are combinations of old elements." Therefore, an examiner [or accused infringer] may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner [or accused infringer] to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention.
>
> . . . .
>
> ... To counter this potential weakness in the obviousness construct, the suggestion to combine requirement stands as a critical safeguard against hindsight analysis and rote application of the legal test for obviousness.

In re Rouffet, 149 F.3d 1350, 1357–58, 47 USPQ2d 1453, 1457 (Fed.Cir.1998) (internal citations omitted).

[4] At the heart of this validity dispute is whether one of skill in this art would have found motivation to combine pieces from one compound in a prior art patent with a piece of another compound in the second prior art patent through a series of manipulations. According to Danbury, one of skill in the art would have considered it obvious to select the example 44 compound from Yamanouchi's U.S. Patent No. 4,252,819 (the '819 patent) and tiotidine from the '378 patent to use as leads for making

famotidine. These compounds, respectively, are three and eleven times more active than cimetidine—the benchmark compound at the time of invention (Figure 2). After selecting these two lead compounds, Danbury continues, it would have been obvious to combine the polar tail from example 44 (Figure 3) with the substituted heterocycle from tiotidine (Figure 4), thus creating the intermediate compound (Figure 5). Thereafter, to create famotidine, Danbury argues that it would have been obvious to perform a bioisosteric substitution of the carbamoyl ($CONH_2$) group in the intermediate compound with a sulfamoyl group (SO_2NH_2).

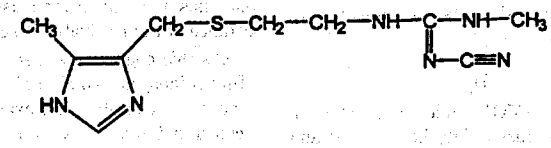


Figure 2 – Cimetidine

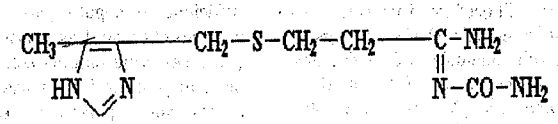


Figure 3 – Example 44

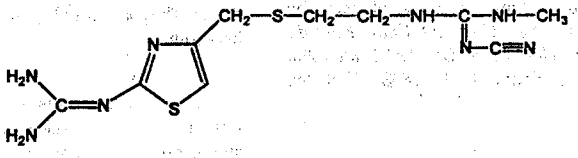


Figure 4 – Tiotidine

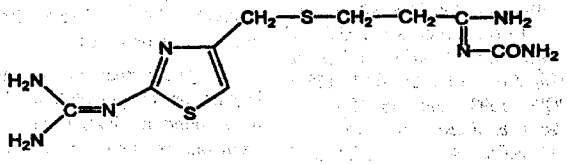


Figure 5 – Intermediate Compound

The district court correctly rejected Danbury's argument. Specifically, Danbury did not show sufficient motivation for one of ordinary skill in the art at the time of invention to take any one of the following steps, let alone the entire complex combination: (1) selecting example 44 as a lead compound, (2) combining the polar tail from example 44 with the substituted heterocycle from tiotidine, and (3) substituting the carbamoyl ($CONH_2$) group in the intermediate compound with a sulfamoyl group (SO_2NH_2) to create famotidine.

At the outset, Danbury did not show the required motivation for selecting example 44 as a lead compound. Danbury's assertion of motivation rests on the fact that example 44 is three times more active than cimetidine. That activity alone, however, is not sufficient motivation. As the trial court noted, other prior art references disclosed compounds with H_2 antagonist activity up to ten times higher than cimetidine. *See Yamanouchi*, 21 F.Supp.2d at 373. If activity alone was the sole motivation, other more active compounds would have been the obvious choices, not example 44.

Danbury also does not show the motivation to combine the polar tail of example 44 with the substituted heterocycle of tiotidine, then to substitute the carbamoyl with a sulfamoyl. To show such motivation, Danbury argues only that an ordinary medicinal chemist would have reasonably expected the resulting compound to exhibit the baseline level of H_2 antagonist activity. The baseline level of activity is a mere 1/65th the activity of cimetidine. This level of motivation does not show a "reasonable expectation of success." *In re Longi*, 759 F.2d at 897. The success of discovering famotidine was not discovering one of the tens of thousands of compounds that exhibit baseline H_2 antagonist activity. Rather, the success was finding a compound that had high activity, few side effects, and lacked toxicity. As Danbury's expert testified, the ordinary medicinal chemist would not have expected famotidine to have the "most desirable combination of pharmacological properties" that it possesses. J.A. at 1052.

Furthermore, the prior art offers no suggestion to pursue the particular order of manipulating parts of the compounds. Danbury's proposed obvious course of invention requires a very specific series of steps. Any deviation in the order of combination would have taught away from famotidine. If, for instance, the sulfamoyl group were substituted for the carbamoyl group on example 44 without attaching the substituted heterocycle from tiotidine, the evidence showed that the resulting compound would have 1/100th the activity of cimetidine. Famotidine, on the other hand, has 40 times the activity of cimetidine. Danbury offered no evidence suggesting what might have led an ordinary artisan in this field to follow the precise steps that produced a remarkable invention.

Danbury falls far short of satisfying its burden of showing a prima facie case for structural obviousness by clear and convincing evidence. Instead, as the district court aptly concluded, this case "has all the earmarks of somebody looking at this from hindsight." *Yamanouchi*, 21 F.Supp.2d at 370. Because Danbury did not show even a *prima facie* case for obviousness, this court has considered, but need not separately address, the strong objective evidence of non-obviousness.

B.

[5] On appeal, Danbury contends that the district court improperly rejected its request to examine the inventor of the '408 patent, Dr. Yanagisawa, and thereby abridged its right to be fully heard. At trial, Danbury proffered that Dr. Yanagisawa's testimony would show an alleged distortion in his data provided to the U.S. Patent and Trademark Office. The alleged distortion, according to Danbury, would prove that tiotidine is actually more active than famotidine.

Upon review, this court concludes that the district court did not abuse its discretion in excluding Dr. Yanagisawa as a witness. Under Rule 52(c), "the right to be 'fully heard' does not amount to a right to introduce every shred of evidence that a party wishes, without regard to the probative value of that evidence." *First Va. Banks, Inc. v. BP Exploration & Oil, Inc.*, 206 F.3d 404, 407 (4th Cir.2000); *see Gran-*

ite State Ins. Co. v. Smart Modular Tech., Inc., 76 F.3d 1023, 1031 (9th Cir.1996). Moreover, the advisory committee notes clarify that the rule "authorizes the court to enter judgment at any time that it can appropriately make a dispositive finding of fact on the evidence." Fed.R.Civ.P. 52 advisory committee notes (1991 amendment).

In the present case, the district court made a dispositive finding that the record showed no motivation to combine the prior art in the way suggested by Danbury. Dr. Yanagisawa's testimony would not bear on this dispositive finding. Rather, Danbury's own expert, Dr. Loev, testified that famotidine is more active than tiotidine—a position directly contrary to what Danbury stated would be shown by Dr. Yanagisawa's testimony. Further, Danbury, on appeal, admitted that it had an opportunity to notice and depose Dr. Yanagisawa, but did not do so.

Accordingly, this court agrees with the district court's finding that Danbury was fully heard within the meaning of Rule 52(c). This court therefore affirms the district court's grant of JMOL, sustaining the validity of claim 4 of the '408 patent.

III.

[6] This court reviews the district court's decision to award attorney fees under an abuse of discretion standard. *See Avia Group Int'l., Inc. v. L.A. Gear Cal., Inc.*, 853 F.2d 1557, 1567, 7 USPQ2d 1548, 1556 (Fed.Cir.1988). Under that standard, this court affirms the district court's decision unless the court's decision is clearly unreasonable, arbitrary or fanciful, or based on an erroneous conclusion of law or fact. *See Heat & Control, Inc. v. Hester Indus., Inc.*, 785 F.2d 1017, 1022, 228 USPQ 926, 930 (Fed.Cir.1986) (citations omitted).

[7] At the outset, this court recognizes that the Hatch–Waxman Act authorizes an award of attorney fees to the prevailing party in exceptional cases on the basis of an ANDA filing. As an initial matter, title 35 recognizes that the submission of an ANDA "shall be an act of infringement ... if the purpose of such submission is to obtain approval under such Act *to engage in* the commercial manufacture, use, or sale of a drug ... claimed in a patent[] before the expiration of such patent." 35 U.S.C. § 271(e)(2) (emphasis added). Thus, under the terms of the Act, an ANDA filer may infringe without even engaging in any actual commercial activities. The mere act of filing an ANDA constitutes infringement.

The Act also permits an award of attorney fees for infringement by an ANDA filing. Section 271(e)(4) states: "For an act of infringement described in paragraph (2) ... a court may award attorney fees under section 285." Section 285, in turn, provides: "The court in exceptional cases may award reasonable attorney fees to the prevailing party." 35 U.S.C. § 285. The "paragraph (2)" infringement specified in § 271(e)(4) is the filing of an ANDA. Accordingly, the Act unambiguously permits an award of attorney fees to the prevailing party in exceptional cases on the basis of an ANDA filing.

In fact, the Act singles out paragraph (2) infringement – ANDA filings – as a basis for an attorney fee award. In the same section, the Act allows damages and other monetary relief "only if there has been commercial manufacture, use, offer to sell, or sale within the United States ... of an approved drug." 35 U.S.C. § 271(e)(4)(C). Yet with regard to paragraph (2) infringement, the Act incorporates no such restriction, but rather authorizes fee awards. Accordingly, the Act itself does not limit an award of attorney fees for paragraph (2) infringement to cases involving infringing commercial sales. *See* 35 U.S.C. § 271(e)(4).

As noted above, section 271(e)(4) authorizes fee awards for paragraph (2) infringement in accordance with the standards for section 285 exceptional cases. This court, in turn, has recognized many varieties of misconduct that make a case exceptional for a fee award. These forms of misconduct include willful infringement, *see, e.g., Avia*, 853 F.2d at 1567; *Rosemount, Inc. v. Beckman Instruments, Inc.*, 727 F.2d 1540, 1548, 221 USPQ 1, 8–9 (Fed.Cir.1984), inequitable conduct before the PTO, offensive litigation tactics, vexatious or unjustified litigation, or frivolous filings, *see Hoffmann–La Roche Inc. v. Invamed Inc.*, 213 F.3d 1359, 1365, 54 USPQ2d 1846, 1850 (Fed.Cir.2000); *Beckman Instruments, Inc. v. LKB Produkter AB*, 892 F.2d 1547, 1551, 13 USPQ2d 1301, 1304 (Fed.Cir.1989).

[8] In the present case, the district court determined that Danbury's conduct amounted to willful infringement. *See Yamanouchi*, 21 F.Supp.2d at 376. An ANDA filing by its very nature is a "highly artificial act of infringement," therefore, the trial court need not have elevated the ANDA certification into a finding of willful infringement. *See Eli Lilly & Co. v. Medtronic, Inc.*, 496 U.S. 661, 678, 110 S.Ct. 2683, 110 L.Ed.2d 605, 15 USPQ2d 1121, 1130 (1990). Rather, Danbury's misconduct in filing a wholly unjustified ANDA certification and misconduct during the litigation that followed warranted the district court's finding that this case was exceptional.

The joint operation of §§ 271(e) and 285 require the paragraph (2) infringer to display care and regard for the strict standards of the Hatch–Waxman Act when challenging patent validity. As already noted, the Hatch–Waxman Act authorizes challenges to the validity of patents in accordance with strict statutory requirements. Specifically, a paragraph IV filing requires "a certification, in the opinion of the applicant *and to the best of his knowledge*, [that] each patent ... for which the applicant is seeking approval ... is invalid." 21 U.S.C. § 355(j)(2)(A)(vii)(IV) (emphasis added). The Hatch–Waxman Act thus imposes a duty of care on an ANDA certifier. Thus, a case initiated by a paragraph (2) filing, like any other form of infringement litigation, may become exceptional if the ANDA filer makes baseless certifications.

This court concludes that the district court's finding that Danbury made a baseless certification is not clearly erroneous. In the first place, Danbury's case for obviousness presented at trial contained glaring weaknesses, precipitating a JMOL. The ANDA certification notice and its supporting affidavits, upon which Danbury relies to show that it had a good faith belief in invalidity, suffer similar weaknesses. The certification statute requires notice to the patentee of "the factual and legal basis" of invalidity. *See* 21 U.S.C. § 355(j)(2)(B)(ii). Danbury's notice does not present a *prima facie* case of invalidity, and makes no reference to famotidine's potency, safety, and lack of side effects, among other distinguishing properties accompanying its unusually high activity. *See Yamanouchi*, 21 F.Supp.2d at 376. "Moreover, Dr. Loev admitted at trial that, as of 1992, he could not tell from [famotidine's] chemical structure whether it would be toxic nor predict its lack of side effects. He further testified that he could not predict the effects on potency that would be caused by the structural manipulations he claimed to be obvious." *Id.* When Danbury proceeded in the face of these weaknesses, its certification amounted to baseless and unjustified misconduct. In certifying invalidity, Danbury disregarded its duty to exercise due care.

In assessing whether a case qualifies as exceptional, the district court must look at the totality of the circumstances. *See Kaufman Co., Inc. v. Lantech, Inc.*, 807 F.2d 970 at 978–79, 1 USPQ2d 1202, 1208 (Fed.Cir.1986). These circumstances include Danbury's choice to produce during trial a 1993 opinion from its patent attorney, Mr. Alfred B. Engelberg. This legal opinion contained an acknowledged error in chemistry, which was critical to its conclusion of obviousness. Danbury's own expert, Dr. Loev, conceded at trial that "Engelberg's interpretation of the ['408] patent was patently incorrect and that the ['408] patent nowhere described the formulation relied upon by Engelberg." *See Yamanouchi*, 21 F.Supp.2d at 376.

Based on the foregoing, the district court properly found that Danbury's ANDA filing was "without adequate foundation and speculative at best." *Yamanouchi*, 21 F.Supp.2d at 376. The district court thus found the case "exceptional" and awarded attorney fees to Yamanouchi. This court detects no abuse of discretion by the district court in its award. This court therefore affirms the district court's award of attorney fees to Yamanouchi.

CONCLUSION

Because the prior art does not render obvious claim 4 of the '408 patent, this court affirms the district court's grant of JMOL upholding its validity. Moreover, because the district court did not abuse its discretion in awarding attorney fees, this court affirms.

COSTS

Each party shall bear its own costs.

AFFIRMED.

John O. ROANE, Plaintiff–Appellee,

v.

UNITED STATES, Defendant–Appellant.

No. 00–5015.

United States Court of Appeals, Federal Circuit.

Decided Nov. 3, 2000.

Major who retired from the Air Force after having been considered but nonselected for promotion three times brought action alleging that procedures used by selection boards violated statute and Department of Defense Directive. The United States Court of Federal Claims, Robert H. Hodges, Jr., J., 36 Fed.Cl. 168, awarded reinstatement and back pay. United States appealed. The Court of Appeals, Plager, Circuit Judge, held that Air Force's division of its Promotion Review Boards into smaller review panels was permissible interpretation of relevant statutes and consistent with Department of Defense directive.

Reversed.

Armed Services ⇐7

Air Force's division of its Promotion Review Boards into smaller review panels was permissible interpretation of statutes governing promotion recommendations in the armed forces and reports of selection boards, and was consistent with Department of Defense directive requiring that single board be convened to consider all eligible officers in the same grade and competitive category. 10 U.S.C.A. §§ 616, 617.

Guy J. Ferrante, King & Everhard, P.C., of Falls Church, Virginia, argued for plaintiff-appellee.

Armando O. Bonilla, Attorney, Commercial Litigation Branch, Civil Division, Department of Justice, of Washington, DC, argued for defendant-appellee. With him on the brief were David W. Ogden, Assistant Attorney General; David M. Cohen, Director; and Kirk T. Manhardt, Assistant Director. Of counsel was James M. Kinsella, Deputy Director. Of counsel on the brief was Lt. Col. Ralph A. Bauer, Chief, Military Personnel Branch, Office of General Counsel, General Litigation Division, United States Air Force, of Arlington, Virginia.

Before PLAGER, Circuit Judge, ARCHER, Senior Circuit Judge, and GAJARSA, Circuit Judge.

PLAGER, Circuit Judge.

The United States appeals the judgment of the Court of Federal Claims, which held that the method used by the United States Air Force ("Air Force") in awarding promotions was invalid because it was inconsistent with various statutes and a Department of Defense ("DoD") Directive. *See Roane v. United States*, 36 Fed. Cl. 168 (1996). The Court of Federal Claims awarded reinstatement with back pay to Major John Roane, on the grounds that the Air Force Promotion Review Boards that denied his promotion were illegally constituted. Because the decision of the Court of Federal Claims is inconsistent with binding precedent subsequently issued by this court, we reverse. Before the Court of Federal Claims, Major Roane challenged the legality of the Air Force Promotion Review Boards that denied him promotion, on the grounds that they were divided into smaller review panels, which he alleges is contrary to the dictates of 10 U.S.C. §§ 616 and 617 (1994), as well as DoD Directive 1320.9 (Sept. 18, 1981). The Court of Federal Claims held for Major Roane, stating: "Neither the governing statute nor DoD Directive 1320.9 provides for panels in this circumstance.... The Air Force System is contrary to the stated purpose of the statute and the regulations." 36 Fed. Cl. at 170. However, the Court of Federal Claims rendered its decision before the issuance of our opinion in *Small v. United States*, 158 F.3d 576 (Fed. Cir.1998). In *Small*, we held that the Air Force's division of its Promotion Review Boards into smaller panels was a permissible interpretation of §§ 616 and 617, as well as consistent with DoD Directive 1320.9. *Id.* at 581; *see also Fluellen v. United States*, 225 F.3d 1298 (Fed.Cir. 2000). Because it is contrary to this binding precedent, the decision of the Court of Federal Claims is

REVERSED.

William K. VanCANAGAN, in his capacity as personal representative of the Estate of Ford Bovey, and Sharon Bovey, Plaintiffs–Appellants,

v.

UNITED STATES, Defendant–Appellee.

No. 99–5040.

United States Court of Appeals, Federal Circuit.

Decided Oct. 17, 2000.

Taxpayers filed income tax refund suit. The United States Court of Federal Claims, Robert H. Hodges, Jr., J., dismissed the suit, and taxpayers appealed. The Court of Appeals for the Federal Circuit, Friedman, Senior Circuit Judge, held that: (1) where taxpayers received two extensions, totaling six months, for filing their returns, the amount of credit or refund could not exceed the amount of the tax they paid during the 42 months before the filing of their return, more than four years after the extended due date, and (2) the $150,000 the taxpayers remitted with their application for an extension of time for filing income tax return was a "payment" and not a "deposit," and thus they could not obtain a credit or refund more than 42 months later.

Affirmed.

1. Internal Revenue ⇐4969

Where taxpayers received two extensions, totaling six months, for filing their income tax returns, the amount of credit or refund for overpayment could not exceed the amount of the tax they paid during the 42 months before the filing of their return, more than four years after the extended due date. 26 U.S.C.A. § 6511(a), (b)(2).

2. Internal Revenue ⇐4960

The $150,000 the taxpayers remitted with their application for an extension of time for filing income tax return was a

proffer any evidence in support of its argument that its marks are famous, and therefore, the Board declined to find that the HP mark was famous. In its brief to this court, HP does not argue that the Board erred in not treating HP's mark as famous. At oral argument, however, counsel for HP suggested that the Board might have taken judicial notice of HP's fame, based on the proffered registration of HP's house mark. At oral argument, in response to questions from the bench as to why HP had failed to make any record at the Board to support a fame argument, the question arose as to whether judicial notice should have been taken of the fame of the HP mark. This court has, on one occasion in the past, taken judicial notice of the fame of a mark when considering a Board decision on appeal. *See B.V.D. Licensing Corp. v. Body Action Design, Inc.*, 846 F.2d 727, 728 (Fed.Cir.1988). In that case, however, the request for judicial notice was made in the briefs, and not at the late stage of oral argument, as is the case here. We consequently decline to consider whether to take judicial notice of the fame of HP's marks. *See Henry v. Department of Justice*, 157 F.3d 863, 865 (Fed.Cir.1998) (stating that arguments raised for the first time at oral argument come too late). Therefore, we have no occasion today to consider whether our authority to take judicial notice of a mark's fame, for the first time on appeal, survives in the light of *Dickinson v. Zurko*, 527 U.S. 150, 165, 119 S.Ct. 1816, 144 L.Ed.2d 143, 50 USPQ2d 1930, 1937 (1999), and our need to faithfully follow the rule of *Securities and Exchange Comm'n v. Chenery Corp.*, 318 U.S. 80, 95, 63 S.Ct. 454, 87 L.Ed. 626 (1943) ("[A]n administrative order cannot be upheld unless the grounds upon which the agency acted in exercising its powers were those upon which its action can be sustained.").

[13] We hold that the Board correctly declined to consider the fame factor. Our caselaw has consistently stated that the conclusion that a mark is famous is based on several important factual findings. *See DuPont*, 476 F.2d at 1361, 177 USPQ at 567 (indicating that the sales, advertising, and length of use of the mark are to be considered when evaluating the fame of the mark); *Recot*, 214 F.3d at 1326, 54 USPQ2d at 1896 (describing relevant evidence of record supporting conclusion that the FRITO-LAY mark is famous). That the fame factor is based on underlying factfinding dictates that relevant evidence must be submitted in support of a request for treatment under the fame factor. This responsibility to create a factual record is heightened under the more deferential standard that this court must apply when reviewing PTO factfinding. *See Zurko*, 527 U.S. at 165, 119 S.Ct. 1816, 50 USPQ2d at 1937; *Gartside*, 203 F.3d at 1315, 53 USPQ2d at 1775. This is because judicial review under the substantial evidence standard, *see Gartside*, 203 F.3d at 1314, can only take place when the agency explains its decisions with precision, including the underlying factfindings and the agency's rationale. This necessarily requires that facts be submitted to the agency to create the record on which the agency bases its decision. Because HP did not proffer such evidence in support of its argument that its marks are famous, the Board properly declined to address this issue.

III

[14] Packard perceives an additional flaw in the Board's decision. Specifically, Packard asserts that it profferred evidence that its planned trade channels and customer classes differed from those of HP, yet the Board failed to consider this evidence. *See DuPont*, 476 F.2d at 1361, 177 USPQ at 567 (describing channel of trade and class of customer factors). Packard made the same argument concerning the relatedness of its services to HP's goods, and the Board properly rejected Packard's argument, as noted above. Specifically, the Board did not err by looking to the identification of the services set forth in Packard's application. *See Octocom*, 918 F.2d at 942, 16 USPQ2d at 1787 (Fed.Cir. 1990). When the registration does not contain limitations describing a particular channel of trade or class of customer, the goods or services are assumed to travel in all normal channels of trade. *See Canadian Imperial Bank of Commerce v. Wells Fargo Bank, N.A.*, 811 F.2d 1490, 1492, 1 USPQ2d 1813, 1814–15 (Fed.Cir.1987). The Board properly based its analysis on Packard's registration, which contains no restrictions as to a particular class of consumer or channel of trade, and assumed that applicant and opposer's goods and services may be marketed "in some of the same manners" to the same classes of purchasers. *Hewlett-Packard*, slip op. at 8, 1999 WL 792477. We perceive no reversible error in the Board's treatment of these *DuPont* factors.

CONCLUSION

For the reasons stated above, we vacate the Board's decision and remand the case to the Board for further proceedings consistent with this decision.

COSTS

No costs.

VACATED AND REMANDED

ECOLOCHEM, INC., Plaintiff-Appellant,

v.

SOUTHERN CALIFORNIA EDISON COMPANY, Defendant-Appellee.

No. 99-1043.

United States Court of Appeals, Federal Circuit.

Sept. 7, 2000.

Patentee of deoxygenation processes for liquid containing dissolved oxygen brought patent infringement action against operator of nuclear generating station. Operator counterclaimed for declaratory judgment of invalidity, and asserted equitable defenses. The United States District Court for the Central District of California, 863 F.Supp. 1165, granted partial summary judgment for operator, invalidating certain claims. The Court of Appeals affirmed in part and reversed in part. Following bench trial, the District Court, Richard A. Paez, J., 1998 WL 1182000, found willful infringement, but determined that all infringed claims were invalid. Patentee appealed. The Court of Appeals, Michel, Circuit Judge, held that: (1) patent claims were not anticipated by prior art articles; (2) one claim was anticipated by scientist's public presentation; (3) majority of claims were not rendered obvious by prior art, absent motivation to combine prior art references; but (4) patentee did not rebut prima facie case of obviousness as to one claim.

Affirmed in part, reversed in part, and remanded.

1. Patents ⇐70

Claims in patent for deoxygenation processes for liquid containing dissolved oxygen were not anticipated by prior art articles, since articles' discussion of applications of deoxygenated water was limited to use of hydrogen deoxygenation, while patent claims involved deoxygenation by hydrazine in combination with a mixed bed ion exchange resin. 35 U.S.C.A. § 102(a).

2. Patents ⇐324.55(4)

Court of Appeals reviews for clear error the district court's decision on anticipation of a patent claim after trial. 35 U.S.C.A. § 102(a).

3. Patents ⇐60

Claims in patent for deoxygenation processes for liquid containing dissolved oxygen, which required removal of excess hydrazine in the final ion exchange step, were not anticipated by scientist's public presentation at International Water Conference, which did not discuss removal of

excess hydrazine, but presentation did anticipate claim directed to deoxygenation process comprising steps of passing liquid containing oxygen and hydrazine through activated carbon, and then passing liquid through mixed bed ion exchange resins to remove at least the dissolved contaminants. 35 U.S.C.A. § 102(a).

4. Patents ⇐60

A public presentation indicative of the state of knowledge and use of an invention in the United States qualifies as prior art for anticipation purposes under the patent statute. 35 U.S.C.A. § 102(a).

5. Patents ⇐324.55(4)

Court of Appeals reviews de novo the district court's conclusion of obviousness of a patent claim. 35 U.S.C.A. § 103(a).

6. Patents ⇐16.5(1)

Patent claims directed to deoxygenation processes for liquid containing dissolved oxygen, which used process set forth in prior art article, including use of carbon bed, followed by use of mixed bed ion exchange resin downstream of carbon bed, were not rendered obvious by combination of article and other references, as there was no evidence of any suggestion, teaching, or motivation to combine article and other references, and there was evidence of teaching away from demineralization and deoxygenation processes used by patentee. 35 U.S.C.A. § 103(a).

7. Patents ⇐16(4)

Court of Appeals cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention pursuant to a claim that patent is invalid for obviousness. 35 U.S.C.A. § 103(a).

8. Patents ⇐26(1)

When a rejection for obviousness depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references, and the same principle applies to invalidation of the patent. 35 U.S.C.A. § 103(a).

9. Patents ⇐16(4), 26(1)

Although the suggestion to combine prior art references may flow from the nature of the problem, defining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness; therefore, when determining the patentability of a claimed invention which combines two known elements, the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. 35 U.S.C.A. § 103(a).

10. Patents ⇐36(1)

Broad conclusory statements regarding the teaching of multiple prior art references, standing alone, are not evidence of a motivation to combine those references, as would support a claim of obviousness. 35 U.S.C.A. § 103(a).

11. Patents ⇐36.1(2, 3), 36.2(1)

Patentee failed to rebut prima facie case of obviousness as to claim for deoxygenation process for liquid containing dissolved oxygen, despite some evidence of secondary considerations of nonobviousness such as modest commercial success and teaching away from use of prior art process incorporated in claimed process, in light of absence of any evidence that others were trying to emulate patented process, and fact that patentee applied for patent on the process within two years of publication of industry guidelines recommending use of deoxygenated water in nuclear power plants. 35 U.S.C.A. § 103(a).

12. Patents ⇐324.5, 324.55(4)

While Court of Appeals review the district court's factual findings on the secondary considerations of obviousness for clear error, on claim of patent invalidity, Court reviews the ultimate determination of obviousness de novo. 35 U.S.C.A. § 103(a).

13. Patents ⇐36.2(4), 324.55(4)

District court clearly erred in finding that operator of nuclear generating station

established that success of patentee's invention, namely, a deoxygenation process for liquid containing dissolved oxygen, was due to factors not claimed in the patented invention, for purpose of claim that patent claim was invalid as obvious, in light of operator's own statements that success was based both on mobility of commercial embodiment of invention, which was not claimed, and on invention's improved filtration process, which was claimed. 35 U.S.C.A. § 103(a).

14. Federal Courts ⇐844

Court of Appeals gives great deference to the district court's decisions regarding credibility of witnesses.

15. Patents ⇐34

The fact of near-simultaneous invention, though not determinative of statutory obviousness, is strong evidence of what constitutes the level of ordinary skill in the art, although the possibility of near simultaneous invention by two or more equally talented inventors working independently may or may not be an indication of obviousness when considered in light of all the circumstances. 35 U.S.C.A. § 103(a).

16. Patents ⇐36(3)

District court clearly erred in finding that prior art did not teach away from using process set forth in prior art article, or from combining it with a mixed bed ion exchange resin in any manner, to develop claimed deoxygenation and demineralization process used in nuclear power generator, for purpose of claim that patent directed to deoxygenation process was obvious, in view of various references warning against use of prior art process due to carbon contaminants, and reference finding prior art process to be inefficient and expensive. 35 U.S.C.A. § 103(a).

17. Patents ⇐36.1(2, 5)

One indicia of non-obviousness of a patented product is the acclamations it receives when it is released, and the copying that occurs. 35 U.S.C.A. § 103(a).

18. Patents ⇐36.1(2)

Court's belief that patented process was not novel was not proper basis for discounting copying of claimed invention as evidence of nonobviousness. 35 U.S.C.A. § 103(a).

19. Patents ⇐36.1(2)

A showing of copying of a claimed invention is only equivocal evidence of nonobviousness in the absence of more compelling objective indicia of other secondary considerations, because the alleged copying could have occurred out of a general lack of concern for patent property. 35 U.S.C.A. § 103(a).

Clifton E. McCann, Lane, Aitken & McCann, of Washington, DC, argued for plaintiff-appellant. With him on the brief was Andrew C. Aitken.

Ted G. Dane, Munger, Tolles & Olson, of Los Angeles, California, argued for defendant-appellee. With him on the brief was Gregory P. Stone.

Before MICHEL, CLEVENGER, and RADER, Circuit Judges.

MICHEL, Circuit Judge.

Ecolochem, Inc. ("Ecolochem") filed suit in 1992, alleging that Southern California Edison Company ("Edison") infringed Ecolochem's U.S. Patent Nos. 4,556,492 ("the '492 patent") and 4,818,411 ("the '411 patent") when deoxygenating water in the High–Flow Makeup Demineralizer ("HFMUD") at Edison's San Onofre Nuclear Generating Station ("SONGS"). Edison denied infringement, counterclaimed for declaratory judgment of invalidity, and asserted equitable defenses. By grant of partial summary judgment to Edison, the United States District Court for the Central District of California invalidated claims 1, 2, and 5–10 of the '492 patent and claims 20–21 of the '411 patent, holding the subject matter of each of these claims to be either anticipated under 35 U.S.C. § 102 and/or obvious under 35 U.S.C. § 103. On appeal to this court, we reversed the holding by the district court that there was no genuine issue of material

fact that the invention of claim 20 of the '411 patent would have been obvious at the time of the invention, and remanded the case for a trial on invalidity in light of Ecolochem's evidence of secondary considerations. As to the invalidation of the other appealed claims, we affirmed. Ecolochem continued to assert infringement of claims 1, 3–13, 15, 17, 18, and 20 of the '411 patent after remand, but dropped its suit as to the remaining claims of the '492 patent. After a bench trial, the district court found that Edison had willfully infringed claims 1, 3–13, 15, 17, 18, and 20 of Ecolochem's '411 patent and rejected Edison's equitable defenses. The court then went on to invalidate all of the claims found to be infringed. Ecolochem appeals the holdings of invalidity as to claims 1, 3–13, 15, 17, 18, and 20 of the '411 patent here. Edison does not cross-appeal the district court's finding that Edison willfully infringed those claims of the '411 patent.

We affirm the district court's finding that claim 20 of the '411 patent was proven invalid by clear and convincing evidence both as anticipated under 35 U.S.C. § 102 and obvious under 35 U.S.C. § 103. We reverse its findings of invalidity for anticipation for claims 1, 4, and 7–12 because we discern clear error in the district court's finding that the prior art was proven by clear and convincing evidence to have recited every limitation of claims 1, 4, and 7–12. We also reverse the district court's conclusions that the subject matter of claims 1, 3–13, 15, 17, and 18 of the '411 patent was proven invalid for obviousness by clear and convincing evidence, as we discern clear error in the district court's implicit finding that there was motivation to combine the teachings of the prior art references. As the district court's findings of willful infringement stand unchallenged, we remand for a determination of damages.

BACKGROUND

Edison operates SONGS, a type of nuclear power plant known as a Pressurized Water Reactor ("PWR"). PWRs use water in two systems, called the "primary system" and the "secondary system." A minute amount of water from the secondary system is lost during each operation cycle. This water must be replaced, and the replacement water is commonly referred to as "make-up water." Because water in the secondary system must be of extremely high purity, make-up water is supplied from a make-up demineralization system, which takes outside source water and refines it through "demineralization," *i.e.*, the removal of mineral ions.

During the start-up operations for SONGS, Edison decided to construct a HFMUD to meet the make-up water needs of SONGS' two active reactors. While the HFMUD was being constructed, Edison employed outside vendors, including Ecolochem, to provide the needed make-up water. Before hiring Ecolochem, Edison hired other vendors who provided poor quality water and constantly shuttled demineralization trucks on and off Edison's property to meet Edison's requirements. In the summer of 1982, Edison hired Ecolochem to provide purer quality water at the large volumes Edison needed to meet its make-up water needs. Ecolochem used a patented "Mobile Flow" trailer apparatus to provide water treatment services, which enabled it to regenerate its trailers on-site, thus avoiding the other vendors' needs to truck the impure water off-site. Ecolochem, however, was hired only to produce demineralized water, not water that had been both demineralized and deoxygenated.

The Electrical Power Research Institute ("EPRI"), a research organization for the power industry, published new guidelines in 1982, recommending the use of deoxygenated water in PWRs. These guidelines were soon implemented throughout the utility industry. In direct response to these guidelines, Edison asked Ecolochem to deoxygenate the make-up water used in SONGS. Shortly thereafter, Ecolochem began developing the patented process at issue in the instant case.

Once construction of the HFMUD was finished, Edison had no further need for Ecolochem's services, being able to now produce, on its own, sufficient, high purity, deoxygenated make-up water by passing the water through the HFMUD. The HFMUD passes the make-up water through a strong acid cation [1] resin bed, a predominantly weak base anion [2] resin bed, an activated carbon bed, a second strong acid cation resin bed, a strong base anion bed, and, finally, a vacuum deareator. This process removes suspended, undissolved solids and dissolved impurities, including salt, mineral ions, organic chemicals, and oxygen.

Ecolochem alleged that Edison's process, as described above, infringes its '411 patent. Ecolochem asserted all three independent claims of the '411 patent, and multiple dependent claims. The independent claims read as follows:

1. A deoxygenation process comprising a first step of contacting a liquid contacting [sic] dissolved oxygen and hydrazine with a bed of activated carbon to catalyze a reaction between said dissolved oxygen and a portion of said hydrazine, whereby an amount of dissolved carbon contaminants is added to said liquid, and a second step of removing said contaminants and said unreacted hydrazine that comprises passing said liquid through a strong acid cation exchange resin and a strong base anion exchange resin.

15. A deoxygenation process comprising a first step of contacting water containing dissolved oxygen and hydrazine with a bed of activated carbon to catalyze a reaction between said dissolved oxygen and a portion of said hydrazine, whereby an amount of dissolved and undissolved activated carbon contaminants are added to said water, a second step of removing said dissolved contaminants and said unreacted hydrazine by passing said water through a strong acid cation exchange resin and a strong base anion exchange resin, said water being at a temperature above the freezing point of water and below a temperature that would damage said resins, removing said undissolved contaminants by passing said water through a filter whereby said undissolved contaminants are filtered from said water, and a fourth step of circulating said water in a power generating apparatus after said removing step.

20. A deoxygenation process comprising a first step of contacting a liquid containing dissolved oxygen and hydrazine with a bed of activated carbon to catalyze a reaction between said dissolved oxygen and said hydrazine, whereby an amount of dissolved activated carbon contaminants is added to said liquid, and a second step of removing at least said dissolved contaminants by passing said liquid through a strong acid cation exchange resin and a strong base anion exchange resin.

Asserted claims 3–13 depend on claim 1. Asserted claims 17 and 18 depend on claim 15. Claim 20 is independent, and no claims dependent thereon are asserted.

All asserted claims in suit recite a deoxygenation process for removing dissolved oxygen from a liquid. In representative claim 20, liquid containing oxygen and hydrazine passes through activated carbon, thus catalyzing a reaction between the oxygen and hydrazine, whereby an amount of dissolved carbon contaminants falls out of the reaction and is added to the liquid. Then the liquid passes through ion exchange resins, including both strong acid cation and strong base anion exchange resins,[3] to remove at least the dissolved con-

1. Cation: An ion having a positive charge. *See Webster's Ninth New Collegiate Dictionary* 216 (1990).

2. Anion: An ion having a negative charge. *See Webster's Ninth New Collegiate Dictionary* 87 (1990).

3. A cation/anion exchange resin is a resin which, when brought in contact with liquid containing cation/anion contaminants, removes them.

taminants. The invention of independent claim 1 is similar, except that the resins also remove any unreacted hydrazine. Claims 3 through 6 and claims 10 through 13 require further steps in the deoxygenation process, *e.g.*, filtration. Claim 7 requires the temperature of the liquid to be above the liquid's freezing point, and below the temperature at which the resins would be damaged. Claim 8 requires the liquid to be water. Claim 9 requires that the liquid of claim 1 be water and that the water be circulated in a power generating apparatus. Independent claim 15 recites a combination similar to claim 9, and claims 17 and 18 add hydrazine and demineralize the water.

The '411 patent issued in 1989 from a continuation of an application which issued as the '492 patent on December 5, 1985. Both the '411 and '492 patents are entitled "Deoxygenation Process." At the outset of this litigation, Ecolochem asserted claims under both the '492 and '411 patents.

On September 1, 1994, Judge Gadbois, the original trial judge, granted-in-part and denied-in-part Edison's motion for summary judgment seeking to invalidate various asserted claims of Ecolochem's patents. *See Ecolochem, Inc. v. Southern Cal. Edison Co.*, 863 F.Supp. 1165 (C.D.Cal.1994). Judge Gadbois held claims 1, 2, and 5–10 of the '492 patent and claims 20 and 21 of the '411 patent to be invalid as either obvious and/or anticipated. Ecolochem appealed the partial summary judgment as to claims 1, 2, 5–7, and 10 of the '492 patent and claim 20 of the '411 patent. Ecolochem did not appeal the findings of invalidity of claims 8 and 9 of the '492 patent or claim 21 of the '411 patent. We affirmed the district court's holdings of anticipation of claims 1, 2, 5, and 6 and obviousness of claims 7 and 10 of the '492 patent. We reversed the summary judgment of obviousness of claim 20 of the '411 patent and remanded the case for a trial weighing the secondary consideration evidence as to claim 20. *See Ecolochem, Inc. v. Southern Cal. Edison Co.*, No. 95–1320, 91 F.3d 169, 1996 WL 297601 (Fed. Cir. June 5, 1996) (table).

Upon remand, the case was randomly reassigned to Judge (now Circuit Judge) Richard A. Paez[4] to conduct a trial on claim 20 and the remaining claims upon which summary judgment had not been granted in the earlier district court decision. Ecolochem asserted infringement with respect to claims 1, 3–13, 15, 17, 18, and 20 of the '411 patent. *See Ecolochem, Inc. v. Southern Cal. Edison*, No. 92–3436, 1998 WL 1182000, *5 (C.D.Cal.1998) ("*Ecolochem*"). After a bench trial, Judge Paez found that Edison had willfully infringed claims 1, 3–13, 15, 17, 18, and 20 of Ecolochem's '411 patent. Judge Paez, however, held claims 1, 3–13, 15, 17, 18, and 20 of the '411 patent to be invalid for obviousness and claims 1, 4, 7–12 and 20 also to be invalid as anticipated.

Ecolochem appeals the rulings of the district court that claims 1, 4, 7–12, and 20 were anticipated and that the inventions of claims 1, 3–13, 15, 17, 18, and 20 would have been obvious. Edison does not cross-appeal the district court's findings of willful infringement.

We have jurisdiction under 28 U.S.C. § 1295(a)(1) (1994).

ANALYSIS

I. Anticipation

A. The Martinola Reference

[1, 2] The district court found claims 1, 4, 7–12, and 20 of the '411 patent to be anticipated by either of two articles, one published in 1980 and the other in 1981, by Dr. Friedrich Martinola and a co-author, both of which are entitled "Saving Energy by Catalytic Reduction of Oxygen in Feedwater." *See* Dr. Friedrich Martinola & P. Thomas, *Saving Energy by Catalytic Reduction of Oxygen in Feedwater, in Proceedings of the 41st International Water Conference Pittsburgh* 77 (1980); Dr. Friedrich Martinola and P. Thomas, *Saving Energy by Catalytic Reduction of Oxygen in Feedwater, in Effluent and Water Treatment Journal* 542 (December 1981).[5] Because these two articles are in most aspects identical, we refer to them together throughout as "the Martinola reference." We review the district court's decision on anticipation after trial for clear error. *See Lindemann Maschinenfabrik GMBH v. American Hoist and Derrick Co.*, 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed.Cir.1984).

The district court focused on Figure 10 of the Martinola reference (which is the same figure in both articles). Figure 10 shows a few possible uses for deoxygenated water, such as supplying make-up water for boilers, or for nuclear reactors. The figure is essentially a flow chart indicating various ways for the water to be deoxygenated, depending on the potential destination of the water. Water designated for nuclear reactors is shown flowing through three steps: demineralization, and then a two-step deoxygenation process, which is accomplished by passing the water through a catalyst column and a mixed bed.[6] The district court interpreted Figure 10 as showing that the catalyst column can contain *either* the Lewatit catalyst *or* activated carbon. The district court found that the reactant can be either hydrogen or hydrazine.

On the face of the 1980 Martinola article, which fails to provide a detailed description of Figure 10, there is a bold heading reading: **Application of oxygen reduction in water with hydrogen.** Beneath this heading are two paragraphs of text, followed by Figure 10. The text reads:

> The process is recommended wherever the heat used for thermal degassing cannot be recovered. It will therefore be primarily used where the work has to be carried out at ambient temperature or where there is no heating steam available.
>
> Fig. 10 shows a few suggested applications. It also includes systems for the simultaneous treatment of water with ion exchange resins and oxygen reduction with catalysts.

Martinola at 81–82 (1980). The 1981 article, on the other hand, has no bold headings, but discusses Figure 10 in more detail. The paragraph directly following Figure 10 reads:

> [T]he application of hydrogen to reduce oxygen in water is recommended wherever the heat used for thermal degassing cannot be recovered. It will therefore be primarily used where the work has to be carried out at ambient temperature or where there is no heating steam available.
>
> Figure 10 shows a few suggested applications.

Martinola at 546 (1981). The latter description clarifies that Figure 10 is not meant to illustrate the use of either hydrogen or hydrazine, but only hydrogen, contrary to the findings of the district court in the instant case. This is particularly apparent when we examine the differences between the two articles. The heading in the 1980 article clearly illustrates that Figure 10 refers only to hydrogen, and the discussion in the text explains only that Figure 10 shows a few applications. The 1981 article does not limit Figure 10's applications to hydrogen through a heading, but states clearly in the text ("the application of hydrogen to reduce oxygen.... Figure 10 shows a few suggested applications.") that the suggested applications are for the utilization of hydrogen to reduce oxygen in water.

4. On March 9, 2000, the Senate confirmed the nomination of Judge Richard A. Paez to the United States Court of Appeals for the Ninth Circuit.

5. The International Water Conference is an annual convention focusing on water treatment issues.

6. A mixed bed is a resin bed which, when brought in contact with liquid containing cation and/or anion contaminants, removes them. In other words, a resin bed containing a mixture of cation and anion resins.

We hold that the district court clearly erred in finding that the articles anticipate claims 1, 4, 7–12, and 20 of the '411 patent. Each article is entitled "Saving Energy by Catalytic Reduction of Oxygen in Feedwater." Each article discusses methods to deoxygenate water, dividing the methods in use at the time of the article into physical processes (vacuum degassing at low temperatures and pressure degassing at high temperatures), and chemical processes (reduction with sulfite, hydrazine or hydrogen). The articles state that the physical processes (or thermal degassing) have been the most common method of deoxygenating, as the chemical processes are expensive, slow to react at low temperatures, and contaminate the water by adding salts. The articles then state that the chemical process of deoxygenating water with hydrazine had been in use, but that the chemical process of deoxygenating water with hydrogen had not been, and concludes that the hydrogen process is preferable.[7] At the end of the articles is a comparison of the thermal degassing method, the hydrazine method, and the hydrogen method. The articles state that:

> Precondition for the proper use of hydrazine is the pH-value of the water to be higher than 8.5, because only in this range the reaction with oxygen takes place with sufficient rate.... When applying activated carbon as a catalyst in the removal of oxygen with hydrazine at ambient temperatures it has to be taken into account that the carbon releases salts into the demineralized water.

Martinola at 81 (1980); Martinola at 545–46 (1981). The articles then conclude that "[i]f we compare the final costs for all three processes ... we find that the method of oxygen reduction with hydrogen is much cheaper than the other methods. The required apparatus is also simple and needs virtually no maintenance." Martinola at 81 (1980); Martinola at 546 (1981). This conclusion is followed by a discussion of how to use water deoxygenated by hydrogen in different industries, as illustrated by Figure 10. Only in that discussion is there a suggestion to follow the catalyst column with a mixed bed if one plans to use water deoxygenated by hydrogen in nuclear power plants. The articles do not discuss the use of water deoxygenated by any other method in nuclear power plants. The articles' discussion of applications of deoxygenated water is limited to the use of hydrogen deoxygenation.

The district court in the instant case disagreed with the earlier discussion of the Martinola reference by the district court in *Ecolochem, Inc. v. Mobile Water Tech. Co.*, 690 F.Supp. 778 (E.D.Ark.1988), *aff'd*, 871 F.2d 1096, 10 USPQ2d 1557, 1989 WL 16031 (Fed.Cir.1989) (table). In the earlier case, the district court held that:

> [t]he diagram found on page 82 of the Martinola article is under the bold-faced heading "Application of oxygen reduction in water with *hydrogen*." [*See* Martinola at 81 (1980)] (emphasis supplied). Thus, the diagram refers to applications of the process the authors are trying to promote—the palladium/hydrogen catalysis—and not the hydrazine process which is discussed in a separate section. This conclusion is buttressed by the fact that the palladium/hydrogen process may also release ionic impurities into the effluent, *see id.* at 79 ("traces of chlorides or other ions may be released"), thus necessitating a downstream ion exchange resin when high purity deoxygenated water is required.... Nothing in the Martinola reference expressly teaches the use of a mixed bed ion exchange resin following the hydrazine/carbon process.

Id. at 781–82. This is to be contrasted with the district court in the instant case, which wrote:

> [T]he Court respectfully disagrees with the district court's conclusion in *Mobile Water* that because Diagram 10 is positioned on the page following the heading "Application of oxygen reduction in water with hydrogen" and the associated text, Diagram 10 necessarily refers exclusively to reduction of oxygen in water with hydrogen and not to reduction of oxygen with hydrazine in an activated carbon column.... There is no room for Figure 10 at the bottom of page 81 because Figure 9 extends too far down the page. Following Figure 9 is a brief conclusion to the article, in which the authors recommend use of the Martinola system whenever deoxygenation is to be carried out at ambient temperatures.... Thus, Figure 10 refers generally to methods of deoxygenating and purifying water.

Ecolochem, at *38.

The district court clearly erred by misconstruing Figure 10's relationship to the text of the article. As discussed above, this becomes even clearer once we examine the difference between the two articles. Dr. Martinola and his co-author very carefully made sure in both the 1980 article, through the heading, and the 1981 article, through the language, that Figure 10 refers only to hydrogen and not to hydrazine. The authors would not have been so careful with the language in the 1981 article if they had not meant for Figure 10 to come under the "hydrogen-only" heading in the 1980 article. We disagree with the district court in this case that the publishers rather than the authors chose where to place Figure 10. Rather, we agree with the Arkansas district court that the authors intended the placement of Figure 10 under the hydrogen-only heading, and that Figure 10 therefore only refers to applications of the palladium/hydrogen catalysis. The district court, we hold, clearly erred in finding that Martinola anticipates deoxygenation by hydrazine in combination with a mixed bed. Consequently, we reverse the district court's finding that the Martinola reference was proven by clear and convincing evidence to have anticipated certain of the asserted claims of the '411 patent.

B. The Martinola Presentation

[3] The district court also found the same claims—4, 7–12, and 20—of the '411 patent to be anticipated by a public presentation made by Dr. Martinola at the International Water Conference in Pittsburgh in October 1980. Specifically, the district court found that "Martinola stated at his deposition that during his presentation at the 1980 conference he used Figure 10 of his diagram [sic] as a slide and discussed 'the use of a mixed bed ion exchange resin after hydrazine and activated carbon' for the same purposes and uses described in Ecolochem's patents." *Ecolochem*, at *40 (quoting Martinola Dep. at 18:16–19:6). Finding this to be undisputed, the district court found that this testimony established that the Martinola presentation, like his articles, anticipated the above claims of Ecolochem's '411 patent. *See id.*

[4] Ecolochem argues that "Dr. Martinola's oral presentation must stand or fall with the article as allegedly anticipatory prior art, since Dr. Martinola could not remember in 1992 what he had said twelve years earlier." Appellant's Br. at 35. We do not agree that the presentation, in and of itself, cannot anticipate claims of the '411 patent. Section 102 provides that "a person shall be entitled to a patent unless ... the invention was known or used by others in this country." 35 U.S.C. § 102(a) (1994). A presentation indicative of the state of knowledge and use in this country therefore qualifies as prior art for anticipation purposes under § 102. Furthermore, whether Dr. Martinola correctly remembered his presentation twelve years later is an issue of credibility, on which we review the district court's finding with deference. The district court found, based on

7. The '411 specification explains further that "[i]n the prior art deoxygenaton [sic] processes, hydrazine has been used as a strong reducing agent to prevent corrosion and other problems associated with oxygenated water." '411 pat., col. 1, ll. 27–30. A review of the prior art indicates that small amounts of hydrazine were used in the final stage of deoxygenation, after the thermal degassing or other chemical process had been used, to remove the last traces of oxygen, while keeping to a minimum the contaminate byproducts of the hydrazine process.

Dr. Martinola's testimony, that Figure 10 was indeed presented in 1980 by Dr. Martinola with an explanation that it was addressing the use of hydrazine. *See Ecolochem,* at *40.

The key element of the presentation, found by the district court to anticipate the claims of the '411 patent, is Figure 10. We first note that both independent claims 1 and 15 differ from independent claim 20 in contemplating that the final ion exchange step will remove not only dissolved carbon contaminants, but also any excess hydrazine that has not reacted with the dissolved oxygen in the water. Claims 4 and 7–12 (which all depend on claim 1) also require the additional step of removing the excess hydrazine. According to his deposition testimony, Dr. Martinola discussed the removal of the dissolved carbon contaminants at the 1980 presentation, but not the removal of excess, *i.e.*, unreacted, hydrazine.[8] This omission renders clearly erroneous the district court's finding that claims 1, 4, and 7–12 were anticipated by Dr. Martinola's presentation, and consequently we reverse that finding.

Therefore, the only claim that could be anticipated is claim 20, which claims a deoxygenation process comprising the steps of passing liquid containing oxygen and hydrazine through activated carbon, and then passing the liquid through ion exchange resins, including both strong acid cation and strong base anion exchange resins, to remove at least the dissolved contaminants. This is the exact process described by Dr. Martinola's presentation of Figure 10. We therefore affirm the district court's finding of anticipation of claim 20 of the '411 patent as not clearly erroneous.

8. Dr. Martinola testified that, during his presentation, he described his paper as showing:

> [T]hat you can apply activated carbon as a catalyst and it will remove oxygen with hydrazine; but it has to be taken into account that the carbon releases salts in the demineralized water, and, afterwards, in Figure 10, there is shown a system with a catalyst column and a mixed bed.

Martinola Dep. at 18:6–12.

II. Obviousness

[5] The district court also held that the inventions of claims 1, 3–13, 15, 17, 18, and 20 of the '411 patent would have been obvious in light of the "combination of the Houghton process for deoxygenation with a mixed bed ion exchange resin to remove excess hydrazine and/or dissolved and/or undissolved carbon contaminants." *Id.* at *37. We review the district court's conclusion of obviousness *de novo.* We affirm the district court's conclusion of obviousness with regard to claim 20, and reverse the holding that obviousness was proven by clear and convincing evidence with regard to all other claims at issue.

A. The Houghton Process as a "Blueprint"

[6] The district court essentially found that the most innovative aspect of Ecolochem's process was its "[u]nearthing [of] long-neglected art," holding that "Ecolochem's good fortune in obtaining the Houghton reference just as the EPRI guidelines created increased attention in the PWR industry to the problem of ambient temperature deoxygenation does not entitle Ecolochem to patent protection." *Id.* at *33.

Houghton was the co-author of a paper on deoxygenation by carbon catalysis of the reaction between hydrazine and dissolved oxygen, entitled "The Use of Active Carbon With Hydrazine in the Treatment of Boiler Feed Water" ("the Houghton article"). The Houghton article was presented at the 1957 International Water Conference at Bournemouth, England and brought to the attention of Ecolochem at the 1982 International Water Conference.[9]

9. William Miller, one of the inventors of the deoxygenation process described in the '411 patent, testified that he attended the International Water Conference in 1982 "with the intention of finding alternative deoxygenation processes, if there were any." Miller Decl. ¶ 19 (Oct. 28, 1997), J.A. at 931. By alternative, Mr. Miller was referring to processes other than deoxygenation through the use of a vacuum degasifier. While at the conference, Mr. Miller spoke to an Ecolochem area sales manager, John Pugsley.

> Mr. Pugsley worked for the Florida Power and Light Company before he came to work for Ecolochem and he recalled that someone at Florida Power and Light was doing some work on deoxygenation involving carbon. As a result of that conversation, Mr. Pugsley arranged for someone at Florida Power and Light to send me [the Houghton article].

Id.

The Houghton article peaked the interest of Ecolochem, and its scientists began performing experiments to determine if the results predicted in Houghton's paper could be replicated in a laboratory setting. Ecolochem's scientists were skeptical, because they "had understood that hydrazine reacted very slowly with dissolved oxygen and one of [their] objectives in [the] preliminary experimentation was to run the process to determine if the Houghton process sufficiently catalyzed the reaction." Miller Decl. ¶ 22. The tests supported the Houghton article, but also revealed the presence of ionic substances in the deoxygenated water coming out of the carbon bed. Houghton did not discuss the ionic contamination. Ecolochem performed subsequent tests to assess its attempts to reduce the presence of the ionic substances, and after considerable experimentation, eventually succeeded with the patented process after more research and considerable experimentation. The district court found that "for years it had been known in the art of water treatment that activated carbon releases ionic substances into water," but that Ecolochem's scientists, who the district court found had been employed in the water treatment industry for over a decade by the time the patent issued, were unaware of this contamination at the time they conducted their experiments. *Ecolochem,* at *11.

The district court recognized that the Houghton reference did not anticipate the patent, but felt that:

> Taken together, the prior art references relevant to Ecolochem's invention disclose all of the elements of the claimed invention, and their combined teachings would have suggested to one of ordinary skill in the art that the Houghton process could be followed by the use of mixed bed ion exchange resins to provide ambient temperature deoxygenation and remove excess hydrazine as well as dissolved and undissolved carbon contaminants.

Id. at *34.

"A patent may not be obtained . . . if the differences between the [claimed invention] and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. § 103(a) (Supp. III 1997). Our analysis of the patentability of Ecolochem's invention begins with the phrase "at the time the invention was made." Here, the date of the invention is presumed to be the filing date of the parent application, December 16, 1983.

[7] In *In re Dembiczak,* we noted that:

> Measuring a claimed invention against the standard established by section 103 requires the oft-difficult but critical step of casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field.

In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed.Cir.1999). We "cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." *In re Fine,* 837 F.2d 1071, 1075, 5 USPQ2d 1596 (Fed.Cir.1988).

Our case law makes clear that the best defense against hindsight-based obviousness analysis is the rigorous application of the requirement for a showing of a teaching or motivation to combine the prior art references. *See Dembiczak,* 175 F.3d at 999, 50 USPQ2d at 1617. "Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art

to defeat patentability—the essence of hindsight." *Id.*

[8, 9] "When a rejection depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references." *In re Rouffet*, 149 F.3d 1350, 1355, 47 USPQ2d 1453, 1456 (Fed.Cir.1998) (citing *In re Geiger*, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed.Cir.1987)). The same principle applies to invalidation. "Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir.1984). Although the suggestion to combine references may flow from the nature of the problem, *see Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir.1996), "[d]efining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness," *Monarch Knitting Mach. Corp. v. Sulzer Morat Gmbh*, 139 F.3d 877, 880, 45 USPQ2d 1977, 1981 (Fed.Cir.1998). Therefore, "[w]hen determining the patentability of a claimed invention which combines two known elements, 'the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.'" *In re Beattie*, 974 F.2d 1309, 1311–12, 24 USPQ2d 1040, 1042 (Fed.Cir.1992) (quoting *Lindemann*, 730 F.2d at 1462, 221 USPQ at 488).

[10] In this case, the district court used the '411 patent as a blueprint, with the Houghton process as the main structural diagram, and looked to other prior art for the elements present in the patent but missing from the Houghton process. The district court opinion does not discuss any specific evidence of motivation to combine, but only makes conclusory statements. "Broad conclusory statements regarding the teaching of multiple references, standing alone, are not 'evidence.'" *Dembiczak*, 175 F.3d at 999, 50 USPQ2d at 1617. The district court provides no support for its broad conclusory statement that it was known in the art that a carbon bed, as used in the Houghton process, would produce water with high levels of conductivity caused by the presence of ionic contaminants. Nor does the district court then provide support for its implicit finding that given water so contaminated, it would be obvious to one of ordinary skill in the art to place a mixed bed ion exchange resin downstream of the carbon bed. In fact, nowhere does the district court particularly identify any suggestion, teaching, or motivation to combine the Houghton process with a mixed bed ion exchange resin to achieve the patented process.

The district court avoids the issue, and makes implicit findings, but can point to nothing that suggests the combination of deoxygenation and demineralization processes that comprise Ecolochem's invention. For instance, the district court finds that Ecolochem "did not try any other way to remove the ionic contaminants leached by the carbon bed other than adding the mixed bed," *Ecolochem*, at *12, and that "[t]here is no evidence that any system for production of ultra-pure water ever included a carbon bed as the final step in water treatment." *Id.* at *22. In addition, the district court makes the unsupported finding that "[m]any in the art knew as of 1982 that carbon beds leached contaminants which could be removed by ion exchange." *Id.* at *21. In support of this statement, the district court relies upon the Martinola reference, and U.S. Patent No. 4,430,226 ("the '226 patent") for a disclosure that "activated carbon leaches dissolved contaminants." For the disclosure of the "removal of dissolved carbon contaminants by ion exchange", the district court relied upon the '226 patent and John W. Hassler's 1974 article "Purification with Activated Carbon," which do state that with some types of carbon, "ion-exchange resins have been employed to remove inorganic compounds, alkalinity, or acidity not absorbable by activated carbon." J.A. at

1893. However, while these references teach the leaching of dissolved contaminants by activated carbon and the use of ion-exchange resins to remove carbon contaminants, neither reference suggests combining, nor provides any motivation to so combine, the two elements of the Ecolochem process, *i.e.*, deoxygenation of the water by the Houghton process and demineralization of the water by the mixed bed.

The district court seems to find that the Martinola reference implicitly suggests the combination of the two elements, but discounts "[t]he fact that Martinola did not make Ecolochem's invention, and instead focused on the hydrogen-palladium method of deoxygenation [a]s not relevant." *Id.* at *39. The district court clearly erred in this regard. This fact is completely relevant to the obviousness analysis, since Martinola actually teaches away from combining at least one of the Martinola articles with the Houghton process to achieve Ecolochem's claimed process. While the Martinola reference describes a hydrogen and Lewatit-based deoxygenation process and mentions deoxygenation by carbon catalysis of a hydrazine/oxygen reaction, it does so only for comparative purposes. The Martinola reference actually unfavorably compares the hydrazine/carbon process, saying that it "releases salts into the demineralized water" and that the hydrogen-based process is energy saving and significantly less expensive.[10]

The Martinola reference is not the only reference that points to problems and concerns with the Houghton process. The Houghton article was challenged from the day it was presented, when an audience member asked whether the process could produce water with acceptable amounts of silica. Houghton responded that contamination was a concern with his process, and both this inquiry and the response were published with the paper in a section entitled "Discussion." Another paper published contemporaneously with the Houghton article states that:

> if an activated carbon-bed is used to accelerate the oxygen/hydrazine reaction, it is particularly important that no trace of carbon should enter the boiler . . . [i]f it is considered essential that the hydrazine and oxygen should react before entering the boiler, then the use of ultra-violet light is a promising means of accelerating the reaction, without introducing any impurities into the system.

S.R.M. Ellis, C. Moreland, *The Reaction Between Hydrazine & Oxygen, in The Account of the Proceedings of the International Conference held at Bournemouth, 15th–17th May 1957* 8, 21 (1958). In 1960, T.F. Demmitt prepared a "Preliminary Report on the Use of Activated Carbon as a Catalyst for the Dissolved Oxygen–Aqueous Hydrazine Reaction." Demmitt stated that "[m]agnetite would be more desirable than activated carbon since there would be no tendency to 'deactivate' magnetite in filtered water," and thereby taught away from the idea of using a carbon bed as the catalyst. J.A. at 1696H. In 1962, a paper was presented at the International Water Conference, stating that research had shown two methods "to remove oxygen to sufficiently low levels with adequate capac-

10. The 1980 article states:

> A large number of chemical compounds can be used for reducing the elementary oxygen in water..... Until now, however, they have merely been used for the residual degassing that follows on from thermal processes. The reasons for this are the high costs involved, the slowness to react at low temperatures and the additional introduction of salts into the water. For the elimination of oxygen in boiler feedwater and hot water, use has been made for a long time now of hydrazine in the form of hydrazine hydrate.... A particularly simple process, which takes place in particularly well-known stages and is also energy-saving, is the reaction between the dissolved oxygen and hydrogen gas introduced into the water.... If we compare the final costs for [the different methods] we find that the method of oxygen reduction with hydrogen is much cheaper than the other methods. The required apparatus is also simple and needs virtually no maintenance.

Martinola at 77–81 (1980).

ities to be practical." Piero Sturla, *Polishing Condensate and Dearating by Ion Exchange* at 63 (1962). Neither of these methods was based on the Houghton process. These two methods were still being used in 1977, when Culligan (a water treatment company) recommended one of the two in an internal memo for use in portable containers, and the challenges continued through the time of the invention. Even Ecolochem's scientists themselves testified that, prior to their successful tests, they did not believe they would be able to replicate the results stated in the Houghton article.

Furthermore, the district court found even the mixed bed, of which the use "to remove carbon contaminants was well known in the field," had detractors. *Ecolochem, at* *39. Edison's own engineers testified that they considered:

> a four-bed [a primary cation bed, a primary anion bed, a secondary cation bed and a secondary anion bed] system superior to ... a three-bed system [a cation bed, an anion bed and a mixed bed] ... because of the problems that Edison had encountered in regenerating the mixed bed, ... and based on ... personal experience that four-bed systems generally outperformed mixed bed systems in producing pure water.

Id. at *13. There is clear evidence of teaching away in the prior art from both the demineralization process and the deoxygenation process used by Ecolochem, and no evidence that there was any suggestion in the prior art to combine these two processes, yet the district court finds the '411 patent obvious in light of the prior art.

The absence of a convincing discussion of the specific sources of the motivation to combine the prior art references, particularly in light of the strength of prior art teaching away from the use of the Houghton process, is a critical omission in the district court's obviousness analysis, which mainly discusses the ways that the multiple prior art references can be combined to read on the claimed invention. For example, the district court finds that the invention of claim 20 would have been obvious, and that, although claims 1 and 15 differ from claim 20, "[e]ach of the additional steps of claims 1 and 15 is disclosed in the prior art." *Id.* at *22. The opinion then lists each step and states where in the cited prior art references the step can be found. This reference-by-reference, limitation-by-limitation analysis wholly fails to demonstrate how the prior art teaches or suggests the combination claimed in the '411 patent.

With hindsight, we could perhaps agree that the Houghton article seems like an obvious place to start to address the need in the power plant industry for an improved carbon-catalyzed deoxygenation process employing hydrazine that can be used commercially in a variety of applications. But, "obvious to try" is not the standard. As embodied in the '411 patent, the process would secure for the art all of the advantages that catalyzation of a reaction normally provides without prohibiting its use due to all of the incumbent disadvantages associated with the use of hydrazine. However, the incumbent disadvantages associated with the use of hydrazine to deoxygenate water as described in the Houghton article include the release of unwanted impurities into the water, including dissolved substances such as salts, organic chemicals and suspended solids. As a result, the industry widely regarded the Houghton process as too impractical to be used for large amounts of water, or for high purity deoxygenated water. Under the conditions in which PWRs operate, even minute amounts of these contaminants can adversely affect generator integrity. *See id.* at *5. Variations on this method had been tried, but discounted in favor of other deoxygenation processes. Dr. Martinola himself testified that at the time of his presentation he stated that the hydrazine method of deoxygenation led to contaminated deoxygenated water. *See* supra at I.B. Finally, the process not only worked, but worked better than expected, leading Edison to investigate "why Ecolochem's equipment can reduce [the organic concentration in the water] to less than 10 p[arts] p[er] b[illion] with a device not designed to [do so]." *Ecolochem,* at *15. Edison, in fact, gave four prospective bidders for the HFMUD construction job a tour of Ecolochem's equipment and shared "information about Ecolochem's process with others in violation of [Ecolochem's] secrecy agreement." *Id.* Only after this sharing of information and subsequent testing was a prospective bidder able to develop the process used in the HFMUD, and accused by Ecolochem of infringing the '411 patent. The district court in fact found that the bidder's "proposed system ... effectively copied Ecolochem's deoxygenation process." *Id.* at *15. This evidence undermines the district court's conclusion that Ecolochem's process would have been obvious to one of ordinary skill in the art.

Because we do not discern any evidentiary basis for the finding by the district court that there was a suggestion, teaching, or motivation to combine the prior art references cited against the claimed invention, the district court's conclusion of obviousness cannot stand. The implicit generalized finding by the district court that, when one of ordinary skill in the art was faced with the problem of deoxygenating water for use in a nuclear power plant and the Houghton article, the combination claimed by Ecolochem in the '411 patent would have been obvious is insufficient. We have previously held that "[t]he suggestion to combine may be found in explicit or implicit teachings within the references themselves, from the ordinary knowledge of those skilled in the art, or from the nature of the problem to be solved." *WMS Gaming, Inc. v. International Game Tech.,* 184 F.3d 1339, 1355, 51 USPQ2d 1385, 1397 (Fed.Cir.1999). However, there still must be evidence that "a skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed." *In re Rouffet,* 149 F.3d at 1357, 47 USPQ2d at 1456; *see also In re Werner Kotzab,* 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed.Cir.2000) ("[A] rejection cannot be predicated on the mere identification ... of individual components of claimed limitations. Rather, particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed."). Here, there was no such evidence presented. The only evidence on this issue presumes the very problem at hand—two experts testified that "*if* someone of ordinary skill in the art had been given the Houghton reference in 1982 and [*if*] they were asked to make it usable in a high-pressure power plant, they would have come up with Ecolochem's invention." *Ecolochem,* at *31 (emphasis added). The evidence available, however, indicates that if one of ordinary skill in the art had been given the Houghton reference, they would not have been inclined to use it, due to the large amount of teaching away, and the reliance in the industry on vacuum degasifiers to deoxygenate water. This finding by the district court presumes the knowledge acquired from Ecolochem's patent. We hold that the district court's finding that a skilled artisan would combine these references was clearly erroneous, and we hold that on this record the district court clearly erred in finding clear and convincing evidence of a suggestion to combine the prior art references, a suggestion to use the Houghton article as the backbone of the invention. Therefore, we reverse the district court's conclusion of obviousness with regard to claims 1, 3–13, 15, 17, and 18 of the '411 patent. As to claim 20, however, our prior decision mandates that we now undertake further analysis respecting its invalidation by the district court.

B. *Prima Facie* Case of Obviousness of Claim 20

[11] We previously held in our June 1996 non-precedential decision that:

> the district court clearly mischaracterized the import of Demmitt as a prior

art reference for the determination of obviousness of claim 20. Demmitt ... did not disclose the removal of carbon contaminants with an ion exchange resin. Despite the district court's mischaracterization of the importance of Demmitt, Ecolochem concedes that there is a 'prima facie case of obviousness before Demmitt and there remains one after.' However, Ecolochem argues that the secondary considerations, in this case, could rebut the prima facie case and that the district court wrongly failed to consider its evidence of secondary considerations and conclude that the evidence raised a genuine issue of fact requiring trial. We agree.... For the foregoing reasons ... the trial court's holding of obviousness of claim 20 of the '411 patent is reversed, and the case is remanded for trial on validity and infringement as to claim 20.

Ecolochem, at *4–5. Given our earlier reliance on Ecolochem's concession of the *prima facie* obviousness of claim 20, which is binding as law of the case, we must treat claim 20 separately from the other claims held obvious in the decision appealed herein. We may only conclude that Ecolochem rebutted the *prima facie* case of obviousness with regard to claim 20 if the evidence of secondary considerations supports such a holding. *See id.; In re Piasecki*, 745 F.2d 1468, 1471, 223 USPQ 785, 787 (Fed.Cir.1984). We therefore review the district court's findings on the evidence of secondary considerations, and, for purposes of completeness, address whether and how this evidence affects the adjudicated invalidity of all other asserted claims.

C. Evidence of Secondary Considerations With Regard to All Claims

[12] The idea that a patented invention might appear to be obvious given the excellent vision accorded by hindsight, but might not have been obvious at the time the invention was made, was discussed by the Supreme Court in *Graham v. John Deere Co.*, 383 U.S. 1, 17–18, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966). In the intervening years since *Graham* a great deal of attention has been paid to the importance of secondary considerations. We discuss below many of the secondary considerations used by the courts in an effort to compensate for hindsight. The Supreme Court held that "[s]uch secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy." 383 U.S. at 17–18, 86 S.Ct. 684 (internal citations omitted). While we review the district court's factual findings on the secondary considerations for clear error, we review the ultimate determination of obviousness *de novo*. *See B.F. Goodrich Co. v. Aircraft Braking Sys. Corp.*, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1317–18 (Fed.Cir.1996). We find clear error in the district court's findings on several of the secondary considerations as discussed below, but upon reviewing the obviousness conclusion *de novo*, hold that even if corrected, the findings respecting secondary considerations support the district court's holding of obviousness of claim 20 in the instant case. This conclusion has no effect on the obviousness of the inventions of claims 1, 3–13, 15,17, and 18, which we have already held would not have been obvious given the absence of any motivation to combine the teachings of the cited prior art references. Ecolochem has, however, failed to rebut the conceded *prima facie* case of obviousness with regard to claim 20. We therefore affirm the district court's conclusion that the invention of claim 20 would have been obvious.

1. Long–Felt But Unsolved Need

The district court found that "[t]he findings of fact do not support Ecolochem's contention that there was a long-felt but unsolved need to create an ambient temperature deoxygenation process for use in start up and restart of nuclear power facilities." *Ecolochem*, at *35. It went on to hold that even if there had been such a need, the "required nexus between the claimed invention and the long-felt need is attenuated by the increased market demand resulting from adoption of the EPRI guidelines in 1982." *Id.*

Ecolochem argues that the 1982 EPRI guidelines merely reflected the acknowledged need for deoxygenated water that arose in the late 1970s and that the regulations only recommended, rather than required, deoxygenated water. Ecolochem further argues that there were reasons other than the issuance of these regulations for it to develop its processes. Furthermore, it argues that its mobile chemical process was the only way to meet this long-felt but unsolved need for deoxygenated water during the time required to build and install the permanent deoxygenators. Ecolochem argues that the guidelines (like emissions requirements for automobiles) were issued only after a long-felt need was realized, and that the regulations may have been unattainable at the time they were issued. Even Edison in its brief pointed out that Ecolochem had the only practical solution to the need of SONGS for deoxygenated and demineralized water before the completion of the HFMUD.

Our review of the district court's finding of no long-felt but unsolved need is for clear error, a deferential standard of appellate review. We cannot say the district court's finding that Ecolochem produced demineralized water in response to the guidelines issued by EPRI to be clearly erroneous. The record shows that the guidelines urging the use of deoxygenated water were issued in 1982, and Ecolochem filed for a patent on its deoxygenization process on December 16, 1983. This evidence supports the district court's finding that Ecolochem's process was developed not in response to a long-felt need in the power industry, but in response to a shortly-felt requirement imposed by EPRI's guidelines.

2. Commercial Success

[13] We have previously held that a party cannot "demonstrate commercial success, for purposes of countering the challenge of obviousness, unless it can show that the commercial success of the product results from the claimed invention." *J.T. Eaton & Co. v. Atlantic Paste & Glue Co.*, 106 F.3d 1563, 1571, 41 USPQ2d 1641, 1647 (Fed.Cir.1997). We have further held that a presumption arises that the patented invention is commercially successful "[w]hen a patentee can demonstrate commercial success, usually shown by significant sales in a relevant market, and that the successful product is the invention disclosed and claimed in the patent." *Id.* In the instant case, Ecolochem offered evidence that its invention was practiced at 28 plants and generated almost $13 million in revenue from 1983 to 1990. Once Ecolochem made the requisite showing of nexus between commercial success and the patented invention, the burden shifted to Edison to prove that the commercial success was instead due to other factors extraneous to the patented invention. *See id.*

At trial, Edison countered that the commercial success of Ecolochem's process was due solely to the fact that it was part of a mobile apparatus, and that since none of the claims at issue include such a mobility limitation, the commercial success factor favors a finding of obviousness in the instant case. The district court found that both Edison and Ecolochem had carried their respective burdens, finding that the volume of Ecolochem's sales satisfied the requirements to show commercial success, but also that Edison proved the commercial success was due to factors other than those claimed. The district court explained:

> Ecolochem's limited commercial success with its patented process was primarily attributable to (1) Ecolochem's ability to meet the need in the PWR industry for short-term emergency services through its Mobile Flow service; (2) Ecolochem's

ability to provide deoxygenation services while PWR plants built permanent deaeration equipment to meet new EPRI standards; (3) Ecolochem's head start in marketing mobile deoxygenation treatment services through use of its patented Mobile Flow trailer; (4) the increased blowdown rates that resulted from the 1982 tightening of EPRI guidelines for salts in the steam generator. In short, Ecolochem's commercial success was due not to the nature of the claimed invention, but to other economic and commercial factors unrelated to the technical quality of the patented process.

Ecolochem, at *36.

The district court's finding, however, ignores Edison's own statements to the contrary. Edison indicated in its briefs that it chose Ecolochem because the "first vendors Edison hired provided poor quality water and constantly shuttled demineralization trucks on and off Edison's property to meet Edison's capacity requirements." Appellee's Br. at 3. Edison's brief also states that Ecolochem's process "enabled it, unlike Edison's previous vendors, to regenerate its trailers on-site and provide purer quality water at the large volumes Edison needed." *Id.*

These statements make it clear that the commercial success of Ecolochem's product was, in fact, based on two factors: the improved filtration process, and the mobility of the commercial embodiment. Edison did not differentiate the improved filtration process from the patented process in any way, focusing only on the missing limitation of mobility in the claims at issue. The success was due to both the mobility, undisputedly not covered by the claims, and to the improved filtration process, undisputedly covered by the claims. Edison had the burden of disproving that the improved filtration process contributed to the success of the invention, and its own brief undermines its argument, by conceding the benefits of Ecolochem's filtration process. *See Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 716, 21 USPQ2d 1053, 1055 (Fed. Cir.1991) ("To overturn a patent, the challenger must clearly prove those facts which support patent invalidity."). Consequently, the district court clearly erred in finding that Edison met its burden of proving that the success of the invention was due to factors not claimed in the patented invention.

3. Failure of Others to Make Invention

In evaluating this factor, the district court held that an unsolved problem is not evidence of non-obviousness unless skilled workers in the art have tried and failed to solve the problem. *See Ecolochem*, at *36. The district court then held that Ecolochem did not show that others had tried but failed to make Ecolochem's invention. *See id.*

Ecolochem cited a 1986 internal business memorandum circulated at Arrowhead, a competitor of Ecolochem's. In this memorandum, under the heading "*OPPORTUNITY*," Arrowhead wrote the following: "Ecolochem claims a proprietary process for deoxygenation and has exploited this market with little or no interference from Arrowhead. Markets exist primarily at the nuclear plants. Several approaches for deoxygenation exist...." J.A. at 3049.

[14] Edison, in turn, responded with testimony from its employees that when Edison discussed its deoxygenation needs with contractors in 1982, only two contractors mentioned chemical deoxygenation: Arrowhead and Ecolochem. Edison employees further testified that vacuum degasifiers were the industry standard, were reliable and economical, and that every other contractor stated that it intended to deoxygenate with a vacuum degasifier. There was no testimony as to whether Arrowhead succeeded in making a working chemical deoxygenation device. The district court evaluated Edison's testimony and the absence of any testimony contradicting it, and found that no competitor had attempted to employ a chemical deoxygenation process. The failure of others is therefore reduced to a credibility question: whether the district court believed the Edison employees. "This court gives great deference to the district court's decisions regarding credibility of witnesses." *Carroll Touch, Inc. v. Electro Mechanical Sys., Inc.*, 15 F.3d 1573, 1580, 27 USPQ2d 1836, 1842 (Fed.Cir.1993) (*citing Anderson v. City of Bessemer City*, 470 U.S. 564, 575–76, 105 S.Ct. 1504, 84 L.Ed.2d 518 (1985)). We cannot find it clearly erroneous on the part of the district court to have found no evidence of failure by others to make a chemical deoxygenation device or develop such a process.

4. Simultaneous Invention

[15] "The fact of near-simultaneous invention, though not determinative of statutory obviousness, is strong evidence of what constitutes the level of ordinary skill in the art." *The Int'l Glass Co. v. United States*, 187 Ct.Cl. 376, 408 F.2d 395, 405 (1969). "[T]he possibility of near simultaneous invention by two or more equally talented inventors working independently, may or may not be an indication of obviousness when considered in light of all the circumstances." *Lindemann*, 730 F.2d at 1460, 221 USPQ at 487.

The district court found that "prior to the issuance of Ecolochem's patent, Todd Hook of NWT independently combined the Houghton process with a mixed bed ion exchange resin, thereby independently developing Ecolochem's invention." *Ecolochem*, at *36. Ecolochem argues that Mr. Hook testified at trial that the:

> idea embodied in his test apparatus, which combined the hydrazine/carbon process and ion exchange, was not his but Dr. Sawochka's. Dr. Sawochka, an acknowledged expert in the field, provided the system sketch and configured the test apparatus embodying the idea. Obviousness or nonobviousness to experts is irrelevant to obviousness under Section 103. Competing innovation by Dr. Sawochka may show bias but nothing more.

Appellant's Br. at 56. Edison responds by stating that "as both Sawochka and Hook testified, Hook was left largely on his own in performing his project." Appellee's Br. at 53.

The issue of simultaneous invention is directly tied to the level of knowledge attributable to one of ordinary skill in the art. The district court weighed the testimony discussed above, and determined that there was evidence of simultaneous invention, and the fact that the one who performed the experiment was supervised by one of extraordinary skill in the art did not enhance the former's level of knowledge. Essentially, the district court found that this secondary consideration factor favors obviousness. As this was based on the district court's determination that Dr. Sawochka's and Mr. Hook's testimony was credible, we must give that finding great deference. Consequently, we cannot discern clear error in the finding of simultaneous invention by the district court.

5. Teaching Away

[16] The district court found that "Ecolochem presented no evidence that the prior art expressed skepticism concerning the efficacy of using the Houghton process or of combining the Houghton process with ion exchange. Likewise, the Court's findings of fact establish that the prior art did not teach away from Ecolochem's invention." *Ecolochem*, at *37. Ecolochem argued that the Houghton process had been around for decades and was not well known or regarded, citing a number of articles stating concerns with the Houghton process.

We previously found, in our unpublished June 1996 decision, that Ecolochem had put forth evidence "that various references taught away from the invention as they warned against the Houghton process because of the carbon contaminants." *Ecolochem, Inc. v. Southern Cal. Edison Co.*, 1996 WL 297601, at *5. We discussed above the fact that Martinola teaches away from the Houghton process, as that reference found the process inefficient and expensive. We also discussed above the history of prior art teaching away from Houghton. Based on the body of evidence provided to the district court, we find

clearly erroneous the district court's determination that the prior art did not teach away from using the Houghton process or from combining it with a mixed bed in any manner.

6. Copying and Acclamation

[17] Another indicia of non-obviousness of a product is the acclamations it receives when it is released, and the copying that occurs. The district court found "that [although] Ecolochem's process was warmly received in the water treatment industry and was copied by at least two competitors, that copying did not result from the novelty of Ecolochem's invention and is of little weight in assessing obviousness." *Ecolochem*, at *37.

[18] Ecolochem argues persuasively that its device was copied because it was significantly less expensive than vacuum degasifiers, the only alternative in the field. Furthermore, testimony from Edison indicates that Ecolochem's process was better than its competitors'. The district court gives little credit to Ecolochem's arguments, finding only that the process was not novel. It is a factual determination as to what the exact reason for the copying was, but here we hold that it was clear error on the district court's part to discount the copying because the court believed that the process was not novel. Therefore, this factor cuts against a conclusion of obviousness.

[19] We note, however, that a showing of copying is only equivocal evidence of non-obviousness in the absence of more compelling objective indicia of other secondary considerations. *See In re GPAC*, 57 F.3d 1573, 1580, 35 USPQ2d 1116, 1122 (Fed.Cir.1995) ("'[M]ore than the mere fact of copying by an accused infringer is needed to make that action significant to a determination of the obviousness issue.'") (quoting *Cable Elec. Prods. v. Genmark, Inc.*, 770 F.2d 1015, 1028, 226 USPQ 881, 889 (Fed.Cir.1985)). The reason is that the alleged copying "could have occurred out of a general lack of concern for patent property." *See Cable Elec. Prods.*, 770 F.2d at 1028, 226 USPQ at 889. Consequently, even though the district court clearly erred in stating that the copying was not connected to the patented aspects of the invention, its error does not carry great weight in our evaluation of the obviousness of the invention of claim 20 in light of all the secondary considerations, combined with the other evidence and findings on the prior art.

7. Weighing of the Factors

We must now weigh all the secondary considerations to determine whether the district court's error in not finding commercial success and teaching away, when aggravated by its error in failing to find copying; renders erroneous its conclusion that the invention of the claims at issue here would have been obvious. The district court did not clearly err in finding that there was no long-felt but unsolved need, that there was no failure by others to make the invention, and that there was a successful simultaneous invention by others. As explained above, the district court clearly erred in finding that the commercial success of Ecolochem's product was based only upon its mobility; that the prior art did not teach away from the Houghton process; and that there was no evidence of copying. However, only two of these factors are actually stated in *Graham*; the other falls under *Graham*'s "etc." clause. The factors specifically mentioned in *Graham*, and those that we give the most weight to in the instant case, are the commercial success of the invention, long-felt but unsolved needs, and failure of others to invent.

In our *de novo* obviousness review, we hold that the absence of any evidence that others were trying to emulate the patented process, and the fact that within two years of the publication of the EPRI guidelines Ecolochem had applied for a patent on the process, is more indicative of obviousness than the evidence of modest commercial success, and the teaching away from the use of the unmodified Houghton process is indicative of non-obviousness. The question of obviousness in the instant case is a close one, but we hold that the secondary considerations, taken as a whole, do not overcome the other evidence of obviousness.

Our earlier unpublished decision placed the burden on Ecolochem to rebut, based on all the secondary considerations, the *prima facie* case of obviousness with regard to claim 20. We cannot say that the district court erred in concluding that Ecolochem has not rebutted the *prima facie* case of obviousness with regard to claim 20.

However, for the remaining claims at issue, claims 1, 3–13, 15, 17, and 18, the secondary consideration evidence is but one of several factors, all of which must be assessed in determining obviousness. *See Graham*, 383 U.S. at 17–18, 86 S.Ct. 684. Given the absence of any proof of a motivation to combine, we hold that the remaining claims were not proven obvious by clear and convincing evidence in light of the prior art.

CONCLUSION

For the reasons stated above, we affirm the district court's holding that it was proven by clear and convincing evidence that the invention of claim 20 would have been obvious and was anticipated, but reverse the district court's holdings that claims 1, 3–13, 15, 17, and 18 were proven invalid either as anticipated and/or obvious. We remand this case for award of damages, consistent with the district court's finding of willful infringement which stands. The decision, therefore, is

AFFIRMED–IN–PART, REVERSED–IN–PART, and REMANDED.

COSTS

Defendant shall pay costs.

chaft Kohle, M.B.H. v. Shell Oil Co., 112 F.3d 1561, 1564, 42 USPQ2d 1674, 1677 (Fed.Cir.1997). Zebco posits that if the '835 patent is not entitled to the June 1990 filing date of the '586 application, then the invention of the '835 patent was on-sale or in public use more than one year before the July 1992 filing date of the '254 application, which matured into the '835 patent.[2] However, Zebco does not contend that the applicant impermissibly added new matter to the '254 application. *Cf.* 35 U.S.C. § 132 (1994) ("No amendment shall introduce new matter into the disclosure of the invention."). Further, there is no dispute that the disclosures of the '586 and '254 applications—and thus the '324 and '835 patents, respectively—are the same in all but a few respects.[3] Zebco's position thus reduces to the argument that the claims of the '835 patent violate the written description requirement of section 112, ¶ 1. But to state the argument is to realize its objection; as we discussed above, the written description of the '835 patent provides ample support for the ordinary and accustomed meaning of the terms of the '835 claims. Thus, the '835 claims, as construed by the district court and this court, are entitled to the benefit of the filing date of the '586 application. No violation of section 102(b)'s on-sale bar has occurred.

IV

Zebco has failed to demonstrate to this court that the disputed claim terms of claim 1 of the '835 patent should be interpreted in a way other than their ordinary and accustomed meaning. Therefore, we find that the district court's claim interpretation, and the summary judgment of infringement conditioned thereon, was not erroneous. We also hold that the district court correctly determined that the relevant claim of the '835 patent, as construed, is not invalid. The judgment of the district court is affirmed.

AFFIRMED.

2. Johnson does not dispute that products embodying the '835 invention were on sale more than one year prior to the filing of the '254 application in July 1992.

3. The titles and abstracts are different, for example.

In re Anita DEMBICZAK and Benson Zinbarg, Appellants.

No. 98-1498.

United States Court of Appeals, Federal Circuit.

April 28, 1999.

Board of Patent Appeals and Interferences upheld rejection of application for utility patent, and appeal was taken. The United States Court of Appeals for the Federal Circuit, Clevenger, Circuit Judge, held that: (1) Board erred by rejecting application for patent on plastic trash bags with pumpkin face on grounds of obviousness, without finding suggestion, teaching, or motivation to combine prior art references, and (2) applicant's earlier design patents involving pumpkin faces on bags did not preclude issuance of patent in present case, under obviousness-type double patenting doctrine.

Reversed.

1. Patents ⇐113(6)

Federal Circuit determines legal question of obviousness of patent without deference to Board of Patent Appeals and Interferences, and examines any factual findings for clear error. 35 U.S.C.A. § 103(a).

2. Patents ⇐16(1)

Measuring a claimed invention for obviousness requires the oft-difficult but critical step of casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. 35 U.S.C.A. § 103(a).

3. Patents ⇐16(4)

Best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis of a patent application is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. 35 U.S.C.A. § 103(a).

4. Patents ⇐26(1)

Evidence of a suggestion, teaching, or motivation to combine prior art references, sufficient to render invention obvious and unpatentable, may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved. 35 U.S.C.A. § 103(a).

5. Patents ⇐36(1)

Broad conclusory statements regarding the teaching of multiple references, standing alone, are not evidence sufficient to render invention obvious and unpatentable. 35 U.S.C.A. § 103(a).

6. Patents ⇐16.27

Board of Patent Appeals and Interferences erred by denying for obviousness application for utility patent for orange colored plastic trash bag with markings, which expanded to show face of pumpkin when filled with leaves, when Board cited prior art showing placement of pumpkin faces on crepe paper and which disclosed features of plastic trash bags and concluded that prior art references collectively described all limitations of present claims; Board should have found a suggestion, teaching, or motivation to combine prior art references. 35 U.S.C.A. § 103(a).

7. Patents ⇐113(6)

Federal Circuit would not consider argument made in support of obviousness of patent application, which was not raised before Board of Patent Appeals and Interferences. 35 U.S.C.A. § 103(a).

8. Patents ⇐120

The doctrine of "obviousness-type double patenting" prohibits claims in a second patent which define merely an obvious variation of an invention claimed by the same inventor in an earlier patent. 35 U.S.C.A. § 103(a).

See publication Words and Phrases for other judicial constructions and definitions.

9. Patents ⇐314(5)

Question whether patent application is to be rejected, under obvious-type double patenting doctrine, on grounds that claimed invention was merely an obvious variation on invention disclosed in existing patent, is one of law, which Federal Circuit reviews de novo. 35 U.S.C.A. § 103(a).

10. Patents ⇐120

In some very rare cases, obvious-type double patenting, in which invention claimed in patent application was obvious variation on invention disclosed by existing patent, may be found between design and utility patents. 35 U.S.C.A. § 103(a).

11. Patents ⇐120

When utility patent is sought to be invalidated due to obviousness, in light of previous design patents, rejection under obviousness-type double patenting doctrine is appropriate only if the claims of the two patents cross-read, meaning that the test is whether the subject matter of the claims of the patent sought to be invalidated would have been obvious from the subject matter of the claims of the other patent, and vice versa. 35 U.S.C.A. § 103(a).

12. Patents ⇐28

In order for a design to be unpatentable because of obviousness, there must first be a basic design reference in the

prior art, the design characteristics of which are basically the same as the claimed design. 35 U.S.C.A. § 103(a).

13. Patents ⇐120

Phrase "having facial indicia thereon," contained in claim of application for utility patent on plastic trash bag with pumpkin face, was not design reference that was basically the same as claimed design covered by design patents on jack-o-lantern faces on bags, and application was consequently not required to be rejected under obviousness-type double patenting doctrine. 35 U.S.C.A. § 103(a).

David P. Gordon, of Stamford, Connecticut, argued for appellant. Of counsel was Thomas A. Gallagher, of Stamford, Connecticut.

John M. Whealan, Associate Solicitor, Office of the Solicitor, of Arlington, Virginia, argued for appellee. With him on the brief were Albin F. Drost, Acting Solicitor, and David R. Nicholson, Associate Solicitor.

Before MAYER, Chief Judge, MICHEL and CLEVENGER, Circuit Judges.

CLEVENGER, Circuit Judge.

Anita Dembiczak and Benson Zinbarg appeal the rejection, upheld by the Board of Patent Appeals and Interferences, of all pending claims in their Application No. 08/427,732. *See Ex Parte Dembiczak*, No. 96–2648, slip op. at 43 (May 14, 1998). Because the Board erred in sustaining rejections of the pending claims as obvious under 35 U.S.C. § 103(a) (Supp.1998), and for obviousness-type double patenting, we reverse.

I

The invention at issue in this case is, generally speaking, a large trash bag made of orange plastic and decorated with lines and facial features, allowing the bag, when filled with trash or leaves, to resemble a Halloween-style pumpkin, or jack-o'-lantern. As the inventors, Anita Dembiczak and Benson Zinbarg (collectively, "Dembiczak") note, the invention solves the long-standing problem of unsightly trash bags placed on the curbs of America, and, by fortuitous happenstance, allows users to express their whimsical or festive nature while properly storing garbage, leaves, or other household debris awaiting collection. Embodiments of the invention—sold under a variety of names, including Giant Stuff–A–Pumpkin, Funkins, Jack Sak, and Bag–O–Fun—have undisputedly been well-received by consumers, who bought more than seven million units in 1990 alone. Indeed, in 1990, the popularity of the pumpkin bags engendered a rash of thefts around Houston, Texas, leading some owners to resort to preventative measures, such as greasing the bags with petroleum jelly and tying them to trees. *See* R. Piller, "Halloween Hopes Die on the Vine," *Hous. Chron.*, Oct. 19, 1990, at 13A.

The road to profits has proved much easier than the path to patentability, however. In July 1989, Dembiczak filed a utility patent application generally directed to the pumpkin bags. In a February 1992 appeal, the Board of Patent Appeals and Interferences ("the Board") reversed the Examiner's rejection, but entered new grounds for rejection. Dembiczak elected to continue prosecution, filing a continuation application to address the new grounds for rejection. Thereafter, the invention made a second appearance before the Board, in April 1993, when the Board both sustained the Examiner's rejection and again entered new grounds for rejection. Again, a continuation application was filed (the instant application). And again the Examiner's rejection was appealed to the Board, which sustained the rejection in a May 14, 1998, decision. *See Dembiczak*, slip op. at 43.

A

The patent application at issue includes claims directed to various embodiments of the pumpkin bag. Claims 37, 49, 51, 52, 58 through 64, 66 through 69, and 72 through 81 are at issue in this appeal. Though the claims vary, independent claim 74 is perhaps most representative:

> 74. A decorative bag for use by a user with trash filling material, the bag simulating the general outer appearance of an outer surface of a pumpkin having facial indicia thereon, comprising:
>
> a flexible waterproof plastic trash or leaf bag having
>
> an outer surface which is premanufactured orange in color for the user to simulate the general appearance of the outer skin of a pumpkin, and having
>
> facial indicia including at least two of an eye, a nose and a mouth on the orange color outer surface for forming a face pattern on said orange color outer surface to simulate the general outer appearance of a decorative pumpkin with a face thereon,
>
> said trash or leaf bag having first and second opposite ends, at least said second end having an opening extending substantially across the full width of said trash or leaf bag for receiving the trash filling material,
>
> wherein when said trash or leaf bag is filled with trash filling material and closed, said trash or leaf bag takes the form and general appearance of a pumpkin with a face thereon.

All of the independent claims on appeal, namely 37, 52, 72, and 74, contain limitations that the bag must be "premanufactured orange in color," have "facial indicia," have openings suitable for filling with trash material, and that when filled, the bag must have a generally rounded appearance, like a pumpkin. Independent claims 37, 52, and 72 add the limitation that the bag's height must at least 36 inches. Claim 72 requires that the bag be made of a "weatherproof material," and claim 74, as shown above, requires that the bag be "waterproof." Claim 52 recites a "method of assembling" a bag with the general characteristics of apparatus claim 37.

B

The prior art cited by the Board includes:

(1) pages 24–25 of a book entitled "A Handbook for Teachers of Elementary Art," by Holiday Art Activities ("Holiday"), describing how to teach children to make a "Crepe Paper Jack–O–Lantern" out of a strip of orange crepe paper, construction paper cut-outs in the shape of facial features, and "wadded newspapers" as filling;

(2) page 73 of a book entitled "The Everything Book for Teachers of Young Children," by Martha Shapiro and Valerie Indenbaum ("Shapiro"), describing a method of making a "paper bag pumpkin" by stuffing a bag with newspapers, painting it orange, and then painting on facial features with black paint;

(3) U.S. Patent No. 3,849,991 to Leonard Kessler, entitled "Flexible Container" ("Kessler"), describing a bag apparatus wherein the bag closure is accomplished by the use of folds or gussets in the bag material;

(4) U.S. Patent No. Des. 310,023, issued August 21, 1990 to Dembiczak ("Dembiczak '023"), a design patent depicting a bag with a jack-o'-lantern face;

(5) U.S. Patent No. Des. 317,254, issued June 4, 1991 to Dembiczak ("Dembiczak '254"), a design patent depicting a bag with a jack-o'-lantern face; and,

(6) Prior art "conventional" plastic lawn or trash bags ("the conventional trash bags").

Using this art, the Board affirmed the Examiner's final rejection of all the independent claims (37, 52, 72, 74) under 35

U.S.C. § 103, holding that they would have been obvious in light of the conventional trash bags in view of the Holiday and Shapiro references. The Board determined that, in its view of the prior art, "the only difference between the invention presently defined in the independent claims on appeal and the orange plastic trash bags of the prior art and the use of such bags resides in the application of the facial indicia to the outer surface of the bag." *Dembiczak*, slip op. at 18. The Board further held that the missing facial indicia elements were provided by the Holiday and Shapiro references' description of painting jack-o'-lantern faces on paper bags. *See id.* at 18–19. Dependent claims 49 and 79, which include a "gussets" limitation, were considered obvious under similar reasoning, except that the references cited against them included Kessler. *See id.* at 7.

The Board also affirmed the Examiner's obviousness-type double patenting rejection of all the independent claims in light of the two Dembiczak design patents ('023 and '254) and Holiday. *See id.* at 12. The Board held that the design patents depict a generally rounded bag with jack-o'-lantern facial indicia, and that the Holiday reference supplies the missing limitations, such as the "thin, flexible material" of manufacture, the orange color, the initially-open upper end, and the trash filling material. The Board also stated that the various limitations of the dependent claims—*e.g.*, color, the inclusion of leaves as stuffing, and the dimensions—would all be obvious variations of the depictions in the Dembiczak design patents. *See id.* at 8–9. In addition, using a two-way test for obviousness-type double patenting, the Board held that the claims of the Dembiczak design patents "do not exclude" the additional structural limitations of the pending utility claims, and thus the design patents were merely obvious variations of the subject matter disclosed in the utility claims. *See id.* at 11. The Board further upheld, on similar grounds and with the inclusion of the Kessler reference, the obviousness-type double patenting rejection of dependent claim 49. *See id.* at 12.

This appeal followed, vesting this court with jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A) (1994).

II

[1] A claimed invention is unpatentable if the differences between it and the prior art "are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. § 103(a) (Supp.1998); *see Graham v. John Deere Co.*, 383 U.S. 1, 14, 86 S.Ct. 684, 15 L.Ed.2d 545, 148 USPQ 459, 465 (1966). The ultimate determination of whether an invention is or is not obvious is a legal conclusion based on underlying factual inquiries including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness. *See Graham*, 383 U.S. at 17–18, 86 S.Ct. 684, 15 L.Ed.2d 545, 148 USPQ at 467; *Miles Labs., Inc. v. Shandon Inc.*, 997 F.2d 870, 877, 27 USPQ2d 1123, 1128 (Fed.Cir.1993). We therefore review the ultimate determination of obviousness without deference to the Board, while examining any factual findings for clear error. *See*, e.g., *In re Zurko*, 142 F.3d 1447, 1459, 46 USPQ2d 1691, 1700 (Fed.Cir.) (en banc), cert. granted, —— U.S. ——, 119 S.Ct. 401, 142 L.Ed.2d 326 (1998).

A

[2] Our analysis begins in the text of section 103 quoted above, with the phrase "at the time the invention was made." For it is this phrase that guards against entry into the "tempting but forbidden zone of hindsight," *see Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 873, 228 USPQ 90, 98 (Fed.Cir.1985), overruled on other grounds by *Nobelpharma AB v. Implant Innovations, Inc.*, 141 F.3d 1059, 46 USPQ2d 1097 (Fed.Cir.1998), when analyzing the patentability of claims pursuant to that section. Measuring a claimed invention against the standard established by section 103 requires the oft-difficult but critical step of casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. *See, e.g., W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 313 (Fed.Cir.1983). Close adherence to this methodology is especially important in the case of less technologically complex inventions, where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." *Id.*

[3] Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. *See*, e.g., *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed.Cir.1998) (describing "teaching or suggestion or motivation [to combine]" as an "essential evidentiary component of an obviousness holding"); *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed.Cir.1998) ("the Board must identify specifically ... the reasons one of ordinary skill in the art would have been motivated to select the references and combine them"); *In re Fritch*, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed.Cir.1992) (examiner can satisfy burden of obviousness in light of combination "only by showing some objective teaching [leading to the combination]"); *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed.Cir.1988) (evidence of teaching or suggestion "essential" to avoid hindsight); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297, 227 USPQ 657, 667 (Fed. Cir.1985) (district court's conclusion of obviousness was error when it "did not elucidate any factual teachings, suggestions or incentives from this prior art that showed the propriety of combination"). *See also Graham*, 383 U.S. at 18, 86 S.Ct. 684, 15 L.Ed.2d 545, 148 USPQ at 467 ("strict observance" of factual predicates to obviousness conclusion required). Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight. *See*, e.g., *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed.Cir.1985) ("The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time."). In this case, the Board fell into the hindsight trap.

[4, 5] We have noted that evidence of a suggestion, teaching, or motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved, *see Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed.Cir.1996), *Para-Ordnance Mfg. v. SGS Importers Intern., Inc.*, 73 F.3d 1085, 1088, 37 USPQ2d 1237, 1240 (Fed.Cir.1995), although "the suggestion more often comes from the teachings of the pertinent references," *Rouffet*, 149 F.3d at 1355, 47 USPQ2d at 1456. The range of sources available, however, does not diminish the requirement for actual evidence. That is, the showing must be clear and particular. *See*, e.g., *C.R. Bard*, 157 F.3d at 1352, 48 USPQ2d at 1232. Broad conclusory statements regarding the teaching of multiple references, standing alone, are not "evidence." *E.g., McElmurry v. Arkansas Power & Light Co.*, 995 F.2d 1576, 1578, 27 USPQ2d 1129, 1131 (Fed.Cir.1993) ("Mere denials and conclusory statements, however, are not sufficient to establish a genuine issue of

material fact."); *In re Sichert*, 566 F.2d 1154, 1164, 196 USPQ 209, 217 (CCPA 1977) ("The examiner's conclusory statement that the specification does not teach the best mode of using the invention is unaccompanied by evidence or reasoning and is entirely inadequate to support the rejection."). In addition to demonstrating the propriety of an obviousness analysis, particular factual findings regarding the suggestion, teaching, or motivation to combine serve a number of important purposes, including: (1) clear explication of the position adopted by the Examiner and the Board; (2) identification of the factual disputes, if any, between the applicant and the Board; and (3) facilitation of review on appeal. Here, however, the Board did not make particular findings regarding the locus of the suggestion, teaching, or motivation to combine the prior art references.

[6] All the obviousness rejections affirmed by the Board resulted from a combination of prior art references, e.g., the conventional trash or yard bags, and the Holiday and Shapiro publications teaching the construction of decorated paper bags. *See Dembiczak*, slip op. at 6–7. To justify this combination, the Board simply stated that "the Holiday and Shapiro references would have suggested the application of ... facial indicia to the prior art plastic trash bags." *Id.* at 18–19. However, rather than pointing to specific information in Holiday or Shapiro that suggest the combination with the conventional bags, the Board instead described in detail the similarities between the Holiday and Shapiro references and the claimed invention, noting that one reference or the other—in combination with each other and the conventional trash bags—described all of the limitations of the pending claims. *See id.* at 18–28. Nowhere does the Board particularly identify any suggestion, teaching, or motivation to combine the children's art references (Holiday and Shapiro) with the conventional trash or lawn bag references, nor does the Board make specific—or even inferential—findings concerning the identification of the relevant art, the level of ordinary skill in the art, the nature of the problem to be solved, or any other factual findings that might serve to support a proper obviousness analysis. *See, e.g., Pro–Mold & Tool*, 75 F.3d at 1573, 37 USPQ2d at 1630.

To the contrary, the obviousness analysis in the Board's decision is limited to a discussion of the ways that the multiple prior art references can be combined to read on the claimed invention. For example, the Board finds that the Holiday bag reference depicts a "premanufactured orange" bag material, see *Dembiczak*, slip op. at 21, finds that Shapiro teaches the use of paper bags in various sizes, including "large", see *id.* at 22–23, and concludes that the substitution of orange plastic for the crepe paper of Holiday and the paper bags of Shapiro would be an obvious design choice, see *id.* at 24. Yet this reference-by-reference, limitation-by-limitation analysis fails to demonstrate how the Holiday and Shapiro references teach or suggest their combination with the conventional trash or lawn bags to yield the claimed invention. *See Rouffet*, 149 F.3d at 1357, 47 USPQ2d at 1459 (noting Board's failure to explain, when analyzing the prior art, "what specific understanding or technical principle ... would have suggested the combination"). Because we do not discern any finding by the Board that there was a suggestion, teaching, or motivation to combine the prior art references cited against the pending claims, the Board's conclusion of obviousness, as a matter of law, cannot stand. *See C.R. Bard*, 157 F.3d at 1352, 48 USPQ2d at 1232; *Rouffet*, 149 F.3d at 1359, 47 USPQ2d at 1459; *Fritch*, 972 F.2d at 1265, 23 USPQ2d at 1783; *Fine*, 837 F.2d at 1075, 5 USPQ2d at 1600; *Ashland Oil*, 776 F.2d at 297, 227 USPQ at 667.

B

[7] The Commissioner of Patents and Trademarks ("Commissioner") attempts to justify the Board's decision on grounds different from that relied upon by the Board, arguing that one of ordinary skill in the art would have been motivated to combine the references. Of course, in order to do so, the Commissioner must do what the Board did not do below: make specific findings of fact regarding the level of skill in the art ("a designer and manufacturer of trash and leaf bags, particularly one specializing in the ornamental and graphic design of such bags"), Resp't Br. at 14, the relationship between the fields of conventional trash bags and children's crafts, respectively ("[t]he artisan would also have been well aware of the ancillary, corollary, and atypical uses of 'trash' bags such as their application in hobby and art projects"), Resp't Br. at 15, and the particular features of the prior art references that would motivate one of ordinary skill in a particular art to select elements disclosed in references from a wholly different field ("a designer and manufacturer of trash and leaf bags would have recognized the paper bag in Shapiro to be a trash bag and therefore would have been motivated to combine it with the admitted prior art plastic trash and leaf bags to arrive at the claimed invention"), Resp't Br. at 15. The Commissioner also appears to cite additional references in support of his obviousness analysis, noting that at least two design patents (in the record but not cited against the presently pending claims) teach the placement of "graphical information, including text, designs, and even facial indicia, to colored bags." Resp't Br. at 16. This new analysis, apparently cut from whole cloth in view of appeal, does little more than highlight the shortcomings of the decision below, and we decline to consider it. *See*, e.g., *In re Robertson*, 169 F.3d 743, 746, 49 USPQ2d 1949, 1951 (Fed. Cir.1999) ("We decline to consider [the Commissioner's] newly-minted theory as an alternative ground for upholding the agency's decision."); *In re Soni*, 54 F.3d 746, 751, 34 USPQ2d 1684, 1688 (Fed.Cir. 1995); *In re Hounsfield*, 699 F.2d 1320, 1324, 216 USPQ 1045, 1049 (Fed.Cir.1983) (rejecting an "attempt[ ] by the Commissioner 'to apply a new rationale to support the rejection.' "); see also 35 U.S.C. § 144 (1994) (an appeal to the Federal Circuit "is taken on the record before The Patent and Trademark Office"). Because the Board has not established a prima facie case of obviousness, *see In re Bell*, 991 F.2d 781, 783, 26 USPQ2d 1529, 1531 (Fed.Cir.1993) ("The PTO bears the burden of establishing a case of prima facie obviousness."), we therefore reverse the obviousness rejections, and have no need to address the parties' arguments with respect to secondary factors.

III

[8, 9] Dembiczak also asks this court to reverse the Board's rejection of the pending claims for obviousness-type double patenting, which is a judicially-created doctrine that seeks to prevent the applicant from expanding the grant of the patent right beyond the limits prescribed in Title 35. *See*, e.g., *In re Braat*, 937 F.2d 589, 592, 19 USPQ2d 1289, 1291–92 (Fed.Cir. 1991); *In re Longi*, 759 F.2d 887, 892, 225 USPQ 645, 648 (Fed.Cir.1985). *See also* 35 U.S.C. § 154(a)(2) (Supp.1998) (discussing patent term). The doctrine prohibits claims in a second patent which define "merely an obvious variation" of an invention claimed by the same inventor in an earlier patent. *Braat*, 937 F.2d at 592, 19 USPQ2d at 1292 (quoting *In re Vogel*, 57 C.C.P.A. 920, 422 F.2d 438, 441, 164 USPQ 619, 622 (CCPA 1970)). Thus, unless a claim sought in the later patent is patentably distinct from the claims in an earlier patent, the claim must be rejected. *See In re Goodman*, 11 F.3d 1046, 1052, 29 USPQ2d 2010, 2015 (Fed.Cir.1993); *Vogel*, 422 F.2d at 441, 164 USPQ at 622. This question is one of law, which we review de novo. *See Goodman*, 11 F.3d at 1052, 29 USPQ2d at 2015; *Texas Instruments Inc. v. United States Int'l Trade Comm'n*, 988 F.2d 1165, 1179, 26 USPQ2d 1018, 1028 (Fed.Cir.1993).

A

[10, 11] The law provides that, in some very rare cases, obvious-type double patenting may be found between design and utility patents. *See Carman Indus., Inc. v. Wahl*, 724 F.2d 932, 939–40, 220 USPQ 481, 487 (Fed.Cir.1983) (noting that, while theoretically possible, "[d]ouble patenting is rare in the context of utility versus design patents"); *In re Thorington*, 57 C.C.P.A. 759, 418 F.2d 528, 536–37, 163 USPQ 644, 650 (CCPA 1969) (Double patenting between a design and utility patent is possible "if the features producing the novel aesthetic effect of a design patent or application are the same as those recited in the claims of a utility patent or application as producing a novel structure."); *In re Phelan*, 40 C.C.P.A. 1023, 205 F.2d 183, 98 USPQ 156 (CCPA 1953); *In re Barber*, 81 F.2d 231, 28 USPQ 187 (CCPA 1936); *In re Hargraves*, 53 F.2d 900, 11 USPQ 240 (CCPA 1931). In these cases, a "two-way" test is applicable. *See Carman*, 724 F.2d at 940, 220 USPQ at 487. Under this test, the obviousness-type double patenting rejection is appropriate only if the claims of the two patents cross-read, meaning that "the test is whether the subject matter of the claims of the patent sought to be invalidated would have been obvious from the subject matter of the claims of the other patent, and vice versa." *Id.*, 724 F.2d 932, 220 USPQ at 487. *See also Braat*, 937 F.2d at 593, 19 USPQ2d at 1292 (explaining two-way test).

B

In making its double patenting rejection, the Board concluded that all but one of the pending claims of Dembiczak's utility application would have been merely an obvious variation of the claims of the earlier-issued design patents—the Dembiczak '023 and '254 references—in light of the Holiday reference. The remaining claim, dependent claim 49, was judged obvious in light of the combination of the Dembiczak design patents, Holiday, and the Kessler reference.

[12, 13] Acknowledging that the two-way test was required by *Carman*, 724 F.2d at 940, 220 USPQ at 487, the Board concluded that "the design claimed in each of appellants' design patents does not exclude the features pertaining to the construction and color of the bag, the use of a plastic material for making the bag, the size or thickness of the bag . . . or the use of various types of filling material . . . ." The particular details of the facial indicia would have been a matter of design choice as evidenced by the Holiday handbook," and that therefore, in view of Holiday, the claims of the design patents were obvious variants of the pending utility patent claims. *See Dembiczak*, slip op. at 11. We disagree. In order for a design to be unpatentable because of obviousness, there must first be a basic design reference in the prior art, the design characteristics of which are "basically the same as the claimed design." *In re Borden*, 90 F.3d 1570, 1574, 39 USPQ2d 1524, 1526 (Fed. Cir.1996); *In re Rosen*, 673 F.2d 388, 391, 213 USPQ 347, 350 (CCPA 1982). The phrase "having facial indicia thereon" found in the claims of the pending utility application is not a design reference that is "basically the same as the claimed design." *Borden*, 90 F.3d at 1574, 39 USPQ2d at 1526. In fact, it describes precious little with respect to design characteristics. The Board's suggestion that the design details were simply "a matter of design choice" evinces a misapprehension of the subject matter of design patents. *E.g., Carman*, 724 F.2d at 939 n. 13, 220 USPQ at 486 n. 13 ("Utility patents afford protection for the mechanical structure and function of an invention whereas design patent protection concerns the ornamental or aesthetic features of a design.") Indeed, we note that the two design patents at issue here—the Dembiczak '023 and '254 patents—were considered nonobvious over each other, and were even the subject of a restriction requirement. *See* 35 U.S.C. § 121 (1994) ("If two or more independent and distinct inventions are claimed in one application, the Commissioner may require the application to be restricted to one of the inventions."); 37 C.F.R. § 1.142. The position adopted by the Board—that a textual description of facial indicia found in the claims of the utility patent application makes obvious the specific designs claimed in the (patentably distinct) Dembiczak design patents—would presumably render obvious, or even anticipate, all design patents where a face was depicted on a bag. But this, of course, is not the law; the textual description cannot be said to be a reference "basically the same as the claimed design," of the design patents at issue here. *Borden*, 90 F.3d at 1574, 39 USPQ2d at 1526 (internal quotation marks omitted). The Board's conclusion of obviousness is incorrect.

Because we find that the Board erred in concluding that the design patents were obvious variants of the pending utility claims, we need not address the other prong of the two-way double patenting test—whether the pending utility claims are obvious variations of the subject matter claimed in the design patents. *See Carman*, 724 F.2d at 939, 220 USPQ at 487 (both prongs of the two-way test required for obviousness-type double patenting). The double patenting rejections are reversed.

IV

Because there is no evidence in the record of a suggestion, teaching, or motivation to combine the prior art references asserted against the pending claims, the obviousness rejections are reversed. In addition, because the Board misapprehended the test for obviousness-type double patenting, and because the pending utility claims do not render obvious the design patents, the double patenting rejections are also reversed.

REVERSED.

PENTAGEN TECHNOLOGIES INTERNATIONAL LIMITED, Plaintiff–Appellant,

v.

UNITED STATES, Defendant–Appellee

No. 98–5133.

United States Court of Appeals, Federal Circuit.

May 3, 1999.

Owner of copyright for computer software program brought infringement action against the United States. The United States Court of Federal Claims, James T. Turner, J., dismissed action, and owner appealed. The Court of Appeals, Friedman, Senior Circuit Judge, held that statute which bars recovery for any copyright infringement by the government committed more than three years before filing of complaint was not equitably tolled.

Affirmed.

1. Limitation of Actions ⇐104.5

Statute which bars recovery for any copyright infringement by the government committed more than three years before the filing of the complaint was not equitably tolled prior to copyright holder's receipt of witness statement disclosing infringement, absent allegation that government concealed the alleged infringement or that copyright holder was unaware of the infringement until such receipt. 28 U.S.C.A. § 1498(b).

2. Federal Civil Procedure ⇐1754

Even where equitable tolling might apply, a complaint properly may be dismissed for failure to state a claim as time barred if (1) the face of the complaint shows that the claim is time-barred and (2

summary judgment of non-infringement was properly granted. *See Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc.*, 145 F.3d 1303, 1311, 46 USPQ2d 1752, 1758 (Fed.Cir.1998) (concluding that "no reasonable jury" could conclude that the accused device infringed under the doctrine of equivalents); *Laitram Corp. v. Morehouse Indus., Inc.*, 143 F.3d 1456 (Fed.Cir.1998) (same); *Dawn Equip.*, 140 F.3d at 1017, 46 USPQ2d at 1114–15.

b. TP–900

1. Literal Infringement. DBI makes two arguments in favor of finding infringement by the TP–900. The first is that the TP–900 infringes because it includes four TP–600s, which infringe. Because we affirmed the district court's judgment of non-infringement of the TP–600, this argument must fail.

[19] DBI also argues that the TP–900 infringes claim 16 because each TP–600 generates an array of "slice data" and the TP–900 system "generates a composite array of data characteristic of the rolled fingerprint image as a mathematical function of overlapping slice data." The district court interpreted claim 16 to require that the "arrays of slice data" must be "data characteristic of the portion of the finger in contact with the surface of the platen at a particular time." Because each of the partial images was itself a composite image, the district court found that the partial images did not contain "data characteristic of the portion of the finger in contact with the surface of the platen at a particular time," and thus did not satisfy this limitation. Again, DBI does not challenge the district court's claim construction on this point. It is undisputed that the resulting partial images are themselves composite images made up by merging image data from a plurality of successive images. As such, we cannot say that the district court erred in granting summary judgment, even when the evidence is viewed most favorably to DBI.

2. Equivalent Infringement. DBI does not argue that the TP–900 infringes under the doctrine of equivalents even if there is no literal infringement, other than its argument that the TP–900 infringes because it includes four TP–600s. Thus, infringement of the TP–900 under the doctrine of equivalents stands or (in this case) falls with the TP–600. Because we conclude that the TP–600 does not infringe, the TP–900 also does not infringe under the doctrine of equivalents.

C. CONCLUSION

For the reasons stated herein, the summary judgments of non-infringement are *AFFIRMED*.

COSTS

Each party to bear its own costs.

In re Denis ROUFFET, Yannick Tanguy and Frederic Berthault.

No. 97–1492.

United States Court of Appeals, Federal Circuit.

July 15, 1998.

Applicants sought patent for invention claiming satellite technology to reduce number of necessary "handovers" between beams transmitted by single satellite. The Board of Patent Appeals and Interferences rejected application as obvious, and applicants appealed. The Court of Appeals, Rader, Circuit Judge, held that neither combination of two prior art patents and conference report nor combination of two other prior art patents rendered invention obvious, absent motivation to combine those references.

Reversed.

1. Patents ⇐112.3(2)

To reject claims in patent application as obvious, an examiner must show unrebutted prima facie case of obviousness; in absence of proper prima facie case, applicant who complies with the other statutory requirements is entitled to a patent. 35 U.S.C.A. § 103.

2. Patents ⇐113(6)

On appeal to Board of Patent Appeals and Interferences, patent applicant can overcome a rejection on grounds of obviousness by showing insufficient evidence of prima facie obviousness or by rebutting prima facie case with evidence of secondary indicia of nonobviousness. 35 U.S.C.A. § 103.

3. Patents ⇐113(6)

While Court of Appeals reviews determination of obviousness by Board of Patent Appeals and Interferences in light of entire record, patent applicant may specifically challenge an obviousness rejection by showing that Board reached an incorrect conclusion of obviousness or that Board based its obviousness determination on incorrect factual predicates.

4. Patents ⇐113(6)

Court of Appeals reviews ultimate determination of obviousness by Board of Patent Appeals and Interferences as a question of law.

5. Patents ⇐16(2), 16.5(1)

The factual predicates underlying an obviousness determination include the scope and content of the prior art, the differences between the prior art and the claimed invention, and the level of ordinary skill in the art. 35 U.S.C.A. § 103.

6. Patents ⇐113(6)

Court of Appeals reviews factual findings of Board of Patent Appeals and Interferences for clear error, and finding is clearly erroneous when, although there is evidence to support it, the reviewing court on the entire evidence is left with the definite and firm conviction that a mistake has been committed.

7. Patents ⇐36.1(2, 3, 4), 36.2(1)

Objective evidence of invention's nonobviousness includes copying, long felt but unsolved need, failure of others, commercial success, unexpected results created by the claimed invention, unexpected properties of the claimed invention, licenses showing industry respect for the invention, and skepticism of skilled artisans before the invention. 35 U.S.C.A. § 103.

8. Patents ⇐97

Board of Patent Appeals and Interferences must consider all of patent applicant's evidence in determining whether claimed invention is obvious. 35 U.S.C.A. § 103.

9. Patents ⇐314(5)

Whether the evidence presented suffices to rebut the prima facie case of obviousness is part of the ultimate conclusion of obviousness and is therefore a question of law. 35 U.S.C.A. § 103.

10. Patents ⇐16.5(1)

When rejection of patent application for obviousness depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references. 35 U.S.C.A. § 103.

11. Patents ⇐26(1)

When determining the patentability of a claimed invention which combines two known elements, the question in determining issue of obviousness is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. 35 U.S.C.A. § 103.

12. Patents ⇐26(1)

Combination of two prior art patents and conference report did not render obvious invention claiming satellite technology to reduce number of necessary "handovers" between beams transmitted by single satellite, even if combination of references contained all elements claimed in patent application, absent any evidence of motivation to combine such references other than high level of skill in the relevant art. 35 U.S.C.A. § 103.

13. Patents ⇐16(3)

Obviousness is determined from vantage point of a hypothetical person having ordinary skill in the art to which the patent pertains, which is construct akin to "reasonable person" used as reference in negligence determinations and presumes that all prior art references in the field of the invention are available to hypothetical skilled artisan. 35 U.S.C.A. § 103(a).

14. Patents ⇐26(1)

Combination of prior art patents relating to cellular communications systems did not

render obvious invention claiming satellite technology to reduce number of necessary "handovers" between beams transmitted by single satellite, absent identification of specific principle providing motivation to combine those prior art references. 35 U.S.C.A. § 103.

Richard C. Turner and Grant K. Rowan, Sughrue, Mion, Zinn, Macpeak & Seas, PLLC, Washington, DC, argued for appellants.

David J. Ball, Jr., Associate Solicitor, Office of the Solicitor, Patent and Trademark Office, Arlington, Virginia, argued for appellee. With him on the brief were Nancy J. Linck, Solicitor, Albin F. Drost, Deputy Solicitor, and Craig R. Kaufman, Associate Solicitor. Of counsel was Scott A. Chambers, Associate Solicitor, Office of the Solicitor.

Before PLAGER, Circuit Judge, ARCHER, Senior Circuit Judge, and RADER, Circuit Judge.

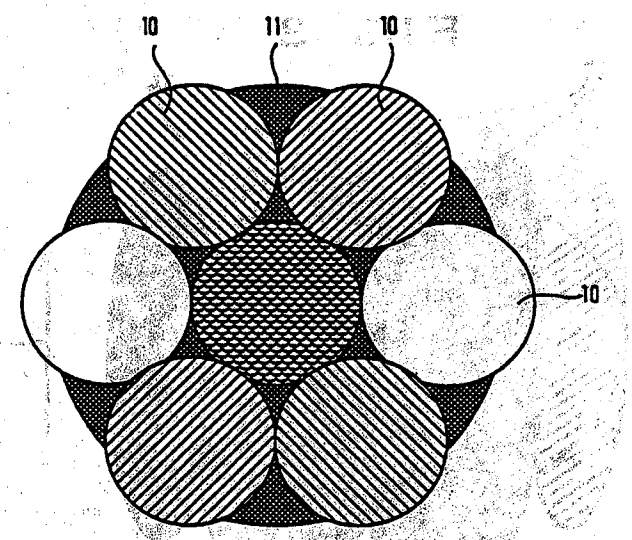
RADER, Circuit Judge.

Denis Rouffet, Yannick Tanguy, and Frédéric Bethault (collectively, Rouffet) submitted application 07/888,791 (the application) on May 27, 1992. The Board of Patent Appeals and Interferences (the Board) affirmed final rejection of the application as obvious under 35 U.S.C. § 103(a). *See Ex parte Rouffet*, No. 96-1553 (Bd. Pat.App. & Int. Apr. 16, 1997). Because the Board reversibly erred in identifying a motivation to combine the references, this court reverses.

I.

Satellites in a geosynchronous or geostationary orbit remain over the same point on the Earth's surface. Their constant position above the Earth's surface facilitates communications. These satellites project a number of beams to the Earth. Each beam transmits to its area of coverage, or footprint, on the Earth's surface. In order to provide complete coverage, adjacent footprints overlap slightly and therefore must use different frequencies to avoid interference. However, two or more non-overlapping footprints can use the same set of frequencies in order to use efficiently the limited radio spectrum. Figure 1 from the application shows the coverage of a portion of the Earth's surface provided by multiple cone shaped beams:

FIG. 1

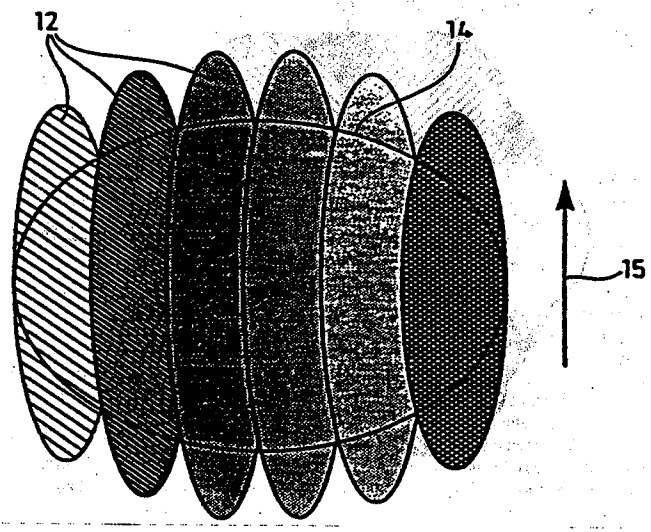


Frequency reuse techniques, however, have a limited ability to compensate for congestion in geostationary orbits. To alleviate the orbit congestion problem, new telecommunications systems use a network of satellites in low Earth orbit. When viewed from a fixed point on the Earth's surface, such satellites do not remain stationary but move overhead. A satellite's motion as it transmits a plurality of cone-shaped beams creates a new problem. The satellite's movement causes a receiver on the Earth's surface to move from the footprint of one beam into a second beam transmitted by the same satellite. Eventually, the satellite's motion causes the receiver to move from the footprint of a beam transmitted by one satellite into the footprint of a beam transmitted by a second satellite. Each switch from one footprint to another creates a "handover" event analogous to that which occurs when a traditional cellular phone travels from one cell to another. Handovers are undesirable because they can cause interruptions in signal transmission and reception.

Rouffet's application discloses technology to reduce the number of handovers between beams transmitted by the same satellite. In particular, Rouffet eliminates handovers caused solely by the satellite's motion. To accomplish this goal, Rouffet changes the shape of the beam transmitted by the satellite's antenna. Rouffet's satellites transmit fan-shaped beams. A fan beam has an elliptical footprint. Rouffet aligns the long axis of his beams parallel to the direction of the satellite's motion across the Earth's surface. By elongating the beam's footprint in the direction of satellite travel, Rouffet's invention ensures that a fixed point on the Earth's surface likely will remain within a single footprint until it is necessary to switch to another satellite. Because Rouffet's invention does not address handovers caused by the motion of the receiver across the Earth's

surface. his arrangement reduces, but does not eliminate, handovers. Figure 3 from the application shows the footprints 12 from six beams aligned in the direction of satellite motion 15:

FIG. 3



The application contains ten claims that stand or fall as a group. Claim 1 is representative:

> A low orbit satellite communications system for mobile terminals, wherein the communications antenna system of each satellite provides isoflux coverage made up of a plurality of fan beams that are elongate in the travel direction of the satellite.

The examiner initially rejected Rouffet's claims as unpatentable over U.S. Pat. No. 5,199,672 (King) in view of U.S. Pat. No. 4,872,015 (Rosen) and a conference report entitled "A Novel Non–Geostationary Satellite Communications System," *Conference Record*, International Conference on Communications, 1981 (Ruddy). On appeal to the Board, the examiner added an alternative ground for rejection, holding that the claims were obvious over U.S. Pat. No. 5,394,561 (Freeburg) in view of U.S. Pat. No. 5,170,485 (Levine).

On April 16, 1997, the Board issued its decision. Because Rouffet had specified that the claims would stand or fall as a group based on the patentability of claim 1, the Board limited its opinion to that claim. The Board unanimously determined that the examiner had properly rejected claim 1 as obvious over King in view of Rosen and Ruddy. The Board, on a split vote, also affirmed the rejection over Freeburg in view of Levine.

II

[1,2] To reject claims in an application under section 103, an examiner must show an unrebutted *prima facie* case of obviousness. *See In re Deuel*, 51 F.3d 1552, 1557, 34 U.S.P.Q.2d 1210, 1214 (Fed.Cir.1995). In the absence of a proper *prima facie* case of obviousness, an applicant who complies with the other statutory requirements is entitled to a patent. *See In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir.1992). On appeal to the Board, an applicant can overcome a rejection by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness. *See id.*

[3–6] While this court reviews the Board's determination in light of the entire record, an applicant may specifically challenge an obviousness rejection by showing that the Board reached an incorrect conclusion of obviousness or that the Board based its obviousness determination on incorrect factual predicates. This court reviews the ultimate determination of obviousness as a question of law. *See In re Lueders*, 111 F.3d 1569, 1571, 42 U.S.P.Q.2d 1481, 1482 (Fed. Cir.1997). The factual predicates underlying an obviousness determination include the scope and content of the prior art, the differences between the prior art and the claimed invention, and the level of ordinary skill in the art. *See Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH*, 139 F.3d 877, 881, 45 U.S.P.Q.2d 1977, 1981 (Fed.Cir.1998). This court reviews the Board's factual findings for clear error. *See In re Zurko*, 142 F.3d, 1447, 1449, 46 U.S.P.Q.2d 1691, 1693 (Fed.Cir.1998) (in banc); *Lueders*, 111 F.3d at 1571–72. "'A finding is clearly erroneous when, although there is evidence to support it, the reviewing court on the entire evidence is left with the definite and firm conviction that a mistake has been committed.'" *In re Graves*, 69 F.3d 1147, 1151, 36 U.S.P.Q.2d 1697, 1700 (Fed.Cir.1995) (quoting *United States v. United States Gypsum Co.*, 333 U.S. 364, 395, 68 S.Ct. 525, 92 L.Ed. 746 (1948)).

[7–9] The secondary considerations are also essential components of the obviousness determination. *See In re Emert*, 124 F.3d 1458, 1462, 44 U.S.P.Q.2d 1149, 1153 (Fed. Cir.1997) ("Without Emert providing rebuttal evidence, this *prima facie* case of obviousness must stand."). This objective evidence of nonobviousness includes copying, long felt but unsolved need, failure of others, *see Graham v. John Deere Co.*, 383 U.S. 1, 17–18, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966), commercial success, *see In re Huang*, 100 F.3d 135, 139–40, 40 U.S.P.Q.2d 1685, 1689–90 (Fed.Cir. 1996), unexpected results created by the claimed invention, unexpected properties of the claimed invention, *see In re Mayne*, 104 F.3d 1339, 1342, 41 U.S.P.Q.2d 1451, 1454 (Fed.Cir.1997); *In re Woodruff*, 919 F.2d 1575, 1578, 16 U.S.P.Q.2d 1934, 1936–37 (Fed. Cir.1990), licenses showing industry respect for the invention, *see Arkie Lures, Inc. v. Gene Larew Tackle, Inc.*, 119 F.3d 953, 957, 43 U.S.P.Q.2d 1294, 1297 (Fed.Cir.1997); *Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309, 316, 227 U.S.P.Q. 766, 771 (Fed.Cir. 1985), and skepticism of skilled artisans before the invention, *see In re Dow Chem. Co.*, 837 F.2d 469, 473, 5 U.S.P.Q.2d 1529, 1532 (Fed.Cir.1988). The Board must consider all of the applicant's evidence. *See Oetiker*, 977 F.2d at 1445 ("An observation by the Board that the examiner made a *prima facie* case is not improper, as long as the ultimate determination of patentability is made on the entire record."); *In re Piasecki*, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (Fed.Cir.1984). The court reviews factual conclusions drawn from this evidence for clear error. Whether the evidence presented suffices to rebut the *prima facie* case is part of the ultimate conclusion of obviousness and is therefore a question of law.

[10, 11] When a rejection depends on a combination of prior art references, there must be some teaching, suggestion, or motivation to combine the references. *See In re Geiger*, 815 F.2d 686, 688, 2 U.S.P.Q.2d 1276, 1278 (Fed.Cir.1987). Although the suggestion to combine references may flow from the nature of the problem, *see Pro–Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573, 37 U.S.P.Q.2d 1626, 1630 (Fed. Cir.1996), the suggestion more often comes from the teachings of the pertinent references, *see In re Sernaker*, 702 F.2d 989, 994, 217 U.S.P.Q. 1, 5 (Fed.Cir.1983), or from the ordinary knowledge of those skilled in the art that certain references are of special impor-

ance in a particular field, *see Pro-Mold*, 75 F.3d at 1573 (citing *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 297 n. 24, 227 U.S.P.Q. 657, 667 n. 24 Fed.Cir.1985)). Therefore, "[w]hen determining the patentability of a claimed invention which combines two known elements, the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.'" *See In re Beattie*, 974 F.2d 1309, 1311–12, 24 U.S.P.Q.2d 1040, 1042 (Fed.Cir.1992) (quoting *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1462, 221 U.S.P.Q. 481, 488 (Fed.Cir.1984)).

III

The parties agree that the five references asserted by the examiner are in the same field of endeavor as the invention. The parties also agree that the pertinent level of skill in the art—design of satellite communications systems—is high. On appeal, Rouffet asserts that the examiner and the Board erred by improperly combining references to render the claimed invention obvious.

The Combination of King, Rosen, and Ruddy

[12] The Board first affirmed the rejection of Rouffet's claims over a combination of King, Rosen, and Ruddy. King discloses a system for launching a plurality of satellites into low Earth orbits from a single launch vehicle. Rosen teaches a geostationary satellite that uses a plurality of fan beams with their long axes oriented in an east-west direction to communicate with mobile and fixed terminals on the Earth.

The final, and most important, reference in this combination is Ruddy. Ruddy describes a television broadcast system that uses a series of satellites to retransmit signals sent from a ground station over a wide area. Rather than using a geostationary orbit, Ruddy teaches the use of a series of satellites in Molniya orbits. A satellite in a Molniya orbit always follows the same path through the sky when viewed from a fixed point on the ground. Viewed from the Earth, the orbital path includes a narrow, elliptical apogee loop. In order to transmit to these moving satellites from a ground station, Ruddy uses a fan beam with a long axis aligned with the long axis of the orbit's apogee loop. This alignment places the entire apogee loop within the footprint of the beam and eliminates the need for the ground station's antenna to track the satellite's motion around the apogee loop. Ruddy further teaches orbit parameters and spacing of multiple satellites to ensure that a satellite is always in the loop to receive and rebroadcast signals from the Earth station.

King and Rosen together teach the use of a network of satellites in low Earth orbit. Thus, Ruddy becomes the piece of the prior art mosaic that shows, in the reading of the Board, the use of "a plurality of fan beams that are elongate in the travel direction of the satellite." Ruddy, however, is different from the claimed invention in several respects. Specifically, the application claims the projection of multiple elliptical fan-shaped footprints from the satellite to the ground. *See* Claim 1, *supra*, *see also* Application at 6, lines 9–11 ("In addition, in this system, the geometrical shape of the beams 12 is changed: instead of being circular they are now elongate ellipses."). The application's written description further teaches that the invention's fan-shaped satellite beams will minimize handovers. *See id.* at lines 11–16 ("This considerably increases call durations between handovers.").

In contrast, Ruddy teaches that a ground station may use a single fan-shaped beam to transmit to a satellite in a unique Molniya orbit. The ground station transmits a beam into which a series of satellites in Molniya orbits will successively enter. At least two differences are evident: the application teaches projection of multiple beams from a satellite to the Earth, while Ruddy teaches projection of a single beam from the Earth to satellites. Moreover to the extent Ruddy contains a teaching about handovers, its teachings focus on use of the unique Molniya orbit to ensure that a satellite always falls within the beam transmitted by the ground station.

These differences suggest some difficulty in showing a *prima facie* case of obviousness. The Board, however, specifically found that artisans of ordinary skill in this field of art would know to shift the frame of reference from a ground station following a satellite to a satellite transmitting to the ground. According proper deference to the Board's finding of a lofty skill level for ordinary artisans in this field, this court discerns no clear error in the Board's conclusion that these differences would not preclude a finding of obviousness. While Ruddy does not expressly teach alignment of the fan beam with the apparent direction of the satellite's motion, this court perceives no clear error in the Board's determination that Ruddy would suggest such an alignment to one of skill in this art. Therefore, the Board did not err in finding that the combination of King, Rosen, and Ruddy contains all of the elements claimed in Rouffet's application.

However, the Board reversibly erred in determining that one of skill in the art would have been motivated to combine these references in a manner that rendered the claimed invention obvious. Indeed, the Board did not identify any motivation to choose these references for combination. Ruddy does not specifically address handover minimization. To the extent that Ruddy at all addresses handovers due to satellite motion, it addresses this subject through the selection of orbital parameters. Ruddy does not teach the choice of a particular shape and alignment of the beam projected by the satellite. Thus Ruddy addresses the handover problem with an orbit selection, not a beam shape. The Board provides no reasons that one of ordinary skill in this art, seeking to minimize handovers due to satellite motion, would combine Ruddy with Rosen and King in a manner that would render the claimed invention obvious.

[13] Obviousness is determined from the vantage point of a hypothetical person having ordinary skill in the art to which the patent pertains. *See* 35 U.S.C. § 103(a). This legal construct is akin to the "reasonable person" used as a reference in negligence determinations. The legal construct also presumes that all prior art references in the field of the invention are available to this hypothetical skilled artisan. *See In re Carlson*, 983 F.2d 1032, 1038, 25 U.S.P.Q.2d 1207, 1211 (Fed. Cir.1993).

As this court has stated, "virtually all [inventions] are combinations of old elements." *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 698, 218 U.S.P.Q. 865, 870 (Fed.Cir.1983); *see also Richdel, Inc. v. Sunspool Corp.*, 714 F.2d 1573, 1579–80, 219 U.S.P.Q. 8, 12 (Fed.Cir.1983) ("Most, if not all, inventions are combinations and mostly of old elements."). Therefore an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be "an illogical and inappropriate process by which to determine patentability." *Sensonics, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1570, 38 U.S.P.Q.2d 1551, 1554 (Fed.Cir.1996).

To prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to show a motivation to combine the references that create the case of obviousness. In other words, the examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.

This court has identified three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. In this case, the Board relied upon none of these. Rather, just as it relied on the high level of skill in the art to overcome the differences between the claimed invention and the selected elements in the references, it relied upon the high level of skill in the art to provide the necessary motivation. The Board did not, however, explain what specific understanding or technological principle within the knowledge of one of ordinary skill in the art would have suggested the combination. Instead, the Board merely invoked the high level of skill in the field of art. If such a rote invocation could suffice to supply a motivation to combine, the more sophisticated scientific fields would rarely, if ever, experience a patentable technical advance. Instead, in complex scientific fields, the Board could routinely identify the prior art elements in an application, invoke the lofty level of skill, and rest its case for rejection. To counter this potential weakness in the obvi-

usness construct, the suggestion to combine equirement stands as a critical safeguard gainst hindsight analysis and rote applica-ion of the legal test for obviousness.

Because the Board did not explain the pecific understanding or principle within the nowledge of a skilled artisan that would notivate one with no knowledge of Rouffet's nvention to make the combination, this court ifers that the examiner selected these refer-nces with the assistance of hindsight. This ourt forbids the use of hindsight in the election of references that comprise the case f obviousness. *See In re Gorman*, 933 F.2d 82, 986, 18 U.S.P.Q.2d 1885, 1888 (Fed.Cir. 991). Lacking a motivation to combine ref-rences, the Board did not show a proper *rima facie* case of obviousness. This court everses the rejection over the combination f King, Rosen, and Ruddy.

The Combination of Freeburg and Levine

[14] Freeburg teaches a cellular radio-telephone system based on a constellation of low Earth orbit satellites that use conical beams to transmit from the satellite to both fixed and mobile Earth stations. Levine teaches an Earth-based cellular radio system that uses fan beams broadcast from antenna towers. Levine's elliptical footprints are aligned with the road grid. To increase the capacity of traditional ground-based systems through frequency reuse techniques, Levine teaches the use of antennas that broadcast signals with smaller footprints than the prior art system. Thus, Levine actually increases the number of overlap regions between cells and, hence, the number of potential hand-overs. Figure 1 of the Levine patent illus-trates its alignment of beam footprints:

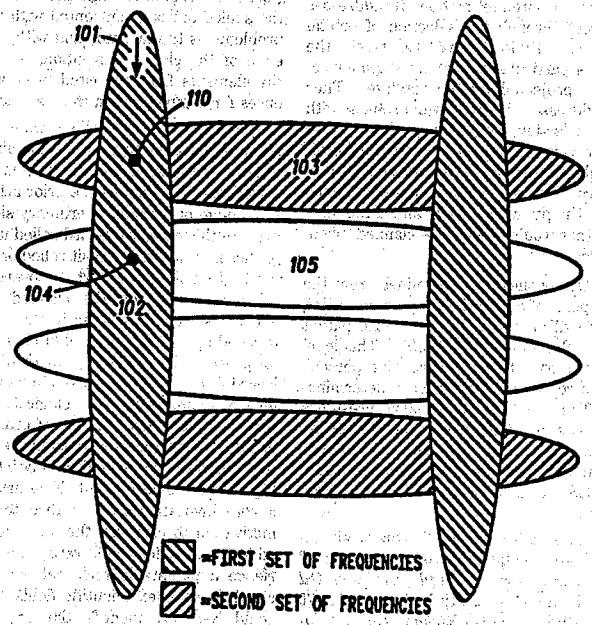


FIG.1

As a mobile unit (e.g., a driver using a car phone) moves though a succession of over-lapping zones, Levine uses selection algor-ithms to determine which of the cells is aligned with the travel direction of the mo-bile unit. These algorithms then select this cell for use while continually monitoring in-tersecting cells in the event that the mobile unit changes direction.

Once again, this court notes significant dif-ferences between the teachings of the appli-cation and the Levine–Freeburg combination. The critical Levine reference again involves a beam from an Earth station without any reference to the "travel direction of [a] satel-lite." Moreover, Levine actually multiplies the number of potential handovers and then uses software to sort out the necessary hand-overs from the unnecessary. However, the Board explains the reasons that one possess-ing the lofty skills characteristic of this field would know to account for the differences between the claimed invention and the prior art combination. This court discerns no clear error in that reliance on the considera-ble skills in this field.

This court does, however, discern revers-ible error in the Board's identification of a motivation to combine Levine and Freeburg. In determining that one of skill in the art would have had motivation to combine Le-vine and Freeburg, the Board noted that "[t]he level of skill in the art is very high." As noted before, this observation alone can-not supply the required suggestion to com-bine these references. The Board posits that the high level of skill in the art overcomes the absence of any actual suggestion that one could select part of the teachings of Levine for combination with the satellite system dis-closed by Freeburg.

As noted above, the suggestion to combine requirement is a safeguard against the use of hindsight combinations to negate patentabili-ty. While the skill level is a component of the inquiry for a suggestion to combine, a lofty level of skill alone does not suffice to supply a motivation to combine. Otherwise a high level of ordinary skill in an art field would almost always preclude patentable in-ventions. As this court has often noted, in-vention itself is the process of combining prior art in a nonobvious manner. *See, e.g., Richdel*, 714 F.2d at 1579; *Environmental Designs*, 713 F.2d at 698. Therefore, even when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination. *Cf. Gechter v. Davidson*, 116 F.3d 1454, 43 U.S.P.Q.2d 1030 (Fed.Cir.1997) (explaining that the Board's opinion must describe the basis for its deci-sion). In other words, the Board must ex-plain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious.

The Board's naked invocation of skill in the art to supply a suggestion to combine the references cited in this case is therefore clearly erroneous. Absent any proper moti-vation to combine part of Levine's teachings with Freeburg's satellite system, the rejec-tion of Rouffet's claim over these references was improper and is reversed.

IV

The Board reversibly erred in determining that there was a motivation to combine either the teachings of King, Rosen, and Ruddy or of Freeburg and Levine in a manner that would render the claimed invention obvious. Because this predicate was missing in each case, the Board did not properly show that these references render the claimed inven-tion obvious. Therefore this court reverses the Board's decision upholding the rejection of Rouffet's claims. In light of this disposi-tion, Rouffet's pending motion to remand the case to the Board for further consideration is denied as moot.

COSTS

Each party shall bear its own costs.

REVERSED.