
Contents

3	Patent	3
A	Subject Matter	3
1	Statutory Subject Matter	3
	Patent Act § 101	3
	<i>Alice Corp. v. CLS Bank Int'l</i>	3
	<i>Association for Molecular Pathology v. Myriad Genetics, Inc.</i>	11
	Tax Planning Patent Problem	13
2	Utility	13
	<i>Juicy Whip, Inc. v. Orange Bang, Inc.</i>	13
	MPEP §§ 2701, 2701.01	18
B	Procedures	22
1	Patent Prosecution	22
	37 C.F.R. pt 1	26
	<i>Therasense, Inc. v. Becton, Dickinson and Co.</i>	26
2	Claims	27
	Patent Act § 112(b)-(d)	27
	<i>Nautlius, Inc. v. Biosig Instruments Inc.</i>	27
	<i>Freeny v. Apple Inc.</i>	28
	<i>Datamize, LLC v. Plumtree Software, Inc.</i>	31
3	Enablement	32
	Patent Act § 112(a)	32
	<i>O'Reilly v. Morse</i>	33
	<i>Wyeth & Cordis Corp. v. Abbott Labs.</i>	34
	Plastic-Sorting Problem	38
	<i>Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co</i>	38
	MPEP § 2165	39
	Salt Shaker Problem	40
C	Ownership	40

1	Inventorship	40
	Patent Act § 135	40
	MPEP § 2137.01	41
2	Novelty	43
	Patent Act § 102	43
	Note on Novelty	44
	<i>Titanium Metals Corp. of America v. Banner</i>	45
	<i>In re Klopfenstein</i>	49
	<i>Egbert v. Lippmann</i>	55
	MPEP §§ 2152.02(d), 2133.03(b) & (c)	58
	Pleistocene Park Problem	60
3	Nonobviousness	60
	Patent Act § 103	60
	<i>KSR Intern. Co. v. Teleflex Inc.</i>	61
	<i>In re Clay</i>	72
	KSR Problem	76
D	Infringement: Similarity	76
	<i>Thorner v. Sony Computer Entertainment America LLC</i>	76
	<i>Freedman Seating Co. v. American Seating Co.</i>	83
	Super Soaker Problem	91
E	Infringement: Prohibited Conduct	91
	Patent Act § 271	91
	<i>Limelight Networks, Inc. v. Akamai Technologies, Inc.</i>	92
	<i>Akamai Technologies, Inc. v. Limelight Networks, Inc.</i>	93
	<i>Global-Tech Appliances, Inc. v. SEB S.A.</i>	94
	<i>Commil USA, LLC v. Cisco Systems Inc.</i>	94
	<i>Lucent Technologies, Inc. v. Gateway, Inc.</i>	95
F	Defenses	97
	<i>Bowman v. Monsanto Co.</i>	97
	<i>Madey v. Duke University</i>	101

3

Patent

A Subject Matter

1 Statutory Subject Matter

Patent Act

35 U.S.C. § 101 - *Inventions patentable*

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Alice Corp. v. CLS Bank Int'l

134 S. Ct. 2347 (2014)

Justice Thomas delivered the opinion of the Court.

The patents at issue in this case disclose a computer-implemented scheme for mitigating “settlement risk” (i.e., the risk that only one party to a financial transaction will pay what it owes) by using a third-party intermediary. The question presented is whether these claims are patent eligible under 35 U.S.C. § 101, or are instead drawn to a patent-ineligible abstract idea. We hold that the claims at issue are drawn to the abstract idea of intermediated settlement, and that merely requiring generic computer implementation fails to transform that abstract idea into a patent-eligible invention. ...

I

A

Petitioner Alice Corporation is the assignee of several patents that disclose schemes to manage certain forms of financial risk. According to the specification largely shared by the patents, the invention “enabl[es] the management of risk relating to specified, yet unknown, future events.” The specification further explains that the “invention relates to methods and apparatus, including electrical computers and data processing systems applied to financial matters and risk management.”

The claims at issue relate to a computerized scheme for mitigating “settlement risk” – i.e., the risk that only one party to an agreed-upon financial exchange will satisfy its obligation. In particular, the claims are designed to facilitate the exchange of financial obligations between two parties by using a computer system as a third-party intermediary. The intermediary creates “shadow” credit and debit records (i.e., account ledgers) that mirror the balances in the parties’ real-world accounts at “exchange institutions” (e.g., banks). The intermediary updates the shadow records in real time as transactions are entered, allowing only those transactions for which the parties’ updated shadow records indicate sufficient resources to satisfy their mutual obligations. At the end of the day, the intermediary instructs the relevant financial institutions to carry out the “permitted” transactions in accordance with the updated shadow records, thus mitigating the risk that only one party will perform the agreed-upon exchange.

In sum, the patents in suit claim (1) the foregoing method for exchanging obligations (the method claims), (2) a computer system configured to carry out the method for exchanging obligations (the system claims), and (3) a computer-readable medium containing program code for performing the method of exchanging obligations (the media claims). All of the claims are implemented using a computer; the system and media claims expressly recite a computer, and the parties have stipulated that the method claims require a computer as well.

B

Respondents CLS Bank International and CLS Services Ltd. (together, CLS Bank) operate a global network that facilitates currency transactions. In 2007, CLS Bank filed suit against petitioner, seeking a declaratory judgment that the claims at issue are invalid, unenforceable, or not infringed. Petitioner counterclaimed, alleging infringement. Following this Court’s decision in *Bilski v. Kappos*, 561 U. S. 593 (2010), the parties filed cross-motions for summary judgment on whether the asserted claims are eligible for patent protection under 35 U.S.C. § 101. The District Court held that all of the claims are patent ineligible because they are directed to the abstract idea of “employing a neutral intermediary to facilitate simultaneous exchange of obligations in order to minimize risk.”

A divided panel of the United States Court of Appeals for the Federal Circuit reversed, holding that it was not “manifestly evident” that petitioner’s claims are

directed to an abstract idea. The Federal Circuit granted rehearing en banc, vacated the panel opinion, and affirmed the judgment of the District Court in a one-paragraph per curiam opinion. Seven of the ten participating judges agreed that petitioner’s method and media claims are patent ineligible. With respect to petitioner’s system claims, the en banc Federal Circuit affirmed the District Court’s judgment by an equally divided vote. ...

We granted certiorari, and now affirm.

II

Section 101 of the Patent Act defines the subject matter eligible for patent protection. It provides:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

“We have long held that this provision contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable.” *Association for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S.Ct. 2107 (2013). We have interpreted § 101 and its predecessors in light of this exception for more than 150 years.

We have described the concern that drives this exclusionary principle as one of pre-emption. See, e.g., *Bilski* (upholding the patent “would pre-empt use of this approach in all fields, and would effectively grant a monopoly over an abstract idea”). Laws of nature, natural phenomena, and abstract ideas are “the basic tools of scientific and technological work.” *Myriad*. “[M]onopolization of those tools through the grant of a patent might tend to impede innovation more than it would tend to promote it,” thereby thwarting the primary object of the patent laws. *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 132 S. Ct. 1289 (2012); see U.S. Const., Art. I, §8, cl. 8 (Congress “shall have Power ... To promote the Progress of Science and useful Arts”). We have “repeatedly emphasized this ... concern that patent law not inhibit further discovery by improperly tying up the future use of” these building blocks of human ingenuity. *Mayo*.

At the same time, we tread carefully in construing this exclusionary principle lest it swallow all of patent law. At some level, “all inventions ... embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.” *Mayo*. Thus, an invention is not rendered ineligible for patent simply because it involves an abstract concept. See *Diamond v. Diehr*, 450 U.S. 175 (1981). “Applications” of such concepts “to a new and useful end,” we have said, remain eligible for patent protection. *Gottschalk v. Benson*, 409 U. S. 63 (1972).

Accordingly, in applying the § 101 exception, we must distinguish between patents that claim the building blocks of human ingenuity and those that integrate the building blocks into something more, thereby transforming them into a patent-eligible invention. The former would risk disproportionately tying up the use of the underlying ideas, and are therefore ineligible for patent protection. The latter pose no comparable risk of pre-emption, and therefore remain eligible for the monopoly granted under our patent laws.

III

In *Mayo*, we set forth a framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts. First, we determine whether the claims at issue are directed to one of those patent-ineligible concepts. If so, we then ask, what else is there in the claims before us? To answer that question, we consider the elements of each claim both individually and as an ordered combination to determine whether the additional elements “transform the nature of the claim” into a patent-eligible application. We have described step two of this analysis as a search for an “inventive concept” – i.e., an element or combination of elements that is “sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the ineligible concept itself.”

A

We must first determine whether the claims at issue are directed to a patent-ineligible concept. We conclude that they are: These claims are drawn to the abstract idea of intermediated settlement.

The “abstract ideas” category embodies “the longstanding rule that an idea of itself is not patentable.” *Benson*. In *Benson*, for example, this Court rejected as ineligible patent claims involving an algorithm for converting binary-coded decimal numerals into pure binary form, holding that the claimed patent was “in practical effect . . . a patent on the algorithm itself.” And in *Parker v. Flook*, 437 U.S. 584 (1978), we held that a mathematical formula for computing “alarm limits” in a catalytic conversion process was also a patent-ineligible abstract idea.

We most recently addressed the category of abstract ideas in *Bilski*. The claims at issue in *Bilski* described a method for hedging against the financial risk of price fluctuations. Claim 1 recited a series of steps for hedging risk, including: (1) initiating a series of financial transactions between providers and consumers of a commodity; (2) identifying market participants that have a counterrisk for the same commodity; and (3) initiating a series of transactions between those market participants and the commodity provider to balance the risk position of the first series of consumer transactions. Claim 4 put the concept articulated in claim 1 into a simple mathematical

formula. The remaining claims were drawn to examples of hedging in commodities and energy markets.

All members of the Court agreed that the patent at issue in *Bilski* claimed an abstract idea. Specifically, the claims described the basic concept of hedging, or protecting against risk. The Court explained that “[h]edging is a fundamental economic practice long prevalent in our system of commerce and taught in any introductory finance class.” The concept of hedging as recited by the claims in suit was therefore a patent-ineligible abstract idea, just like the algorithms at issue in *Benson and Flook*.

It follows from our prior cases, and *Bilski* in particular, that the claims at issue here are directed to an abstract idea. Petitioner’s claims involve a method of exchanging financial obligations between two parties using a third-party intermediary to mitigate settlement risk. The intermediary creates and updates “shadow” records to reflect the value of each party’s actual accounts held at “exchange institutions,” thereby permitting only those transactions for which the parties have sufficient resources. At the end of each day, the intermediary issues irrevocable instructions to the exchange institutions to carry out the permitted transactions.

On their face, the claims before us are drawn to the concept of intermediated settlement, i.e., the use of a third party to mitigate settlement risk. Like the risk hedging in *Bilski*, the concept of intermediated settlement is “a fundamental economic practice long prevalent in our system of commerce.” See, e.g., Emery, *Speculation on the Stock and Produce Exchanges of the United States*, in 7 STUDIES IN HISTORY, ECONOMICS AND PUBLIC LAW 283, 346–356 (1896) (discussing the use of a “clearing-house” as an intermediary to reduce settlement risk). The use of a third-party intermediary (or “clearing house”) is also a building block of the modern economy. Thus, intermediated settlement, like hedging, is an “abstract idea” beyond the scope of § 101.

Petitioner acknowledges that its claims describe intermediated settlement, but rejects the conclusion that its claims recite an “abstract idea.” Drawing on the presence of mathematical formulas in some of our abstract-ideas precedents, petitioner contends that the abstract-ideas category is confined to “preexisting, fundamental truths” that “exist in principle apart from any human action.”

Bilski belies petitioner’s assertion. The concept of risk hedging we identified as an abstract idea in that case cannot be described as a “preexisting, fundamental truth.” The patent in *Bilski* simply involved a “series of steps instructing how to hedge risk.” Although hedging is a longstanding commercial practice, it is a method of organizing human activity, not a truth about the natural world that has always existed. One of the claims in *Bilski* reduced hedging to a mathematical formula, but the Court did not assign any special significance to that fact, much less the sort of talismanic significance petitioner claims. Instead, the Court grounded its conclusion that all of the claims at issue were abstract ideas in the understanding that risk

hedging was a “fundamental economic practice.” ...

B

Because the claims at issue are directed to the abstract idea of intermediated settlement, we turn to the second step in *Mayo*'s framework. We conclude that the method claims, which merely require generic computer implementation, fail to transform that abstract idea into a patent-eligible invention.

1

At *Mayo* step two, we must examine the elements of the claim to determine whether it contains an “inventive concept” sufficient to “transform” the claimed abstract idea into a patent-eligible application. A claim that recites an abstract idea must include “additional features” to ensure “that the claim is more than a drafting effort designed to monopolize the abstract idea.” *Mayo* made clear that transformation into a patent-eligible application requires “more than simply stating the abstract idea while adding the words ‘apply it.’ ”

Mayo itself is instructive. The patents at issue in *Mayo* claimed a method for measuring metabolites in the bloodstream in order to calibrate the appropriate dosage of thiopurine drugs in the treatment of autoimmune diseases. The respondent in that case contended that the claimed method was a patent-eligible application of natural laws that describe the relationship between the concentration of certain metabolites and the likelihood that the drug dosage will be harmful or ineffective. But methods for determining metabolite levels were already well known in the art, and the process at issue amounted to nothing significantly more than an instruction to doctors to apply the applicable laws when treating their patients. Simply appending conventional steps, specified at a high level of generality, was not enough to supply an inventive concept.

The introduction of a computer into the claims does not alter the analysis at *Mayo* step two. In *Benson*, for example, we considered a patent that claimed an algorithm implemented on a general-purpose digital computer. Because the algorithm was an abstract idea, the claim had to supply a new and useful application of the idea in order to be patent eligible. But the computer implementation did not supply the necessary inventive concept; the process could be carried out in existing computers long in use. We accordingly held that simply implementing a mathematical principle on a physical machine, namely a computer, is not a patentable application of that principle.

Flook is to the same effect. There, we examined a computerized method for using a mathematical formula to adjust alarm limits for certain operating conditions (e.g., temperature and pressure) that could signal inefficiency or danger in a catalytic conversion process. Once again, the formula itself was an abstract idea and the computer implementation was purely conventional. In holding that the process was patent in-

eligible, we rejected the argument that implementing a principle in some specific fashion will automatically fall within the patentable subject matter of § 101. Thus, *Flook* stands for the proposition that the prohibition against patenting abstract ideas cannot be circumvented by attempting to limit the use of the idea to a particular technological environment.

In *Diehr*, by contrast, we held that a computer-implemented process for curing rubber was patent eligible, but not because it involved a computer. The claim employed a well-known mathematical equation, but it used that equation in a process designed to solve a technological problem in conventional industry practice. The invention in *Diehr* used a thermocouple to record constant temperature measurements inside the rubber mold – something the industry had not been able to obtain. The temperature measurements were then fed into a computer, which repeatedly recalculated the remaining cure time by using the mathematical equation. These additional steps, we recently explained, “transformed the process into an inventive application of the formula.” *Mayo*. In other words, the claims in *Diehr* were patent eligible because they improved an existing technological process, not because they were implemented on a computer.

These cases demonstrate that the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention. Stating an abstract idea “while adding the words ‘apply it’” is not enough for patent eligibility. *Mayo*. Nor is limiting the use of an abstract idea to a particular technological environment. Stating an abstract idea while adding the words “apply it with a computer” simply combines those two steps, with the same deficient result. Thus, if a patent’s recitation of a computer amounts to a mere instruction to implement an abstract idea on a computer, that addition cannot impart patent eligibility. ...

The fact that a computer necessarily exists in the physical, rather than purely conceptual, realm, is beside the point. There is no dispute that a computer is a tangible system (in § 101 terms, a “machine”), or that many computer-implemented claims are formally addressed to patent-eligible subject matter. But if that were the end of the § 101 inquiry, an applicant could claim any principle of the physical or social sciences by reciting a computer system configured to implement the relevant concept. Such a result would make the determination of patent eligibility depend simply on the draftsman’s art, thereby eviscerating the rule that laws of nature, natural phenomena, and abstract ideas are not patentable.

2

The representative method claim in this case recites the following steps: (1) “creating” shadow records for each counterparty to a transaction; (2) “obtaining” start-of-day balances based on the parties’ real-world accounts at exchange institutions; (3) “adjusting” the shadow records as transactions are entered, allowing only those transactions for which the parties have sufficient resources; and (4) issuing irrevoc-

cable end-of-day instructions to the exchange institutions to carry out the permitted transactions. Petitioner principally contends that the claims are patent eligible because these steps “require a substantial and meaningful role for the computer.” As stipulated, the claimed method requires the use of a computer to create electronic records, track multiple transactions, and issue simultaneous instructions; in other words, the computer is itself the intermediary.

In light of the foregoing, the relevant question is whether the claims here do more than simply instruct the practitioner to implement the abstract idea of intermediated settlement on a generic computer. They do not.

Taking the claim elements separately, the function performed by the computer at each step of the process is purely conventional. Using a computer to create and maintain “shadow” accounts amounts to electronic recordkeeping – one of the most basic functions of a computer. The same is true with respect to the use of a computer to obtain data, adjust account balances, and issue automated instructions; all of these computer functions are well-understood, routine, conventional activities previously known to the industry. In short, each step does no more than require a generic computer to perform generic computer functions.

Considered as an ordered combination, the computer components of petitioner’s method add nothing . . . that is not already present when the steps are considered separately. Viewed as a whole, petitioner’s method claims simply recite the concept of intermediated settlement as performed by a generic computer. The method claims do not, for example, purport to improve the functioning of the computer itself. Nor do they effect an improvement in any other technology or technical field. Instead, the claims at issue amount to “nothing significantly more” than an instruction to apply the abstract idea of intermediated settlement using some unspecified, generic computer. Under our precedents, that is not enough to transform an abstract idea into a patent-eligible invention.

C

Petitioner’s claims to a computer system and a computer-readable medium fail for substantially the same reasons. Petitioner conceded below that its media claims rise or fall with its method claims. As to its system claims, petitioner emphasizes that those claims recite “specific hardware” configured to perform “specific computerized functions.” But what petitioner characterizes as specific hardware – a “data processing system” with a “communications controller” and “data storage unit,” for example – is purely functional and generic. Nearly every computer will include a “communications controller” and “data storage unit” capable of performing the basic calculation, storage, and transmission functions required by the method claims. As a result, none of the hardware recited by the system claims offers a meaningful limitation beyond generally linking the use of the method to a particular technologi-

cal environment, that is, implementation via computers.

Put another way, the system claims are no different from the method claims in substance. The method claims recite the abstract idea implemented on a generic computer; the system claims recite a handful of generic computer components configured to implement the same idea. This Court has long warned against interpreting § 101 in ways that make patent eligibility depend simply on the draftsman's art. Holding that the system claims are patent eligible would have exactly that result.

Because petitioner's system and media claims add nothing of substance to the underlying abstract idea, we hold that they too are patent ineligible under § 101. ...

Association for Molecular Pathology v. Myriad Genetics, Inc.
133 S. Ct. 2107 (2013)

Justice THOMAS delivered the opinion of the Court. ...

[According to the Supreme Court's summary, human DNA consists of a long string of nucleotides, each of which is one of four molecular fragments commonly abbreviated A, C, T, and G. Each sequence of three nucleotides codes for one of twenty amino acids, the molecules from which the body builds proteins. A gene is sequence of nucleotides that code for the amino acids making up a protein; put another way, a gene contains the information the body uses to make a particular protein. Naturally occurring DNA sequences contain portions, called "introns," that do not actually code for amino acids; those portions are ignored when the body makes proteins from genes. The remaining portions of DNA, which do code for amino acids and which are used in making proteins, are called "exons."

Myriad discovered that mutations in two human genes, BRCA1 and BRCA2, substantially increased a woman's risk of developing breast cancer. It developed and marketed a test for these mutations. It also obtained multiple patents related to the discovery and the test, which it used to prevent competition from other tests. Claim 1 of patent 5,747,282, for example, claimed "[a]n isolated DNA coding for a BRCA1 polypeptide," with "the amino acid sequence set forth in [an attachment listing a sequence of 1,863 amino acids]." Other claims covered cDNA (short for "complementary DNA"), which is created using synthetic laboratory methods by copying naturally occurring DNA. The resulting molecule differs in that it contains only exons and omits the introns.]

It is undisputed that Myriad did not create or alter any of the genetic information encoded in the BRCA1 and BRCA2 genes. The location and order of the nucleotides existed in nature before Myriad found them. Nor did Myriad create or alter the genetic structure of DNA. Instead, Myriad's principal contribution was uncovering the precise location and genetic sequence of the BRCA1 and BRCA2 genes within

chromosomes 17 and 13. The question is whether this renders the genes patentable.

Myriad recognizes that our decision in *Diamond v. Chakrabarty*, 443 U.S. 303 (1980) is central to this inquiry. In *Chakrabarty*, scientists added four plasmids to a bacterium, which enabled it to break down various components of crude oil. The Court held that the modified bacterium was patentable. It explained that the patent claim was "not to a hitherto unknown natural phenomenon, but to a nonnaturally occurring manufacture or composition of matter — a product of human ingenuity having a distinctive name, character and use." The *Chakrabarty* bacterium was new "with markedly different characteristics from any found in nature," due to the additional plasmids and resultant "capacity for degrading oil." In this case, by contrast, Myriad did not create anything. To be sure, it found an important and useful gene, but separating that gene from its surrounding genetic material is not an act of invention.

Groundbreaking, innovative, or even brilliant discovery does not by itself satisfy the § 101 inquiry. ...

Nor are Myriad's claims saved by the fact that isolating DNA from the human genome severs chemical bonds and thereby creates a nonnaturally occurring molecule. Myriad's claims are simply not expressed in terms of chemical composition, nor do they rely in any way on the chemical changes that result from the isolation of a particular section of DNA. Instead, the claims understandably focus on the genetic information encoded in the BRCA1 and BRCA2 genes. If the patents depended upon the creation of a unique molecule, then a would-be infringer could arguably avoid at least Myriad's patent claims on entire genes (such as claims 1 and 2 of the '282 patent) by isolating a DNA sequence that included both the BRCA1 or BRCA2 gene and one additional nucleotide pair. Such a molecule would not be chemically identical to the molecule "invented" by Myriad. But Myriad obviously would resist that outcome because its claim is concerned primarily with the information contained in the genetic sequence, not with the specific chemical composition of a particular molecule. ...

cDNA does not present the same obstacles to patentability as naturally occurring, isolated DNA segments. As already explained, creation of a cDNA sequence from mRNA results in an exons-only molecule that is not naturally occurring. Petitioners concede that cDNA differs from natural DNA in that "the non-coding regions have been removed." They nevertheless argue that cDNA is not patent eligible because "the nucleotide sequence of cDNA is dictated by nature, not by the lab technician." That may be so, but the lab technician unquestionably creates something new when cDNA is made. cDNA retains the naturally occurring exons of DNA, but it is distinct from the DNA from which it was derived. As a result, cDNA is not a "product of nature" and is patent eligible under § 101, except insofar as very short series of DNA may have no intervening introns to remove when creating cDNA. In that situation,

a short strand of cDNA may be indistinguishable from natural DNA.

Justice SCALIA, concurring in part and concurring in the judgment.

I join the judgment of the Court, and all of its opinion except Part I-A and some portions of the rest of the opinion going into fine details of molecular biology. I am unable to affirm those details on my own knowledge or even my own belief. It suffices for me to affirm, having studied the opinions below and the expert briefs presented here, that the portion of DNA isolated from its natural state sought to be patented is identical to that portion of the DNA in its natural state; and that complementary DNA (cDNA) is a synthetic creation not normally present in nature.

Tax Planning Patent Problem

You are staff counsel to Representative Helvering (R-IA), who has read a number of newspaper articles on the growing phenomenon of “tax planning patents.” These patents describe transactions designed to help a company reduce the taxes it owes. For example, one such patent describes dividing a real estate portfolio into a number of shares held as tenancies in common subject to a master lease, in which each holder receives guaranteed annual income and is subject to repurchase at fair market value at a specified date, such that the investments qualify for tax-deferred treatment under ... you get the picture.

The Representative has asked you to help her think through the policy and legal issues these patents raise. She wants to know whether they are valid under current law and whether they’re contributing to tax evasion. If they’re problematic, she would like your suggestions on possible legislative fixes (either to the Patent Act or to the Internal Revenue Code).

2 Utility

Juicy Whip, Inc. v. Orange Bang, Inc. 185 F.3d 1364 (Fed. Cir. 1999)

BRYSON, Circuit Judge.

The district court in this case held a patent invalid for lack of utility on the ground that the patented invention was designed to deceive customers by imitating another product and thereby increasing sales of a particular good. We reverse and remand.

I

Juicy Whip, Inc., is the assignee of United States Patent No. 5,575,405, which is entitled “Post-Mix Beverage Dispenser With an Associated Simulated Display of Beverage.” A “post-mix” beverage dispenser stores beverage syrup concentrate and

water in separate locations until the beverage is ready to be dispensed. The syrup and water are mixed together immediately before the beverage is dispensed, which is usually after the consumer requests the beverage. In contrast, in a "pre-mix" beverage dispenser, the syrup concentrate and water are pre-mixed and the beverage is stored in a display reservoir bowl until it is ready to be dispensed. The display bowl is said to stimulate impulse buying by providing the consumer with a visual beverage display. A pre-mix display bowl, however, has a limited capacity and is subject to contamination by bacteria. It therefore must be refilled and cleaned frequently.

The invention claimed in the '405 patent is a post-mix beverage dispenser that is designed to look like a pre-mix beverage dispenser. The claims require the post-mix dispenser to have a transparent bowl that is filled with a fluid that simulates the appearance of the dispensed beverage and is resistant to bacterial growth. The claims also require that the dispenser create the visual impression that the bowl is the principal source of the dispensed beverage, although in fact the beverage is mixed immediately before it is dispensed, as in conventional post-mix dispensers.

Claim 1 is representative of the claims at issue. It reads as follows:

In a post-mix beverage dispenser of the type having an outlet for discharging beverage components in predetermined proportions to provide a serving of dispensed beverage, the improvement which comprises:

- a transparent bowl having no fluid connection with the outlet and visibly containing a quantity of fluid;
- said fluid being resistant to organic growth and simulating the appearance of the dispensed beverage;
- said bowl being positioned relative to the outlet to create the visual impression that said bowl is the reservoir and principal source of the dispensed beverage from the outlet; and
- said bowl and said quantity of fluid visible within said bowl cooperating to create the visual impression that multiple servings of the dispensed beverage are stored within said bowl.

Juicy Whip sued defendants Orange Bang, Inc., and Unique Beverage Dispensers, Inc., (collectively, "Orange Bang") in the United States District Court for the Central District of California, alleging that they were infringing the claims of the '405 patent. Orange Bang moved for summary judgment of invalidity, and the district court granted Orange Bang's motion on the ground that the invention lacked utility and thus was unpatentable under 35 U.S.C. § 101.

The court concluded that the invention lacked utility because its purpose was to increase sales by deception, i.e., through imitation of another product. The court explained that the purpose of the invention "is to create an illusion, whereby cus-

U.S. Patent

Nov. 19, 1996

Sheet 1 of 3

5,575,405

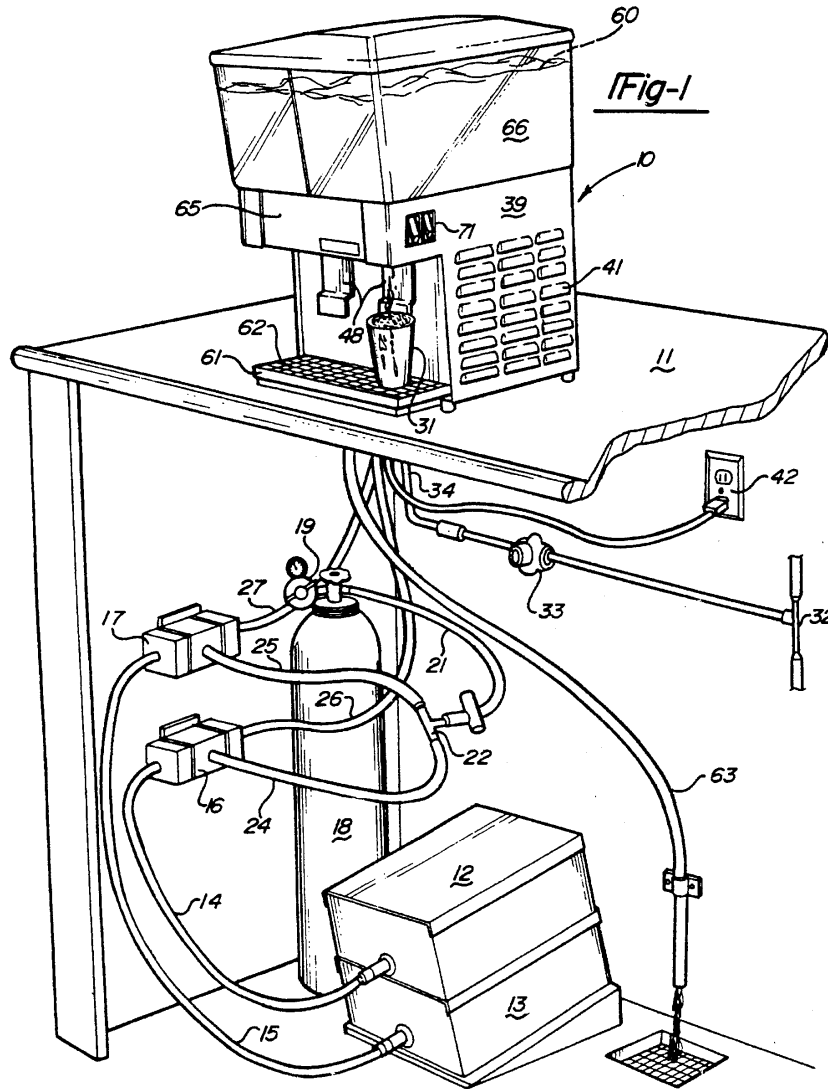


Figure 3.1: U.S. Patent No. 5,575,405, Post-Mix Beverage Dispenser With an Associated Simulated Display of Beverage.

tomers believe that the fluid contained in the bowl is the actual beverage that they are receiving, when of course it is not.” Although the court acknowledged Juicy Whip’s argument that the invention provides an accurate representation of the dispensed beverage for the consumer’s benefit while eliminating the need for retailers to clean their display bowls, the court concluded that those claimed reasons for the patent’s utility “are not independent of its deceptive purpose, and are thus insufficient to raise a disputed factual issue to present to a jury.” The court further held that the invention lacked utility because it “improves the prior art only to the extent that it increases the salability of beverages dispensed from post-mix dispensers”; an invention lacks utility, the court stated, if it confers no benefit to the public other than the opportunity for making a product more salable. Finally, the court ruled that the invention lacked utility because it “is merely an imitation of the pre-mix dispenser,” and thus does not constitute a new and useful machine.

II

Section 101 of the Patent Act of 1952, 35 U.S.C. § 101, provides that “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof,” may obtain a patent on the invention or discovery. The threshold of utility is not high: An invention is “useful” under section 101 if it is capable of providing some identifiable benefit.

To be sure, since Justice Story’s opinion in *Lowell v. Lewis*, 15 F. Cas. 1018 (C.C.D. Mass. 1817), it has been stated that inventions that are “injurious to the well-being, good policy, or sound morals of society” are unpatentable. As examples of such inventions, Justice Story listed “a new invention to poison people, or to promote debauchery, or to facilitate private assassination.” Courts have continued to recite Justice Story’s formulation, but the principle that inventions are invalid if they are principally designed to serve immoral or illegal purposes has not been applied broadly in recent years. For example, years ago courts invalidated patents on gambling devices on the ground that they were immoral, but that is no longer the law.

In holding the patent in this case invalid for lack of utility, the district court relied on two Second Circuit cases dating from the early years of this century, *Rickard v. Du Bon*, 103 F. 868 (2d Cir. 1900), and *Scott & Williams v. Aristo Hosiery Co.*, 7 F.2d 1003 (2d Cir. 1925). In the *Rickard* case, the court held invalid a patent on a process for treating tobacco plants to make their leaves appear spotted. At the time of the invention, according to the court, cigar smokers considered cigars with spotted wrappers to be of superior quality, and the invention was designed to make unspotted tobacco leaves appear to be of the spotted—and thus more desirable—type. The court noted that the invention did not promote the burning quality of the leaf or improve its quality in any way; “the only effect, if not the only object, of such

treatment, is to spot the tobacco, and counterfeit the leaf spotted by natural causes.”

The *Aristo Hosiery* case concerned a patent claiming a seamless stocking with a structure on the back of the stocking that imitated a seamed stocking. The imitation was commercially useful because at the time of the invention many consumers regarded seams in stockings as an indication of higher quality. The court noted that the imitation seam did not “change or improve the structure or the utility of the article,” and that the record in the case justified the conclusion that true seamed stockings were superior to the seamless stockings that were the subject of the patent. “At best,” the court stated, “the seamless stocking has imitation marks for the purposes of deception, and the idea prevails that with such imitation the article is more salable.” *Id.* That was not enough, the court concluded, to render the invention patentable.

We decline to follow *Rickard* and *Aristo Hosiery*, as we do not regard them as representing the correct view of the doctrine of utility under the Patent Act of 1952. The fact that one product can be altered to make it look like another is in itself a specific benefit sufficient to satisfy the statutory requirement of utility.

It is not at all unusual for a product to be designed to appear to viewers to be something it is not. For example, cubic zirconium is designed to simulate a diamond, imitation gold leaf is designed to imitate real gold leaf, synthetic fabrics are designed to simulate expensive natural fabrics, and imitation leather is designed to look like real leather. In each case, the invention of the product or process that makes such imitation possible has “utility” within the meaning of the patent statute, and indeed there are numerous patents directed toward making one product imitate another. *See, e.g.*, U.S. Pat. No. 5,762,968 (method for producing imitation grill marks on food without using heat); U.S. Pat. No. 5,899,038 (laminated flooring imitating wood); U.S. Pat. No. 5,571,545 (imitation hamburger). Much of the value of such products resides in the fact that they appear to be something they are not. Thus, in this case the claimed post-mix dispenser meets the statutory requirement of utility by embodying the features of a post-mix dispenser while imitating the visual appearance of a pre-mix dispenser.

The fact that customers may believe they are receiving fluid directly from the display tank does not deprive the invention of utility. Orange Bang has not argued that it is unlawful to display a representation of the beverage in the manner that fluid is displayed in the reservoir of the invention, even though the fluid is not what the customer will actually receive. Moreover, even if the use of a reservoir containing fluid that is not dispensed is considered deceptive, that is not by itself sufficient to render the invention unpatentable. The requirement of “utility” in patent law is not a directive to the Patent and Trademark Office or the courts to serve as arbiters of deceptive trade practices. Other agencies, such as the Federal Trade Commission and the Food and Drug Administration, are assigned the task of protecting consumers

from fraud and deception in the sale of food products. *Cf. In re Watson*, 517 F.2d 465 (C.C.P.A. 1975) (stating that it is not the province of the Patent Office to determine, under section 101, whether drugs are safe). As the Supreme Court put the point more generally, "Congress never intended that the patent laws should displace the police powers of the States, meaning by that term those powers by which the health, good order, peace and general welfare of the community are promoted." *Webber v. Virginia*, 103 U.S. (13 Otto) 344 (1880).

Of course, Congress is free to declare particular types of inventions unpatentable for a variety of reasons, including deceptiveness. *Cf.* 42 U.S.C. § 2181(a) (exempting from patent protection inventions useful solely in connection with special nuclear material or atomic weapons). Until such time as Congress does so, however, we find no basis in section 101 to hold that inventions can be ruled unpatentable for lack of utility simply because they have the capacity to fool some members of the public. The district court therefore erred in holding that the invention of the '405 patent lacks utility because it deceives the public through imitation in a manner that is designed to increase product sales.

Manual of Patent Examination Procedure (Rev. Nov. 2013)

§ 2107 - Guidelines for Examination of Applications for Compliance with the Utility Requirement

- (i) A claimed invention must have a specific and substantial utility. This requirement excludes "throw-away," "insubstantial," or "nonspecific" utilities, such as the use of a complex invention as landfill, as a way of satisfying the utility requirement of 35 U.S.C. 101.
- (ii) Credibility is assessed from the perspective of one of ordinary skill in the art in view of the disclosure and any other evidence of record (e.g., test data, affidavits or declarations from experts in the art, patents or printed publications) that is probative of the applicant's assertions. An applicant need only provide one credible assertion of specific and substantial utility for each claimed invention to satisfy the utility requirement.

§ 2107.01 - General Principles Governing Utility Rejections

I. SPECIFIC AND SUBSTANTIAL REQUIREMENTS

To satisfy 35 U.S.C. 101, an invention must be "useful." Courts have recognized that the term "useful" used with reference to the utility requirement can be a difficult term to define. Where an applicant has set forth a specific and substantial utility, courts have been reluctant to uphold a rejection under 35 U.S.C. 101 solely on the basis that the applicant's opinion as to the nature of the specific and substantial utility

was inaccurate. ...

Practical considerations require the Office to rely on the inventor's understanding of his or her invention in determining whether and in what regard an invention is believed to be "useful." Because of this, Office personnel should focus on and be receptive to assertions made by the applicant that an invention is "useful" for a particular reason.

A. Specific Utility

A "specific utility" is specific to the subject matter claimed and can "provide a well-defined and particular benefit to the public." *In re Fisher*, 421 F.3d 1365 (Fed. Cir. 2005). This contrasts with a general utility that would be applicable to the broad class of the invention. Office personnel should distinguish between situations where an applicant has disclosed a specific use for or application of the invention and situations where the applicant merely indicates that the invention may prove useful without identifying with specificity why it is considered useful. For example, indicating that a compound may be useful in treating unspecified disorders, or that the compound has "useful biological" properties, would not be sufficient to define a specific utility for the compound. Similarly, a claim to a polynucleotide whose use is disclosed simply as a "gene probe" or "chromosome marker" would not be considered to be specific in the absence of a disclosure of a specific DNA target. *See Fisher* ("Any EST [expressed sequence tag] transcribed from any gene in the maize genome has the potential to perform any one of the alleged uses.... Nothing about applicant's seven alleged uses set the five claimed ESTs apart from the more than 32,000 ESTs disclosed in the application or indeed from any EST derived from any organism. Accordingly, we conclude that applicant has only disclosed general uses for its claimed ESTs, not specific ones that satisfy § 101."). A general statement of diagnostic utility, such as diagnosing an unspecified disease, would ordinarily be insufficient absent a disclosure of what condition can be diagnosed. Contrast the situation where an applicant discloses a specific biological activity and reasonably correlates that activity to a disease condition. Assertions falling within the latter category are sufficient to identify a specific utility for the invention. Assertions that fall in the former category are insufficient to define a specific utility for the invention, especially if the assertion takes the form of a general statement that makes it clear that a "useful" invention may arise from what has been disclosed by the applicant.

B. Substantial Utility

"[A]n application must show that an invention is useful to the public as disclosed in its current form, not that it may prove useful at some future date after further research. Simply put, to satisfy the 'substantial' utility requirement, an asserted use must show that the claimed invention has a significant and presently available benefit to the public." *Fisher*. The claims at issue in *Fisher* were directed to expressed

sequence tags (ESTs), which are short nucleotide sequences that can be used to discover what genes and downstream proteins are expressed in a cell. The court held that “the claimed ESTs can be used only to gain further information about the underlying genes and the proteins encoded for by those genes. The claimed ESTs themselves are not an end of [applicant’s] research effort, but only tools to be used along the way in the search for a practical utility.... Applicant does not identify the function for the underlying protein-encoding genes. Absent such identification, we hold that the claimed ESTs have not been researched and understood to the point of providing an immediate, well-defined, real world benefit to the public meriting the grant of a patent.” Thus a “substantial utility” defines a “real world” use. Utilities that require or constitute carrying out further research to identify or reasonably confirm a “real world” context of use are not substantial utilities. For example, both a therapeutic method of treating a known or newly discovered disease and an assay method for identifying compounds that themselves have a “substantial utility” define a “real world” context of use. An assay that measures the presence of a material which has a stated correlation to a predisposition to the onset of a particular disease condition would also define a “real world” context of use in identifying potential candidates for preventive measures or further monitoring. On the other hand, the following are examples of situations that require or constitute carrying out further research to identify or reasonably confirm a “real world” context of use and, therefore, do not define “substantial utilities”:

- (A) Basic research such as studying the properties of the claimed product itself or the mechanisms in which the material is involved;
- (B) A method of treating an unspecified disease or condition;
- (C) A method of assaying for or identifying a material that itself has no specific and/or substantial utility;
- (D) A method of making a material that itself has no specific, substantial, and credible utility; and
- (E) A claim to an intermediate product for use in making a final product that has no specific, substantial and credible utility.

Office personnel must be careful not to interpret the phrase “immediate benefit to the public” or similar formulations in other cases to mean that products or services based on the claimed invention must be “currently available” to the public in order to satisfy the utility requirement. Rather, any reasonable use that an applicant has identified for the invention that can be viewed as providing a public benefit should be accepted as sufficient, at least with regard to defining a “substantial” utility.

C. Research Tools

Some confusion can result when one attempts to label certain types of inventions as not being capable of having a specific and substantial utility based on the setting in which the invention is to be used. One example is inventions to be used in a research or laboratory setting. Many research tools such as gas chromatographs, screening assays, and nucleotide sequencing techniques have a clear, specific and unquestionable utility (e.g., they are useful in analyzing compounds). An assessment that focuses on whether an invention is useful only in a research setting thus does not address whether the invention is in fact “useful” in a patent sense. Instead, Office personnel must distinguish between inventions that have a specifically identified substantial utility and inventions whose asserted utility requires further research to identify or reasonably confirm. Labels such as “research tool,” “intermediate” or “for research purposes” are not helpful in determining if an applicant has identified a specific and substantial utility for the invention.

II. WHOLLY INOPERATIVE INVENTIONS; ”INCREDIBLE” UTILITY

An invention that is “inoperative” (i.e., it does not operate to produce the results claimed by the patent applicant) is not a “useful” invention in the meaning of the patent law. However, as the Federal Circuit has stated, “[t]o violate 35 U.S.C. § 101 the claimed device must be totally incapable of achieving a useful result.” *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, (Fed. Cir. 1992). See also *E.I. du Pont De Nemours and Co. v. Berkley and Co.*, 620 F.2d 1247 (8th Cir. 1980) (“A small degree of utility is sufficient ... The claimed invention must only be capable of performing some beneficial function ... An invention does not lack utility merely because the particular embodiment disclosed in the patent lacks perfection or performs crudely ... A commercially successful product is not required ... Nor is it essential that the invention accomplish all its intended functions ... or operate under all conditions ... partial success being sufficient to demonstrate patentable utility ... In short, the defense of non-utility cannot be sustained without proof of total incapacity.”) If an invention is only partially successful in achieving a useful result, a rejection of the claimed invention as a whole based on a lack of utility is not appropriate.

Situations where an invention is found to be “inoperative” and therefore lacking in utility are rare, and rejections maintained solely on this ground by a Federal court even rarer. In many of these cases, the utility asserted by the applicant was thought to be incredible in the light of the knowledge of the art, or factually misleading when initially considered by the Office. Other cases suggest that on initial evaluation, the Office considered the asserted utility to be inconsistent with known scientific principles or speculative at best as to whether attributes of the invention necessary to impart the asserted utility were actually present in the invention. However cast, the underlying finding by the court in these cases was that, based on the factual record of the case, it was clear that the invention could not and did not work as the inventor

claimed it did. Indeed, the use of many labels to describe a single problem (e.g., a false assertion regarding utility) has led to some of the confusion that exists today with regard to a rejection based on the “utility” requirement. Examples of such cases include: an invention asserted to change the taste of food using a magnetic field, a perpetual motion machine, a flying machine operating on “flapping or flutter function,” a “cold fusion” process for producing energy, a method for increasing the energy output of fossil fuels upon combustion through exposure to a magnetic field, uncharacterized compositions for curing a wide array of cancers, and a method of controlling the aging process. These examples are fact specific and should not be applied as a *per se* rule. Thus, in view of the rare nature of such cases, Office personnel should not label an asserted utility “incredible,” “speculative” or otherwise unless it is clear that a rejection based on “lack of utility” is proper.

B Procedures

1 Patent Prosecution

- [54] **METHOD AND APPARATUS FOR TEMPORARILY IMMOBILIZING AN EARTHWORM**
- [76] **Inventor:** Loren Lukehart, 4391 Greer, Boise, Id. 83703
- [21] **Appl. No.:** 161,144
- [22] **Filed:** Feb. 26, 1988
- [51] **Int. Cl.⁴** A01K 97/02
- [52] **U.S. Cl.** 43/4; 43/4.5; 43/55
- [58] **Field of Search** 43/4, 4.5, 54.1, 55, 43/56, 57.1

[56] **References Cited**
U.S. PATENT DOCUMENTS

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2,257,879	10/1941	Graham	43/55
2,507,319	5/1950	Peters	43/55
2,527,214	10/1950	Graves	43/55
3,193,966	7/1965	Lawson et al.	43/55
3,423,869	1/1969	Duerst	43/55

3,566,836 3/1971 Elfert 43/55

Primary Examiner—M. Jordan
Attorney, Agent, or Firm—Frank J. Dykas

[57] **ABSTRACT**

Method and apparatus for immobilization of an earthworm 13 to facilitate the baiting of a fishing hook. To immobilize the earthworm, the earthworm is partially coated with sharp grained sand 11 having a grain size of less than 1/20th of an inch. The apparatus 10 for carrying out the method consists of rectangular container 12 and a reservoir of sharp grained sand 11 and cover 14. Placing earthworm 13 in the apparatus 10 and allowing earthworm 13 to at least partially coat itself with sharp grained sand 11, results in the temporary immobilization of earthworm 13. Earthworm 13 is then impaled on the fishing hook by the fisherman. As soon as the baited hook is immersed in water, the sand is rinsed from earthworm 13 and it resumes wiggling.

3 Claims, 1 Drawing Sheet

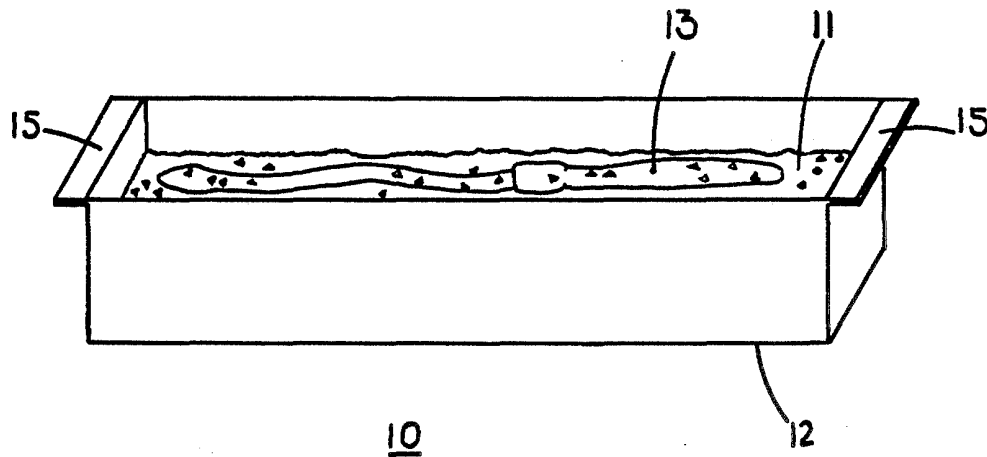


FIG. 1

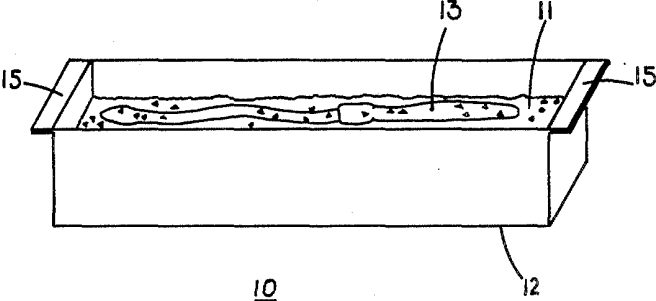


FIG. 2

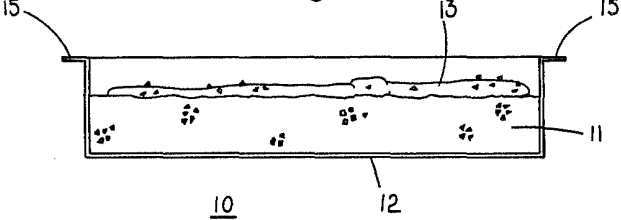
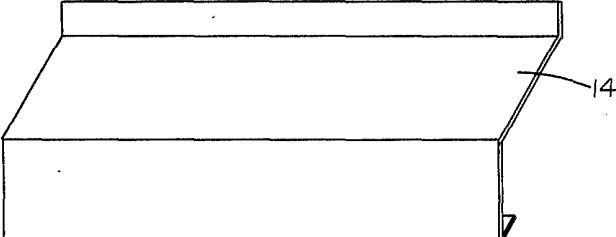


FIG. 3



METHOD AND APPARATUS FOR TEMPORARILY IMMOBILIZING AN EARTHWORM

BACKGROUND OF THE INVENTION

1. Technical Field.

This invention relates to the immobilization of live bait for use in fishing. In particular, the invention relates to a method and apparatus for the dewiggling of earthworms.

2. Background Art.

The use of live bait in fishing has long been known to be one of the most effective means for catching fish. The problem with live bait is that any creature has a natural tendency to resist the baiting process. A further complication in the specific case of earthworms is that they are naturally slimy. The ability of the earthworm to curl its body in almost any direction, connected with the fact that it is coated with slimy film, makes it extremely difficult for the fisherman to impale the earthworm with the fishing hook.

GRAHAM, U.S. Pat. No. 2,257,879, discloses a bait box having a compartment that is filled with a dry sand. The worm is dropped into the dry sand which adheres to the worm's body which makes it easier for the fisherman to hold onto the worm. The problem with the method is that the worm is still able to wiggle and curl its body, making it difficult for the fisherman to impale the worm on the fishing hook.

Accordingly, it is the object of this invention to provide a means for immobilizing an earthworm and thereby facilitating the impalement of the earthworm on a fishing hook by the fisherman.

DISCLOSURE OF INVENTION

These objects are accomplished by coating the earthworm with small sharp grained sand. Small sharp grained sand, as opposed to regular dry sand, has a dramatic affect on the worm's ability to curl its body.

A small rectangular container of sufficient length to harbor an earthworm is partially filled with sharp grained sand having a grain size equal or less than 1/20th of an inch. The rectangular container is also fitted with a removable cover which prevents sand spillage during transport. To dewiggle a worm, the fisherman has to simply set the worm in the rectangular container on top of the sharp grained sand. During the worm's natural locomotion process, the sand becomes partially imbedded in the earthworm and causes an immediate reaction wherein the earthworm completely relaxes. The earthworm is then effectively dewiggled and ready to be impaled onto the fishing hook.

Once the sand coated earthworm is immersed in water, the sand rinses free and the earthworm resume its normal wiggly character.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top perspective view of the container and sand reservoir with a worm.

FIG. 2 is a sectional side view of the container and sand reservoir with a worm.

FIG. 3 is a perspective view of the container cover.

BEST MODE FOR CARRYING OUT INVENTION

Referring to FIGS. 1, 2 and 3, an apparatus for the immobilization of earthworms is generally designated as

10 and is illustrated in its preferred embodiment. The first and only step in the immobilization of an earthworm by the preferred method is to coat the earthworm with small sharp grained sand 11 having a grain size equal to or less than 1/20th of an inch by momentarily depositing earthworm 13 on sand 11.

The preferred apparatus for the immobilization of an earthworm has a reservoir of sharp grained sand 11 having a grain size equal to or less than 1/20th of an inch, and a rectangular container 12 for housing the sand reservoir.

Sand reservoir container 12 is sized for transverse insertion into a standard bait box, not shown. Retainer lips 15 are attached to and extend perpendicularly out from the top edges of the ends of container 12. Retainer lips 15 are sized for cooperative engagement with the top edges of the sides of the bait box, so that when container 12 is transversely inserted into a bait box it is held suspended above the bottom of the bait box which contains a mixture of live worms and humus material.

Cover 14 is contoured to provide for a seal for sand reservoir container 12 and is held in place by the lid of the standard bait box.

To immobilize earthworm 13, one merely deposits earthworm 13 on top of sand 11. During the earthworm's natural locomotion process individual grains of sand 11 become partially imbedded in earthworm 13 and causes an immediate immobilizing reaction in earthworm 13. As a result earthworm 13 will rapidly straighten out and become immobilized. Since earthworm 13 is covered with grains of sand 11, it is not only immobilized, but also easy to pick up and handle.

Once earthworm 13 has been impaled upon the fisherman's hook, not shown, and immersed in water, said 11 washes off earthworm 13 and earthworm 13 will resume wiggling.

While there is shown and described the present preferred embodiment of the invention, it is to be distinctly understood that this invention is not limited thereto but may be variously embodied to practice within the scope of the following claims.

Accordingly, what I claim is:

1. An apparatus for temporarily immobilizing an earthworm which comprises:
 - a container for housing the a reservoir of sand;
 - a reservoir of sharp sand having a grain size of 1/20th of an inch or less.
2. The apparatus of claim 1 wherein said container further comprises:
 - a rectangular shaped container for holding a reservoir of sand, said rectangular container having a length slightly less than the width of a standard bait box;
 - retainer lips attached to and extending perpendicularly from the ends of said rectangular container for cooperative engagement with the top edges of the sides of a standard bait box for transversely suspending and supporting the rectangular container within the bait box;
 - a cover for cooperative engagement with the rectangular shaped container for containing the sand.
3. A method for immobilizing an earthworm which comprises partially coating said earthworm with a sharp grained sand having a grain size equal to or less than 1/20th of an inch.

* * * * *

Figure 3.2: U.S. Patent No. 4,800,666: Method and Apparatus for Temporarily Immobilizing an Earthworm

Questions

1. Who is the inventor?
2. How long did it take the Patent Office to issue this patent after it was filed?
3. For whom does M. Jordan work and what role did he or she play with regard to this patent?
4. For whom does Frank J. Dykas work, and what role did he play with regard to this patent?

37 C.F.R. pt. 1 - Rules of Practice in Patent Cases

37 C.F.R. § 1.56 (2015) - *Duty to disclose information material to patentability.*

- (a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned. ...

Therasense, Inc. v. Becton, Dickinson and Co. 649 F.3d 1276 (Fed. Cir. 2011) (en banc)

RADER, Chief Judge....

Inequitable conduct is an equitable defense to patent infringement that, if proved, bars enforcement of a patent. This judge-made doctrine evolved from a trio of Supreme Court cases that applied the doctrine of unclean hands to dismiss patent cases involving egregious misconduct [before the Patent and Trademark Office]. ...

As the inequitable conduct doctrine evolved from these unclean hands cases, it came to embrace a broader scope of misconduct, including not only egregious affirmative acts of misconduct intended to deceive both the PTO and the courts but also the mere nondisclosure of information to the PTO. Inequitable conduct also diverged from the doctrine of unclean hands by adopting a different and more po-

tent remedy—unenforceability of the entire patent rather than mere dismissal of the instant suit. ...

To prevail on a claim of inequitable conduct, the accused infringer must prove that the patentee acted with the specific intent to deceive the PTO. A finding that the misrepresentation or omission amounts to gross negligence or negligence under a "should have known" standard does not satisfy this intent requirement. In a case involving nondisclosure of information, clear and convincing evidence must show that the applicant made a deliberate decision to withhold a known material reference. In other words, the accused infringer must prove by clear and convincing evidence that the applicant knew of the reference, knew that it was material, and made a deliberate decision to withhold it. ...

Because direct evidence of deceptive intent is rare, a district court may infer intent from indirect and circumstantial evidence. However, to meet the clear and convincing evidence standard, the specific intent to deceive must be the single most reasonable inference able to be drawn from the evidence. Indeed, the evidence must be sufficient to *require* a finding of deceitful intent in the light of all the circumstances.

...

This court holds that, as a general matter, the materiality required to establish inequitable conduct is but-for materiality. When an applicant fails to disclose prior art to the PTO, that prior art is but-for material if the PTO would not have allowed a claim had it been aware of the undisclosed prior art.

2 Claims

Patent Act

35 U.S.C. § 112 - Specification

- (b) *Conclusion.* – The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.
- (c) *Form.* – A claim may be written in independent or, if the nature of the case admits, in dependent or multiple dependent form.
- (d) *Reference in Dependent Forms.* – [A] claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

Nautlius, Inc. v. Biosig Instruments Inc.
134 S. Ct. 2120 (2014)

Justice GINSBURG delivered the opinion of the Court.

The Patent Act requires that a patent specification "conclude with one or more claims *particularly pointing out and distinctly claiming* the subject matter which the applicant regards as [the] invention." 35 U.S.C. § 112, ¶ 2 (2006 ed.) (emphasis added). This case, involving a heart-rate monitor used with exercise equipment, concerns the proper reading of the statute's clarity and precision demand. According to the Federal Circuit, a patent claim passes the § 112, ¶ 2 threshold so long as the claim is "amenable to construction," and the claim, as construed, is not "insolubly ambiguous." We conclude that the Federal Circuit's formulation, which tolerates some ambiguous claims but not others, does not satisfy the statute's definiteness requirement. In place of the "insolubly ambiguous" standard, we hold that a patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention. Expressing no opinion on the validity of the patent-in-suit, we remand, instructing the Federal Circuit to decide the case employing the standard we have prescribed. ...

Freeny v. Apple Inc.

No.2:13-CV-00361-WCB, 2014 WL 4294505 (E.D. Tex. Aug. 28, 2014)

WILLIAM C. BRYSON, UNITED STATES CIRCUIT JUDGE [sitting by designation]

[Patent No. 7,110,744 ("the '744 patent"), dealt with a single device that can communicate wirelessly with a variety of providers, such as hotel systems, vehicle parking systems, and toll systems, using multiple frequencies. It claimed:

A communication unit connected to a public communication system [e.g., the Internet], the communication unit capable of detecting a plurality of wireless devices and servicing each of the plurality of wireless devices by providing access to the public communication system when the wireless devices are within a predetermined proximity distance from the communication unit, the communication unit comprising [various elements, including a] transceiver simultaneously communicating with at least two wireless devices with different types of low power communication signals.]

The final term in dispute for purposes of claim construction is the term "low power communication signals." The plaintiffs argue that the term "low power com-

munication signals” should be construed to mean “signals having a power for transmission up to a maximum of several hundred feet.” The defendant argues that the term is indefinite because the words “low power” are wholly lacking in specificity.

While it is true that the patent does not define the term “low power” with precision, precision is not required as long as the claim language is as specific as is reasonably possible under the circumstances, and as long as a person of skill in the art would understand the scope of the claims with reasonable certainty. The Federal Circuit has frequently addressed claim language that was imprecise and has frequently upheld claims containing similar language, based on the commonsense observation that sometimes precision is impossible to achieve, consistent with an accurate description of the full scope of the invention. As the court has explained: “Definiteness problems often arise when words of degree are used in a claim. That some claim language may not be precise, however, does not automatically render a claim invalid.” *Seattle Box Co. v. Indus. Crating & Packing, Inc.*, 731 F.2d 818 (Fed. Cir. 1984) (upholding claim using term “substantially equal to”). When a word of degree is used, “the district court must determine whether the patent’s specification provides some standard for measuring that degree. The trial court must decide, that is, whether one of ordinary skill in the art would understand what is claimed when the claim is read in light of the specification.” *Id.*

Indefiniteness is a legal determination; if the court concludes that a person of ordinary skill in the art, with the aid of the specification, would understand what is claimed, the claim is not indefinite. See *BJ Servs. Co. v. Halliburton Energy Servs., Inc.*, 338 F.3d 1368 (Fed. Cir. 2003) (claim term “about 0.06” not indefinite). For example, the term “substantially” has frequently been held not indefinite if a person of ordinary skill can discern from the claims and specification what the bounds of the claim are with reasonable certainty. [Cases cited found the terms “substantially planar,” “to increase substantially,” “not interfering substantially,” “relatively small,” “substantially equal to,” and “closely approximate” not indefinite. *Ecolab, Inc. v. Envirochem, Inc.*, 264 F.3d 1358 (Fed. Cir. 2001) said “We note that like the term ‘about,’ the term ‘substantially’ is a descriptive term commonly used in patent claims to avoid a strict numerical boundary to the specified parameter,” and *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211 (Fed. Cir. 1995) found that “about 5:1 to about 7:1” did not include 4:1.”

On numerous occasions, district courts, including this court, have held similarly imprecise claim language not indefinite. See, e.g., *Thomas Swan & Co. v. Finisar Corp.*, 2014 WL 2885296 (E.D. Tex. June 25, 2014) (“substantially collimated” not indefinite); *Adaptix, Inc. v. Alcatel-Lucent USA, Inc.*, 2014 WL 894844 (E.D. Tex. Feb. 26, 2014) (“roughly the same” not indefinite). And in several instances, district courts, including this court, have held the claim term “low” – the same term that is at issue here – not to be indefinite. *Input/Output, Inc. v. Sercel, Inc.*, 2007 WL 6196070

(E.D.Tex. Dec. 19, 2007) (“low frequency forces” not indefinite); *Cardio-Focus, Inc. v. Cardiogenesis Corp.*, 827 F.Supp.2d 36, 43–44 (D. Mass. 2011) (“low hydroxyl ion content” not indefinite); *NexMed Holdings, Inc. v. Beta Techs., Inc.*, 2008 WL 2783522 (D. Utah July 16, 2008) (“low DC electrical voltage” not indefinite).

In pressing its indefiniteness argument, the defendant relies heavily on the Supreme Court’s recent decision in *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S.Ct. 2120 (2014), which addressed the issue of indefiniteness and modified the test applied in some prior Federal Circuit cases. The *Nautilus* Court held “a patent’s claims, viewed in light of the specification and prosecution history, [must] inform those skilled in the art about the scope of the invention with reasonable certainty.” Contrary to the defendant’s suggestion, that standard does not render all of the prior Federal Circuit and district court cases inapplicable, nor does it require that the claim language in this case be held indefinite. The Supreme Court recognized that “some modicum of uncertainty” is “the price of ensuring the appropriate incentives for innovation,” and that because patents are directed to persons of skill in the art, all that is required is that the patent apprise such persons of the scope of the invention. Indeed, the Court cited with approval *Eibel Process Co. v. Minn. & Ontario Paper Co.*, 261 U.S. 45 (1923), where the Court upheld claim language requiring a wire to be placed at a “high” or “substantial” elevation. That language, the *Eibel* Court held, would be sufficiently clear in context for persons of skill in the art to understand and therefore was not invalid for indefiniteness.

In light of the applicable caselaw, including the *Nautilus* case, the Court concludes that the term “low power communication signals” is not indefinite. The specification on several occasions refers to low power signals as those that do not communicate farther than a few hundred feet. *See, e.g.*, ’744 patent, col. 32, ll. 29–31 (“low power wireless link ... does not typically communicate farther than about 300 feet”); *id.*, col. 35, ll. 50–51 (detection range of “say several hundred feet”); *id.*, col. 36, ll. 31–38 (wireless connection ranges “will vary from several hundred feet to only several feet”); *id.*, col. 39, ll. 13–15 (transmissions possible “within several hundred feet” of a communication unit); *id.*, col. 7, ll. 4–8 (transceiver capable of communicating “up to at least a predetermined proximity distance such as a hundred feet”); *id.*, col. 13, ll. 49–52 (different signal strengths designed for detection at 500 feet and 20 feet); *id.*, col. 16, ll. 49–51 (authorization distance set at 500 feet and 20 feet). Moreover, the plaintiffs’ expert filed a declaration pointing to the references in the patent to infrared signals, 900 MHz signals, 1.8 GHz signals, and 2.4 GHz signals as examples of different types of low power communication signals. He explained that a common characteristic of such signals is the limited distance over which they can be transmitted, as discussed in the specification. One of ordinary skill in the art, he explained, would understand from reading the ’744 specification that the claim term “different types of low power communication signals” means

“different types of communication signals having a power for transmission up to a maximum of several hundred feet.” The defendant has not submitted a contrary expert declaration on the issue of indefiniteness.

Accordingly, the Court concludes that the term “low power communication signals,” viewed in light of the specification, would be understood by persons of skill in the art with reasonable certainty. The asserted claims in the ’744 patent are therefore not indefinite. Furthermore, in light of the discussion of low power communications in the specification, the Court agrees with the plaintiffs that the term should be interpreted to mean “communication signals having a power for transmission of up to a maximum of several hundred feet.”

Datamize, LLC v. Plumtree Software, Inc.
417 F.3d 1342 (Fed. Cir. 2005)

PROST, Circuit Judge.

The ‘137 patent, entitled “Electronic Kiosk Authoring System,” discloses a software program that allows a person to author user interfaces for electronic kiosks. “The authoring system enables the user interface for each individual kiosk to be customized quickly and easily within wide limits of variation, yet subject to constraints adhering the resulting interface to good standards of aesthetics and user friendliness.” ‘137 patent, Abstract. [It claimed, in relevant part:

In an electronic kiosk system ... a method for defining custom interface screens ... said method comprising the steps of: ... providing a plurality of pre-defined interface screen element types, each element type defining a form of element available for presentation on said custom interface screens, wherein each said element type permits limited variation in its on-screen characteristics in conformity with a desired uniform and *aesthetically pleasing* look and feel for said interface screens on all kiosks of said kiosk system

Datamize, the patentee, argued that the construction of the term “aesthetically pleasing” “involves the intent, purpose, wish, or goal of a person practicing the invention: that person simply must intend to create an aesthetically pleasing interface screen; whether that person actually succeeds is irrelevant.]

Datamize’s proposed construction of “aesthetically pleasing” in the context of claim 1 is not reasonable for several reasons. First and foremost, the plain meaning of the claim language requires that the look and feel of interface screens actually be “aesthetically pleasing.” ... That the uniform and “aesthetically pleasing” look and feel must also be “desired” does not alter that fact. ...

[H]ere Datamize has offered no objective definition identifying a standard for determining when an interface screen is “aesthetically pleasing.” In the absence of a workable objective standard, “aesthetically pleasing” does not just include a subjective element, it is completely dependent on a person’s subjective opinion. To the extent Datamize argues that such a construction of “aesthetically pleasing” does not render the phrase indefinite, we disagree. The scope of claim language cannot depend solely on the unrestrained, subjective opinion of a particular individual purportedly practicing the invention. Some objective standard must be provided in order to allow the public to determine the scope of the claimed invention. Even if the relevant perspective is that of the system creator, the identity of who makes aesthetic choices fails to provide any direction regarding the relevant question of how to determine whether that person succeeded in creating an “aesthetically pleasing” look and feel for interface screens. A purely subjective construction of “aesthetically pleasing” would not notify the public of the patentee’s right to exclude since the meaning of the claim language would depend on the unpredictable vagaries of any one person’s opinion of the aesthetics of interface screens. While beauty is in the eye of the beholder, a claim term, to be definite, requires an objective anchor. Thus, even if we adopted a completely subjective construction of “aesthetically pleasing,” this would still render the ‘137 patent invalid. ...

And while the description of an embodiment provides examples of aesthetic features of screen displays that can be controlled by the authoring system, it does not explain what selection of these features would be “aesthetically pleasing.” Major aesthetic choices apparently may include some aspect of button styles and sizes, window borders, color combinations, and type fonts. The written description, however, provides no guidance to a person making aesthetic choices such that their choices will result in an “aesthetically pleasing” look and feel of an interface screen. For example, the specification does not explain what factors a person should consider when selecting a feature to include in the authoring system. Left unanswered are questions like: which color combinations would be “aesthetically pleasing” and which would not? And more generally, how does one determine whether a color combination is “aesthetically pleasing”? Again, one skilled in the art reading the specification is left with the unhelpful direction to consult the subjective opinions of aesthetic design specialists, database specialists, and academic studies.

Simply put, the definition of “aesthetically pleasing” cannot depend on an undefined standard. ... We therefore affirm the district court’s grant of summary judgment of invalidity of all claims of the ‘137 patent.

3 Enablement

Patent Act

35 U.S.C. § 112 - Specification

(a) In General. — The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

O'Reilly v. Morse
56 U.S. 62 (1853)

Mr. Chief Justice TANEY delivered the opinion of the court.

[Morse sued O'Reilly for infringing his patent on the telegraph. The Supreme Court found that Morse was the inventor of the technology and found that O'Reilly's "Columbian Telegraph" infringed. But it narrowed Morse's patent by striking its now-famous eighth claim:]

Eighth. I do not propose to limit myself to the specific machinery or parts of machinery described in the foregoing specification and claims; the essence of my invention being the use of the motive power of the electric or galvanic current, which I call electro-magnetism, however developed for marking or printing intelligible characters, signs, or letters, at any distances, being a new application of that power of which I claim to be the first inventor or discoverer.

It is impossible to misunderstand the extent of this claim. He claims the exclusive right to every improvement where the motive power is the electric or galvanic current, and the result is the marking or printing intelligible characters, signs, or letters at a distance.

If this claim can be maintained, it matters not by what process or machinery the result is accomplished. For aught that we now know some future inventor, in the onward march of science, may discover a mode of writing or printing at a distance by means of the electric or galvanic current, without using any part of the process or combination set forth in the plaintiff's specification. His invention may be less complicated—less liable to get out of order—less expensive in construction, and in its operation. But yet if it is covered by this patent the inventor could not use it, nor the public have the benefit of it without the permission of this patentee.

Nor is this all, while he shuts the door against inventions of other persons, the patentee would be able to avail himself of new discoveries in the properties and powers of electro-magnetism which scientific men might bring to light. For he says he does not confine his claim to the machinery or parts of machinery, which he specifies; but claims for himself a monopoly in its use, however developed, for the purpose of printing at a distance. New discoveries in physical science may enable him to combine it with new agents and new elements, and by that means attain the object in a manner superior to the present process and altogether different from it. And if he can secure the exclusive use by his present patent he may vary it with every new discovery and development of the science, and need place no description of the new manner, process, or machinery, upon the records of the patent office. And when his patent expires, the public must apply to him to learn what it is. In fine he claims an exclusive right to use a manner and process which he has not described and indeed had not invented, and therefore could not describe when he obtained his patent. The court is of opinion that the claim is too broad, and not warranted by law.

Wyeth & Cordis Corp. v. Abbott Labs.
720 F.3d 1380 (Fed. Cir. 2013)

Moore, Judge:

Wyeth and Cordis Corporation (Wyeth) appeal from the U.S. District Court for the District of New Jersey's grant of summary judgment that claims 1 and 2 of U.S. Patent No. 5,516,781 ('781 patent) and claim 1 of U.S. Patent No. 5,563,146 ('146 patent) are invalid for nonenablement. Because we hold that there is no genuine issue of material fact that the specification does not enable one of ordinary skill to practice the asserted claims without undue experimentation, we affirm.

BACKGROUND

The patents-in-suit relate to the use of rapamycin for the treatment and prevention of restenosis, which is the renarrowing of an artery. To open a blocked artery, a physician guides a balloon catheter to the site of accumulated plaque, and then inflates the balloon to crush the plaque. As the balloon inflates, however, it may cause injury to the arterial wall. That vascular injury causes smooth muscle cells to proliferate, which thickens the arterial wall, and, in turn, leads to restenosis.

The claims recite a method of treating or preventing "restenosis in a mammal ... which comprises administering an antirestenosis effective amount of rapamycin to said mammal." In general, "rapamycin" may refer to a class of compounds. While the patents-in-suit use the term "rapamycin," the parties agree that the shared specification discloses only one rapamycin species called sirolimus. Sirolimus is naturally produced by a bacterium called *Streptomyces hygroscopicus*. [Sirolimus's chem-

ical structure had two relevant features: a “macrocyclic triene ring” and a specific “substituent group.”]

The parties do not dispute that the effective filing date of both patents is January 9, 1992. At that time, it was known that sirolimus acts in part by binding two proteins at sites within the macrocyclic ring. It was also known that there were four additional compounds with the same macrocyclic ring as sirolimus, but different substituent groups

The parties also do not dispute that the specification discloses the immunosuppressive and antirestenotic properties of sirolimus. The specification discloses *in vitro* test data indicating that sirolimus inhibits rat smooth muscle cell proliferation. It also discloses *in vivo* test data indicating that intraperitoneal injection of sirolimus in rats reduced the thickening of the arterial wall following vascular injury.

In two separate actions, Wyeth sued the defendants for infringement of the patents-in-suit. The defendants market stent products that elute everolimus and zotarolimus, two drugs that have the same macrocyclic ring as sirolimus but different [substituent groups]. After briefing and a hearing, the district court adopted Wyeth’s proposed construction of “rapamycin” as “a compound containing a macrocyclic triene ring structure produced by *Streptomyces hygroscopicus*, having immuno-suppressive and anti-restenotic effects.” Based in part on that construction, the court granted defendants’ joint motions for summary judgment of invalidity for nonenablement and lack of written description. ...

DISCUSSION

I.

... A patent’s specification must describe the invention and “the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains ... to make and use the same.” 35 U.S.C. § 112(a). Claims are not enabled when, at the effective filing date of the patent, one of ordinary skill in the art could not practice their full scope without undue experimentation. Enablement is a question of law based on underlying facts.

II.

The central issue on appeal is whether practicing the full scope of the claims requires excessive – and thus undue – experimentation. The district court held that it does. It found that the claims cover any structural analog of sirolimus that exhibits immunosuppressive and antirestenotic effects. The court also found that, while the specification describes assays to ascertain whether a potential rapamycin compound exhibits the recited functional effects, the only species disclosed is sirolimus. In further support of its holding of nonenablement, the court relied on the unpredictability

of the chemical arts, the complexity of the invention, and the limited knowledge of treatment of restenosis using sirolimus at the time of the invention.

Wyeth argues that the district court ignored evidence that practicing the full scope of the claims would have required only routine experimentation. It contends that the claims do not cover a new genus of compounds, but rather a new use for an existing class of compounds. Wyeth argues that its experts opined that one of ordinary skill would readily know how to practice the full scope of the claims using two steps. First, a skilled artisan could ascertain whether a candidate rapamycin compound has the same macrocyclic ring as sirolimus. Second, a skilled artisan could routinely determine whether a candidate has immunosuppressive and antirestenotic effects using the assays disclosed in the specification.

Regarding the amount of experimentation, Wyeth acknowledges that one of its experts testified that there could be millions of compounds made by varying the substituent groups outside of sirolimus's macrocyclic ring. Wyeth counters that the same expert testified that the number of compounds that would exhibit the recited functional effects would be significantly smaller. [Wyeth's expert argued that a PHOSITA would have know that only compounds permeable across cell membranes, typically having molecular weights below 1,200 Daltons would need to be considered. For purposes of summary judgment, the court accepted this claim as true, and also the claim that the assays would effectively confirm whether a candidate compound had the desired immunosuppressive and antirestenotic effects.]

Appellees respond that practicing the full scope of the claims would have required excessive experimentation, even if routine. They argue that the specification is silent on how to structurally modify sirolimus to yield a compound having the recited functional effects. ... Even accepting Wyeth's molecular weight argument, however, Appellees respond that there are still tens of thousands of potential compounds that require screening. They emphasize that Wyeth's own witnesses testified that even minor alterations to the sirolimus molecule could impact its immunosuppressive and antirestenotic properties. Appellees argue that one of ordinary skill would thus need, at a minimum, to engage in a laborious iterative process to determine what candidates fall within the claimed genus, and that there is no contrary evidence in the record.

We agree with Appellees and the district court that there is no genuine dispute that practicing the full scope of the claims, measured at the time of filing, would require excessive experimentation. The scope of the claims at issue is broad. Under the district court's unchallenged construction of "rapamycin," the invention is a new method of use of a known compound (sirolimus) and any other compounds that meet the construction's structural and functional requirements. We also agree that there is no genuine dispute that the specification's guidance is limited to disclosures of the immunosuppressive and antirestenotic properties of sirolimus and assays to

screen for those properties.

... Yet, even accepting Wyeth's assertions, we find no genuine dispute that practicing the full scope of the claims would require more than routine experimentation for two reasons.

First, there is no dispute that, even if potential rapamycin compounds must have a molecular weight below 1,200 Daltons, there are still at least tens of thousands of candidates. The specification is silent about how to structurally modify sirolimus, let alone in a way that would preserve the recited utility. Second, there is no genuine dispute that it would be necessary to first synthesize and then screen each candidate compound using the assays disclosed in the specification to determine whether it has immunosuppressive and antirestenotic effects. There is no evidence in the record that any particular substitutions outside of the macrocyclic ring are preferable. Indeed, a Wyeth scientist confirmed the unpredictability of the art and the ensuing need to assay each candidate by testifying that, "until you test [compounds], you really can't tell whether they work or not [i.e., have antirestenotic effects]." In sum, there is no genuine dispute that practicing the full scope of the claims would require synthesizing and screening each of at least tens of thousands of compounds.

The remaining question is whether having to synthesize and screen each of at least tens of thousands of candidate compounds constitutes undue experimentation. We hold that it does. Undue experimentation is a matter of degree. Even a considerable amount of experimentation is permissible, as long as it is merely routine or the specification provides a reasonable amount of guidance regarding the direction of experimentation. Yet, routine experimentation is not without bounds.

Our cases have described limits on permissible experimentation in the context of enablement. For example, in *ALZA Corp. v. Andrx Pharmaceuticals, LLC*, 603 F.3d 935 (Fed. Cir. 2010), we affirmed a judgment of nonenablement where the specification provided "only a starting point, a direction for further research." We concluded that one of ordinary skill "would have been required to engage in an iterative, trial-and-error process to practice the claimed invention even with the help of the ... specification." ... Finally, in *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991), we affirmed the PTO's nonenablement rejection of claims reciting heterologous gene expression in as many as 150 genera of cyanobacteria.. The specification disclosed only nine genera, despite cyanobacteria being a "diverse and relatively poorly understood group of microorganisms," with unpredictable heterologous gene expression. Here, the specification similarly discloses only a starting point for further iterative research in an unpredictable and poorly understood field. Synthesizing candidate compounds derived from sirolimus could, itself, require a complicated and lengthy series of experiments in synthetic organic chemistry. Even putting the challenges of synthesis aside, one of ordinary skill would need to assay each of at least tens of thousands of candidates. Wyeth's expert conceded that it would take technicians

weeks to complete each of these assays. The specification offers no guidance or predictions about particular substitutions that might preserve the immunosuppressive and antirestenotic effects observed in sirolimus. The resulting need to engage in a systematic screening process for each of the many rapamycin candidate compounds is excessive experimentation. We thus hold that there is no genuine dispute that practicing the full scope of the claims, measured at the filing date, required undue experimentation.

Questions

1. Are the claims in the Lukehart worm-immobilizing patent sufficiently enabled?

Plastic-Sorting Problem

You are drafting claims for a patent application for an industrial dye that turns certain plastics an attractive shade of blue. Your client has tested it, with success, on PETE, HDPE, PEEK, and PVDC (all semi-crystalline plastics). You could draft a broad claim that refers to “plastic” or you could draft a narrow claim that refers to “a plastic selected from the group of PETE, HDPE, PEEK, and PVDC.” What are the advantages and disadvantages of each approach?

Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co 598 F.3d 1336 (Fed Cir. 2010) (en banc)

LOURIE, Circuit Judge. ...

Since its inception, this court has consistently held that § 112, first paragraph, contains a written description requirement separate from enablement, and we have articulated a fairly uniform standard, which we now affirm. Specifically, the description must clearly allow persons of ordinary skill in the art to recognize that the inventor invented what is claimed. In other words, the test for sufficiency is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.

The term “possession,” however, has never been very enlightening. It implies that as long as one can produce records documenting a written description of a claimed invention, one can show possession. But the hallmark of written description is disclosure. Thus, “possession as shown in the disclosure” is a more complete formulation. Yet whatever the specific articulation, the test requires an objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art. Based on that inquiry, the specification must describe an invention understandable to that skilled artisan and show that the inventor actually invented the invention claimed. ...

We have made clear that the written description requirement does not demand either examples or an actual reduction to practice; a constructive reduction to practice that in a definite way. Conversely, we have repeatedly stated that actual "possession" or reduction to practice outside of the specification is not enough. Rather, as stated above, it is the specification itself that must demonstrate possession. And while the description requirement does not demand any particular form of disclosure, or that the specification recite the claimed invention *in haec verba*, a description that merely renders the invention obvious does not satisfy the requirement,

Manual of Patent Examination Procedure (Rev. Nov. 2013)

§ 2165 - The Best Mode Requirement

I. REQUIREMENT FOR A DISCLOSURE OF THE BEST MODE

A third requirement of 35 U.S.C. 112(a) (applicable to applications filed on or after September 16, 2012) is that:

The specification. . . shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention. . . .

The best mode requirement is a safeguard against the desire on the part of some people to obtain patent protection without making a full disclosure as required by the statute. The requirement does not permit inventors to disclose only what they know to be their second-best embodiment, while retaining the best for themselves.

Determining compliance with the best mode requirement requires a two-prong inquiry. First, it must be determined whether, at the time the application was filed, the inventor possessed a best mode for practicing the invention. This is a subjective inquiry which focuses on the inventor's state of mind at the time of filing. Second, if the inventor did possess a best mode, it must be determined whether the written description disclosed the best mode such that a person skilled in the art could practice it. This is an objective inquiry, focusing on the scope of the claimed invention and the level of skill in the art. All applicants are required to disclose for the claimed subject matter the best mode contemplated by the inventor even if the inventor was not the discoverer of that mode.

Failure to disclose the best mode need not rise to the level of active concealment or inequitable conduct in order to support a rejection. Where an inventor knows of a specific material or method that will make possible the successful reproduction of the claimed invention, but does not disclose it, the best mode requirement has not been satisfied.

**II. IMPACT OF FAILURE TO DISCLOSE THE BEST MODE
PURSUANT TO THE AIA**

Section 15 of the Leahy-Smith America Invents Act (AIA), did not eliminate the requirement in pre-AIA 35 U.S.C. 112, first paragraph, for a disclosure of the best mode, (see 35 U.S.C. 112(a)) but effective September 16, 2011, it amended 35 U.S.C. 282 (the provision that sets forth defenses in a patent validity or infringement proceeding) to provide that the failure to disclose the best mode shall not be a basis on which any claim of a patent may be canceled or held invalid or otherwise unenforceable. As this change is applicable only in patent validity or infringement proceedings, it does not alter current patent examining practices as set forth above for evaluation of an application for compliance with the best mode requirement of 35 U.S.C. 112 .

Salt Shaker Problem

Assume that you represent the inventor of the first **screw-top salt shaker**. (In this alternate universe, prior art salt shakers were filled through a hole in the bottom.) Draft a claim for this new invention. Suggestions:

- What are the constituent parts of the screw-top shaker? Your claim will need to describe them and explain how they are related.
- Which features of the screw-top shaker are essential to its use? Which can safely be omitted?
- Once the new screw-top shaker is publicly available, competing shaker-makers will try to invent around the patent. How can you make their job harder?
- Inventors in other industries may be inspired by the screw-top design. Can you make sure that your claim is not restricted to the one use your client has in mind?

C Ownership

1 Inventorship

Patent Act

35 U.S.C. § 135 - *Derivation proceedings*

- (a) Institution of Proceeding.—
- (1) In general.— An applicant for patent may file a petition with respect to an invention to institute a derivation proceeding in the Office. The petition shall set forth with particularity the basis for finding that an individual named in an earlier application as the inventor or a joint inventor derived such invention from an individual named in the petitioner's application as the inventor or a joint inventor and, without authorization, the earlier application claiming such invention was filed. ...

- (b) Determination by Patent Trial and Appeal Board. — In a derivation proceeding instituted under subsection (a), the Patent Trial and Appeal Board shall determine whether an inventor named in the earlier application derived the claimed invention from an inventor named in the petitioner’s application and, without authorization, the earlier application claiming such invention was filed. In appropriate circumstances, the Patent Trial and Appeal Board may correct the naming of the inventor in any application or patent at issue. ...

Manual of Patent Examination Procedure (Rev. Nov. 2013)

§ 2137 - Inventorship

I. NAMING INVENTORSHIP

The inventor, or each individual who is a joint inventor of a claimed invention, in an application for patent (other than a provisional application) must execute an oath or declaration directed to the application, except as provided for in 37 CFR 1.64. ...

II. AN INVENTOR MUST CONTRIBUTE TO THE CONCEPTION OF THE INVENTION

The definition for inventorship can be simply stated: “The threshold question in determining inventorship is who conceived the invention. Unless a person contributes to the conception of the invention, he is not an inventor. ... Insofar as defining an inventor is concerned, reduction to practice, per se, is irrelevant [except for simultaneous conception and reduction to practice, *Fiers v. Revel*, 984 F.2d 1164, 1168, 25 USPQ2d 1601, 1604-05 (Fed. Cir. 1993)]. One must contribute to the conception to be an inventor.” In re Hardee, 223 USPQ 1122, 1123 (Comm’r Pat. 1984). See also Board of Education ex rel. Board of Trustees of Florida State Univ. v. American Bioscience Inc., 333 F.3d 1330, 1340, 67 USPQ2d 1252, 1259 (Fed. Cir. 2003) (“Invention requires conception.” With regard to the inventorship of chemical compounds, an inventor must have a conception of the specific compounds being claimed. “[G]eneral knowledge regarding the anticipated biological properties of groups of complex chemical compounds is insufficient to confer inventorship status with respect to specifically claimed compounds.”); Ex parte Smernoff, 215 USPQ 545, 547 (Bd. App. 1982) (“one who suggests an idea of a result to be accomplished, rather than the means of accomplishing it, is not a coinventor”). See MPEP § 2138.04 - § 2138.05 for a discussion of what evidence is required to establish conception or reduction to practice.

III. AS LONG AS THE INVENTOR MAINTAINS INTELLECTUAL DOMINATION OVER MAKING THE INVENTION, IDEAS,

SUGGESTIONS, AND MATERIALS MAY BE ADOPTED FROM OTHERS

“In arriving at ... conception [the inventor] may consider and adopt ideas and materials derived from many sources ... [such as] a suggestion from an employee, or hired consultant ... so long as he maintains intellectual domination of the work of making the invention down to the successful testing, selecting or rejecting as he goes...even if such suggestion [or material] proves to be the key that unlocks his problem.” *Morse v. Porter*, 155 USPQ 280, 283 (Bd. Pat. Inter. 1965). See also *New England Braiding Co. v. A.W. Chesterton Co.*, 970 F.2d 878, 883, 23 USPQ2d 1622, 1626 (Fed. Cir. 1992) (Adoption of the ideas and materials from another can become a derivation.).

IV. THE INVENTOR IS NOT REQUIRED TO REDUCE THE INVENTION TO PRACTICE

Difficulties arise in separating members of a team effort, where each member of the team has contributed something, into those members that actually contributed to the conception of the invention, such as the physical structure or operative steps, from those members that merely acted under the direction and supervision of the conceivers. *Fritsch v. Lin*, 21 USPQ2d 1737, 1739 (Bd. Pat. App. & Inter. 1991) (The inventor “took no part in developing the procedures...for expressing the EPO gene in mammalian host cells and isolating the resulting EPO product.” However, “it is not essential for the inventor to be personally involved in carrying out process steps...where implementation of those steps does not require the exercise of inventive skill.”); *In re DeBaun*, 687 F.2d 459, 463, 214 USPQ 933, 936 (CCPA 1982) (“there is no requirement that the inventor be the one to reduce the invention to practice so long as the reduction to practice was done on his behalf”).

See also *Mattor v. Coolegem*, 530 F.2d 1391, 1395, 189 USPQ 201, 204 (CCPA 1976) (one following oral instructions is viewed as merely a technician); *Tucker v. Naito*, 188 USPQ 260, 263 (Bd. Pat. Inter. 1975) (inventors need not “personally construct and test their invention”); *Davisv.Carrier*, 81 F.2d 250, 252, 28 USPQ 227, 229 (CCPA 1936) (noninventor’s work was merely that of a skilled mechanic carrying out the details of a plan devised by another).

V. REQUIREMENTS FOR JOINT INVENTORSHIP

The inventive entity for a particular application is based on some contribution to at least one of the claims made by each of the named inventors. “Inventors may apply for a patent jointly even though (1) they did not physically work together or at the same time, (2) each did not make the same type or amount of contribution, or (3) each did not make a contribution to the subject matter of every claim of the patent.” 35 U.S.C. 116. “[T]he statute neither states nor implies that two inventors can be ‘joint inventors’ if they have had no contact whatsoever and are completely

unaware of each other's work." What is required is some "quantum of collaboration or connection." In other words, "[f]or persons to be joint inventors under Section 116, there must be some element of joint behavior, such as collaboration or working under common direction, one inventor seeing a relevant report and building upon it or hearing another's suggestion at a meeting." *Kimberly-Clark Corp. v. Procter & Gamble Distrib. Co.*, 973 F.2d 911, 916-17, 23 USPQ2d 1921, 1925-26 (Fed. Cir. 1992); *Moler v. Purdy*, 131 USPQ 276, 279 (Bd. Pat. Inter. 1960) ("it is not necessary that the inventive concept come to both [joint inventors] at the same time").

Each joint inventor must generally contribute to the conception of the invention. A coinventor need not make a contribution to every claim of a patent. A contribution to one claim is enough. "The contributor of any disclosed means of a means-plus-function claim element is a joint inventor as to that claim, unless one asserting sole inventorship can show that the contribution of that means was simply a reduction to practice of the sole inventor's broader concept." *Ethicon Inc. v. United States Surgical Corp.*, 135 F.3d 1456, 1460-63, 45 USPQ2d 1545, 1548-1551 (Fed. Cir. 1998) (The electronics technician who contributed to one of the two alternative structures in the specification to define "the means for detaining" in a claim limitation was held to be a joint inventor.).

2 Novelty

Patent Act

35 U.S.C. § 102 - *Conditions for patentability; novelty*

- (a) Novelty; Prior Art.— A person shall be entitled to a patent unless—
 - (1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention; or
 - (2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.
- (b) Exceptions.—
 - (1) Disclosures made 1 year or less before the effective filing date of the claimed invention.— A disclosure made 1 year or less before the effective filing date of a claimed invention shall not be prior art to the claimed invention under subsection (a)(1) if—

- (A) the disclosure was made by the inventor or joint inventor or by another who obtained the subject matter disclosed directly or indirectly from the inventor or a joint inventor; or
- (B) the subject matter disclosed had, before such disclosure, been publicly disclosed by the inventor or a joint inventor or another who obtained the subject matter disclosed directly or indirectly from the inventor or a joint inventor.

Note on Novelty

Notice the negative structure of the new § 102(a). An applicant “shall be entitled to a patent unless” someone somewhere has done something that makes the invention not novel. That something is called a “prior art reference” and it is said to “anticipate” the applicant’s invention. Conceptually, any novelty rule raises three questions:

- When is a prior art reference sufficiently *similar* to the applicant’s “claimed invention?” If Alfie applies to patent an oven, Beth’s previous work on metalworking is irrelevant to the novelty of Alfie’s oven. Patent law has settled on a remarkably elegant test to capture this idea: the test for anticipation is simply the test for infringement combined with the test for enablement. A claim is invalid if it covers an enabling prior art reference. Put another way, “That which infringes, if later, would anticipate, if earlier.” *Peters v. Active Mfg. Co.*, 129 U.S. 530 (1889), provided that the prior art reference would enable a person of ordinary skill in the art to make and use the claimed invention.
- Which *activities* count as prior art? The present section 102 uses the words “patented, described in a printed publication, or in public use, on sale, or otherwise available to the public.” They are broad, but they do not exhaust the universe of human activity. If Alfie files for a patent on an oven of a type that Beth once built and then demolished without using or telling anyone else, Beth’s secret use does not qualify as prior art and will not stand in the way of Alfie’s application. Extensive caselaw glosses the meanings of these phrases, which are far subtler than they may appear at first glance, and which have changed substantially over time.
- *When* must an activity have taken place to qualify as prior art? The present section 102 uses the words “before the effective filing date of the claimed invention,” so the patent applicant must not only think of the invention and make it work but must also make it to the Patent Office before anyone else goes public with the same idea, before someone else does. If Alfie invents in January and files in March but Beth publishes (or worse, files her own application) in February, Alfie is out of luck. This is one of the major changes in

the America Invents Act: under pre-AIA law, Alfie’s March application based off a January invention date would have been good enough. As we dig into the text of the AIA, we will see why it is said to create a rule of “first inventor to file.”

Titanium Metals Corp. of America v. Banner
778 F.2d 775 (Fed. Cir. 1985)

RICH, Circuit Judge

This appeal is from an Order of the United States District Court for the District of Columbia in a civil action brought pursuant to 35 U.S.C. § 145 against Donald W. Banner as Commissioner of Patents and Trademarks authorizing the Commissioner to issue to appellee a patent containing claims 1, 2, and 3 of patent application serial No. 598,935 for “TITANIUM ALLOY.” The Commissioner has appealed. We reverse.

BACKGROUND

The inventors, Loren C. Covington and Howard R. Palmer, employees of appellee to whom they have assigned their invention and the application thereon, filed an application on March 29, 1974, serial No. 455,964, to patent an alloy they developed. The application involved in this appeal . . . [contains] the three claims on appeal. The alloy is made primarily of titanium (Ti) and contains small amounts of nickel (Ni) and molybdenum (Mo) as alloying ingredients to give the alloy certain desirable properties, particularly corrosion resistance in hot brine solutions, while retaining workability so that articles such as tubing can be fabricated from it by rolling, welding and other techniques. The inventors apparently also found that iron content should be limited, iron being an undesired impurity rather than an alloying ingredient. They determined the permissible ranges of the components, above and below which the desired properties were not obtained. A precise definition of the invention sought to be patented is found in the claims, set forth below, claim 3 representing the preferred composition, it being understood, however, that no iron at all would be even more preferred.

1. A titanium base alloy consisting essentially by weight of about 0.6
2. A titanium base alloy as set forth in Claim 1 having up to 0.1
3. A titanium base alloy as set forth in Claim 1 having 0.8

The examiner’s final rejection, repeated in his Answer on appeal to the Patent and Trademark Office (PTO) Board of Appeals (board), was on the grounds that claims 1 and 2 are anticipated (fully met) by, and claim 3 would have been obvious from, an article by Kalabukhova and Mikheyew, Investigation of the Mechanical Properties

of Ti-Mo-Ni Alloys, *RUSSIAN METALLURGY (METALLY)* No. 3, pages 130-133 (1970) (in the court below and hereinafter called “the Russian article”) under 35 U.S.C. §§ 102 and 103, respectively. The board affirmed the examiner’s rejection.

...

.. The Russian article is short (3 pages), highly technical, and contains 10 graphs as part of the discussion. As its title indicates, it relates to ternary Ti-Mo-Ni alloys, the subject of the application at bar. The examiner and the board both found that it would disclose to one skilled in the art an alloy on which at least claims 1 and 2 read, so that those claims would not be allowable under the statute because of lack of novelty of their subject matter. Since the article does not specifically disclose such an alloy in words, a little thinking is required about what it would disclose to one knowledgeable about Ti-Ni-Mo alloys. The PTO did that thinking as follows:

Figure 1c [a graph] shows data for the ternary titanium alloy which contains Mo and Ni in the ratio of 1:3. Amongst the actual points on the graph is one at 1% Mo + Ni. At this point, the amounts of Mo and Ni would be 0.25% and 0.75% respectively. A similar point appears on the graph shown in Figure 2 of the article. ...

Appellants do not deny that the data points are disclosed in the reference. In fact, the Hall affidavit indicates at least two specific points (at 1% and 1.25% Mo + Ni) which would represent a description of alloys falling within the scope of the instant claims.

On that basis, the board found that the claimed alloys were not new, because they were disclosed in the prior art. It having been argued that the Russian article contains no disclosure of corrosion-resistant properties of any of the alloys, the board held: “The fact that a particular property or the end use for this alloy as contemplated by appellants was not recognized in the article is of no consequence.” It therefore held the Russian article to be an anticipation, noting that although the article does not discuss corrosion resistance, it does disclose other properties such as strength and ductility. The PTO further points out that the authors of the reference must have made the alloys to obtain the data points.

Being dissatisfied with the decision of the board, Titanium Metals Corporation of America, as assignee of the Covington and Palmer application, then brought an action in the District Court for the District of Columbia against the Commissioner pursuant to 35 U.S.C. § 145 ...

The case came on for trial on January 24, 1980, before the Honorable John G. Penn and was concluded in two and a half hours. The testimony of one witness was heard by the court, Dr. James C. Williams, professor at Carnegie-Mellon University in Pittsburgh and an expert in titanium metallurgy. His testimony was about equally divided between direct and cross examination.

... The court then concluded that claims 1-3 were not anticipated and that claim 3 was wrongly rejected as directed to obvious subject matter. In the court's view, Dr. Williams' testimony tipped the scales in favor of issuing a patent.

A. Anticipation, § 102

We are left in no doubt that the court was impressed by the totality of the evidence that the applicants for patent had discovered or invented and disclosed knowledge which is not to be found in the reference, nor do we have any doubt about that ourselves. But those facts are beside the point. The patent law imposes certain fundamental conditions for patentability, paramount among them being the condition that what is sought to be patented, as determined by the claims, be new. ... The title of the application here involved is "Titanium Alloy," a composition of matter. Surprisingly, in all of the evidence, nobody discussed the key issue of whether the alloy was new, which is the essence of the anticipation issue, including the expert Dr. Williams. Plaintiff's counsel, bringing Dr. Williams' testimony to its climax, after he had explained the nature of the ingredients, the alloys made therefrom, and their superior corrosion resistance in hot brine, etc., repetitively asked him such questions as "Does the [Russian] article *direct you* as one skilled in the art to a titanium alloy having nickel present in an amount between .6 and .9 percent molybdenum in an amount between .2 and .4 percent?" (emphasis ours) followed by "Is there anything mentioned in the article about corrosion resistance?" Of course, the answers were emphatically negative. But this and like testimony does not deal with the critical question: do claims 1 and 2, to which the questions obviously relate, read on or encompass an alloy which was already known by reason of the disclosure of the Russian article?

Section 102, the usual basis for rejection for lack of novelty or anticipation, lays down certain principles for determining the novelty [of an invention], among which are the provisions in § 102(a) and (b) that the claimed invention has not been "described in a printed publication in this or a foreign country," either (a) before the invention by the applicant or (b) more than one year before the application date to which he is entitled (strictly a "loss of right" provision similar to novelty). Either provision applies in this case, the Russian article having a date some 5 years prior to the filing date and its status as "prior art" not being questioned. ... The question, therefore, is whether claims 1 and 2 encompass and, if allowed, would enable plaintiff-appellee to exclude others from making, using, or selling an alloy described in the Russian article.

To answer the question we need only turn to the affidavit of James A. Hall, a metallurgist employed by appellee's TIMET Division, who undertook to analyze the Russian article disclosure by calculating the ingredient percentages shown in the graph data points, which he presented in tabular form. There are 15 items in his

table. The second item shows a titanium base alloy containing 0.25% by weight Mo and 0.75% Ni and this is squarely within the ranges of 0.2-0.4% Mo and 0.6-0.9% Ni of claims 1 and 2. As to that disclosed alloy of the prior art, there can be no question that claims 1 and 2 read on it and would be infringed by anyone making, using, or selling it. Therefore, the statute prohibits a patent containing them. This seems to be a case either of not adequately considering the novelty requirement of the statute, the true meaning of the correlative term “anticipation,” or the meaning of the claims.

By reason of the court’s quotations from cases holding that a reference is not an anticipation which does not enable one skilled in the art to practice the claimed invention, it appears that the trial court thought there was some deficiency in the Russian article on that score. Enablement in this case involves only being able to make the alloy, given the ingredients and their proportions without more. The evidence here, however, clearly answers that question in two ways. Appellee’s own patent application does not undertake to tell anyone how to make the alloy it describes and seeks to patent. It assumes that those skilled in the art would know how. Secondly, appellee’s expert, Dr. Williams, testified on cross examination that given the alloy information in the Russian article, he would know how to prepare the alloys “by at least three techniques.” Enablement is not a problem in this case.

As we read the situation, the court was misled by the arguments and evidence to the effect that the inventors here found out and disclosed in their application many things that one cannot learn from reading the Russian article and that this was sufficient in law to justify granting them a patent for their contributions—such things as what good corrosion resistance the claimed alloys have against hot brine, which possibly was not known, and the range limits of the Ni and Mo content, outside of which that resistance diminishes, which are teachings of very useful information. These things the applicants teach the art and the Russian article does not. ... But throughout the trial counsel never came to grips with the real issues: (1) what do the claims cover and (2) is what they cover new? Under the laws Congress wrote, they must be considered. Congress has not seen fit to permit the patenting of an old alloy, known to others through a printed publication, by one who has discovered its corrosion resistance or other useful properties, or has found out to what extent one can modify the composition of the alloy without losing such properties. ...

For all of the foregoing reasons, the court below committed clear error and legal error in authorizing the issuance of a patent on claims 1 and 2 since, properly construed, they are anticipated under § 102 by the Russian article which admittedly discloses an alloy on which these claims read.

B. Obviousness, § 103

Little more need be said in support of the examiner’s rejection of claim 3, affirmed by the board, on the ground that its more specific subject matter would have been

obvious at the time the invention was made from the knowledge disclosed in the reference.

As admitted by appellee's affidavit evidence from James A. Hall, the Russian article discloses two alloys having compositions very close to that of claim 3, which is 0.3% Mo and 0.8% Ni, balance titanium. The two alloys in the prior art have 0.25% Mo-0.75% Ni and 0.31% Mo-0.94% Ni, respectively. The proportions are so close that prima facie one skilled in the art would have expected them to have the same properties. Appellee produced no evidence to rebut that prima facie case. The specific alloy of claim 3 must therefore be considered to have been obvious from known alloys.

Questions

1. In hindsight, is there a claim that the patentee's counsel could have drafted that would have captured the newly-discovered properties of the alloy (corrosion resistance in hot brine) without being anticipated by the Russian article?

In re Klopfenstein

380 F.3d 1345 (Fed Cir. 2004)

PROST, Circuit Judge.

Carol Klopfenstein and John Brent appeal a decision from the Patent and Trademark Office's Board of Patent Appeals and Interferences ("Board") upholding the denial of their patent application. The Board upheld the Patent and Trademark Office's ("PTO's") initial denial of their application on the ground that the invention described in the patent application was not novel under 35 U.S.C. § 102(b) because it had already been described in a printed publication more than one year before the date of the patent application. We affirm.

BACKGROUND ...13

The appellants applied for a patent on October 30, 2000. Their patent application, Patent Application Serial No. 09/699,950 ("the '950 application"), discloses methods of preparing foods comprising extruded soy cotyledon fiber ("SCF"). The '950 application asserts that feeding mammals foods containing extruded SCF may help lower their serum cholesterol levels while raising HDL cholesterol levels. The fact that extrusion reduces cholesterol levels was already known by those of ordinary skill in the art that worked with SCF. What was not known at the time was that double extrusion increases this effect and yielded even stronger results.

In October 1998, the appellants, along with colleague M. Liu, presented a printed slide presentation ("Liu" or "the Liu reference") entitled "Enhancement of Cholesterol-Lowering Activity of Dietary Fibers By Extrusion Processing" at a

meeting of the American Association of Cereal Chemists (“AACC”). The fourteen-slide presentation was printed and pasted onto poster boards. The printed slide presentation was displayed continuously for two and a half days at the AACC meeting.

In November of that same year, the same slide presentation was put on display for less than a day at an Agriculture Experiment Station (“AES”) at Kansas State University.

Both parties agree that the Liu reference presented to the AACC and at the AES in 1998 disclosed every limitation of the invention disclosed in the ‘950 patent application. Furthermore, at neither presentation was there a disclaimer or notice to the intended audience prohibiting note-taking or copying of the presentation. Finally, no copies of the presentation were disseminated either at the AACC meeting or at the AES, and the presentation was never catalogued or indexed in any library or database.

[The application was rejected by the examiner in light of the Liu reference and the PTAB affirmed.]

DISCUSSION

...

B.

...

The appellants argue on appeal that the key to establishing whether or not a reference constitutes a “printed publication” lies in determining whether or not it had been disseminated by the distribution of reproductions or copies and/or indexed in a library or database. They assert that because the Liu reference was not distributed and indexed, it cannot count as a “printed publication” for the purposes of 35 U.S.C. § 102(b). To support their argument, they rely on several precedents from this court and our predecessor court on “printed publications.” They argue that *In re Cronyn*, *In re Hall*, 781 F.2d 897 (Fed.Cir.1986), *Massachusetts Institute of Technology v. AB Fortia*, 774 F.2d 1104 (Fed.Cir.1985) (“MIT”), and *In re Wyer*, 655 F.2d 221 (CCPA 1981), among other cases, all support the view that distribution and/or indexing is required for something to be considered a “printed publication.”

We find the appellants’ argument unconvincing and disagree with their characterization of our controlling precedent. Even if the cases cited by the appellants relied on inquiries into distribution and indexing to reach their holdings, they do not limit this court to finding something to be a “printed publication” only when there is distribution and/or indexing. Indeed, the key inquiry is whether or not a reference has been made “publicly accessible.” As we have previously stated,

The statutory phrase “printed publication” has been interpreted to mean that before the critical date the reference must have been sufficiently accessible to the public interested in the art; dissemination and public accessibility are the keys to the

legal determination whether a prior art reference was “published.” In *re Cronyn*, 890 F.2d at 1160 (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1568 (Fed.Cir.1988)). For example, a public billboard targeted to those of ordinary skill in the art that describes all of the limitations of an invention and that is on display for the public for months may be neither “distributed” nor “indexed” — but it most surely is “sufficiently accessible to the public interested in the art” and therefore, under controlling precedent, a “printed publication.” Thus, the appellants’ argument that “distribution and/or indexing” are the key components to a “printed publication” inquiry fails to properly reflect what our precedent stands for.

Furthermore, the cases that the appellants rely on can be clearly distinguished from this case. *Cronyn* involved college students’ presentations of their undergraduate theses to a defense committee made up of four faculty members. Their theses were later catalogued in an index in the college’s main library. The index was made up of thousands of individual cards that contained only a student’s name and the title of his or her thesis. The index was searchable by student name and the actual theses themselves were neither included in the index nor made publicly accessible. We held that because the theses were only presented to a handful of faculty members and “had not been cataloged [sic] or indexed in a meaningful way,” they were not sufficiently publicly accessible for the purposes of 35 U.S.C. § 102(b). In *re Cronyn*, 890 F.2d at 1161.

In *Hall*, this court determined that a thesis filed and indexed in a university library did count as a “printed publication.” The *Hall* court arrived at its holding after taking into account that copies of the indexed thesis itself were made freely available to the general public by the university more than one year before the filing of the relevant patent application in that case. But the court in *Hall* did not rest its holding merely on the indexing of the thesis in question. Instead, it used indexing as a factor in determining “public accessibility.” As the court asserted:

The [“printed publication”] bar is grounded on the principle that once an invention is in the public domain, it is no longer patentable by anyone.... Because there are many ways in which a reference may be disseminated to the interested public, “public accessibility” has been called the touchstone in determining whether a reference constitutes a “printed publication” bar under 35 U.S.C. § 102(b).

In *re Hall*, 781 F.2d at 898-99.

In *MIT*, a paper delivered orally to the First International Cell Culture Congress was considered a “printed publication.” In that case, as many as 500 persons having ordinary skill in the art heard the presentation, and at least six copies of the paper

were distributed. The key to the court's finding was that actual copies of the presentation were distributed. The court did not consider the issue of indexing. The MIT court determined the paper in question to be a "printed publication" but did not limit future determinations of the applicability of the "printed publication" bar to instances in which copies of a reference were actually offered for distribution. MIT, 774 F.2d at 1108-10.⁴

Finally, the Wyer court determined that an Australian patent application kept on microfilm at the Australian Patent Office was "sufficiently accessible to the public and to persons skilled in the pertinent art to qualify as a 'printed publication.'" In re Wyer, 655 F.2d at 226. The court so found even though it did not determine whether or not there was "actual viewing or dissemination" of the patent application. *Id.* It was sufficient for the court's purposes that the records of the application were kept so that they could be accessible to the public. *Id.*⁵ According to the Wyer court, the entire purpose of the "printed publication" bar was to "prevent withdrawal" of disclosures "already in the possession of the public" by the issuance of a patent. *Id.*

Thus, throughout our case law, public accessibility has been the criterion by which a prior art reference will be judged for the purposes of § 102(b). Oftentimes courts have found it helpful to rely on distribution and indexing as proxies for public accessibility. But when they have done so, it has not been to the exclusion of all other measures of public accessibility. In other words, distribution and indexing are not the only factors to be considered in a § 102(b) "printed publication" inquiry.

C.

The determination of whether a reference is a "printed publication" under 35 U.S.C. § 102(b) involves a case-by-case inquiry into the facts and circumstances surrounding the reference's disclosure to members of the public. In re Cronyn, 890 F.2d at 1161; In re Hall, 781 F.2d at 899. Accordingly, our analysis must begin with the facts of this case, none of which are in dispute.

In this case, the Liu reference was displayed to the public approximately two

⁴With regard to scientific presentations, it is important to note that an entirely oral presentation at a scientific conference that includes neither slides nor copies of the presentation is without question not a "printed publication" for the purposes of 35 U.S.C. § 102(b). Furthermore, a presentation that includes a transient display of slides is likewise not necessarily a "printed publication." See, e.g., *Regents of the Univ. of Cal. v. Howmedica, Inc.*, 530 F.Supp. 846, 860 (D.N.J.1981) (holding that "the projection of slides at the lecture [that] was limited in duration and could not disclose the invention to the extent necessary to enable a person of ordinary skill in the art to make or use the invention" was not a "printed publication"), *aff'd*, 676 F.2d 687 (3d Cir.1982) (unpublished table decision). While *Howmedica* is not binding on this court, it stands for the important proposition that the mere presentation of slides accompanying an oral presentation at a professional conference is not per se a "printed publication" for the purposes of § 102(b).

⁵Unlike in *Cronyn*, it was the actual patent application — and not just an index card searchable by author name only — that was made publicly accessible.

years before the '950 application filing date. The reference was shown to a wide variety of viewers, a large subsection of whom possessed ordinary skill in the art of cereal chemistry and agriculture. Furthermore, the reference was prominently displayed for approximately three cumulative days at AACC and the AES at Kansas State University. The reference was shown with no stated expectation that the information would not be copied or reproduced by those viewing it. Finally, no copies of the Liu display were distributed to the public and the display was not later indexed in any database, catalog or library.

Given that the Liu reference was never distributed to the public and was never indexed, we must consider several factors relevant to the facts of this case before determining whether or not it was sufficiently publicly accessible in order to be considered a "printed publication" under § 102(b). These factors aid in resolving whether or not a temporarily displayed reference that was neither distributed nor indexed was nonetheless made sufficiently publicly accessible to count as a "printed publication" under § 102(b). The factors relevant to the facts of this case are: the length of time the display was exhibited, the expertise of the target audience, the existence (or lack thereof) of reasonable expectations that the material displayed would not be copied, and the simplicity or ease with which the material displayed could have been copied. Only after considering and balancing these factors can we determine whether or not the Liu reference was sufficiently publicly accessible to be a "printed publication" under § 102(b).

The duration of the display is important in determining the opportunity of the public in capturing, processing and retaining the information conveyed by the reference. The more transient the display, the less likely it is to be considered a "printed publication." See, e.g., *Howmedica*, 530 F.Supp. at 860 (holding that a presentation of lecture slides that was of limited duration was insufficient to make the slides "printed publications" under § 102(b)). Conversely, the longer a reference is displayed, the more likely it is to be considered a "printed publication." In this case, the Liu reference was displayed for a total of approximately three days. It was shown at the AACC meeting for approximately two and a half days and at the AES at Kansas State University for less than one day.

The expertise of the intended audience can help determine how easily those who viewed it could retain the displayed material. As Judge Learned Hand explained in *Jockmus v. Leviton*, 28 F.2d 812, 813-14 (2d Cir.1928), a reference, "however ephemeral its existence," may be a "printed publication" if it "goes direct to those whose interests make them likely to observe and remember whatever it may contain that is new and useful." In this case, the intended target audience at the AACC meeting was comprised of cereal chemists and others having ordinary skill in the art of the '950 patent application. The intended viewers at the AES most likely also possessed ordinary skill in the art.

Whether a party has a reasonable expectation that the information it displays to the public will not be copied aids our § 102(b) inquiry. Where professional and behavioral norms entitle a party to a reasonable expectation that the information displayed will not be copied, we are more reluctant to find something a “printed publication.” This reluctance helps preserve the incentive for inventors to participate in academic presentations or discussions. Where parties have taken steps to prevent the public from copying temporarily posted information, the opportunity for others to appropriate that information and assure its widespread public accessibility is reduced. These protective measures could include license agreements, non-disclosure agreements, anti-copying software or even a simple disclaimer informing members of the viewing public that no copying of the information will be allowed or countenanced. Protective measures are to be considered insofar as they create a reasonable expectation on the part of the inventor that the displayed information will not be copied. In this case, the appellants took no measures to protect the information they displayed — nor did the professional norms under which they were displaying their information entitle them to a reasonable expectation that their display would not be copied. There was no disclaimer discouraging copying, and any viewer was free to take notes from the Liu reference or even to photograph it outright.

Finally, the ease or simplicity with which a display could be copied gives further guidance to our § 102(b) inquiry. The more complex a display, the more difficult it will be for members of the public to effectively capture its information. The simpler a display is, the more likely members of the public could learn it by rote or take notes adequate enough for later reproduction. The Liu reference was made up of 14 separate slides. One slide was a title slide; one was an acknowledgement slide; and four others represented graphs and charts of experiment results. The other eight slides contained information presented in bullet point format, with no more than three bullet points to a slide. Further, no bullet point was longer than two concise sentences. Finally, as noted earlier, the fact that extrusion lowers cholesterol levels was already known by those who worked with SCF. The discovery disclosed in the Liu reference was that double extrusion increases this effect. As a result, most of the eight substantive slides only recited what had already been known in the field, and only a few slides presented would have needed to have been copied by an observer to capture the novel information presented by the slides.

Upon reviewing the above factors, it becomes clear that the Liu reference was sufficiently publicly accessible to count as a “printed publication” for the purposes of 35 U.S.C. § 102(b). The reference itself was shown for an extended period of time to members of the public having ordinary skill in the art of the invention behind the ‘950 patent application. Those members of the public were not precluded from taking notes or even photographs of the reference. And the reference itself was presented in such a way that copying of the information it contained would have been a

relatively simple undertaking for those to whom it was exposed — particularly given the amount of time they had to copy the information and the lack of any restrictions on their copying of the information. For these reasons, we conclude that the Liu reference was made sufficiently publicly accessible to count as a “printed publication” under § 102(b).

Egbert v. Lippmann
104 U.S. 333 (1881)

MR. JUSTICE WOODS delivered the opinion of the court.

This suit was brought for an alleged infringement of the complainant’s reissued letters-patent, No. 5216, dated Jan. 7, 1873, for an improvement in corset-springs.

The original letters bear date July 17, 1866, and were issued to Samuel H. Barnes. The reissue was made to the complainant, under her then name, Frances Lee Barnes, executrix of the original patentee.

The specification for the reissue declares: —

This invention consists in forming the springs of corsets of two or more metallic plates, placed one upon another, and so connected as to prevent them from sliding off each other laterally or edgewise, and at the same time admit of their playing or sliding upon each other, in the direction of their length or longitudinally, whereby their flexibility and elasticity are greatly increased, while at the same time much strength is obtained.

The second claim is as follows: —

A pair of corset-springs, each member of the pair being composed of two or more metallic plates, placed one on another, and fastened together at their centres, and so connected at or near each end that they can move or play on each other in the direction of their length.

The bill alleges that Barnes was the original and first inventor of the improvement covered by the reissued letters-patent, and that it had not, at the time of his application for the original letters, been for more than two years in public use or on sale, with his consent or allowance.

The answer takes issue on this averment and also denies infringement. On a final hearing the court dismissed the bill, and the complainant appealed.

As to the second defence above mentioned, it is sufficient to say that the evidence establishes beyond controversy the infringement by the defendants of the second claim of the reissue.

We have, therefore, to consider whether the defence that the patented invention had, with the consent of the inventor, been publicly used for more than two years prior to his application for the original letters, is sustained by the testimony in the record.

The sixth, seventh, and fifteenth sections of the act of July 4, 1836, c. 357 (5 Stat. 117), as qualified by the seventh section of the act of March 3, 1839, c. 88 (id. 353), were in force at the date of his application. Their effect is to render letters-patent invalid if the invention which they cover was in public use, with the consent and allowance of the inventor, for more than two years prior to his application. ...

The evidence on which the defendants rely to establish a prior public use of the invention consists mainly of the testimony of the complainant.

She testifies that Barnes invented the improvement covered by his patent between January and May, 1855; that between the dates named the witness and her friend Miss Cugier were complaining of the breaking of their corset-steels. Barnes, who was present, and was an intimate friend of the witness, said he thought he could make her a pair that would not break. At their next interview he presented her with a pair of corset-steels which he himself had made. The witness wore these steels a long time. In 1858 Barnes made and presented to her another pair, which she also wore a long time. When the corsets in which these steels were used wore out, the witness ripped them open and took out the steels and put them in new corsets. This was done several times.

It is admitted, and, in fact, is asserted, by complainant, that these steels embodied the invention afterwards patented by Barnes and covered by the reissued letters-patent on which this suit is brought.

Joseph H. Sturgis, another witness for complainant, testifies that in 1863 Barnes spoke to him about two inventions made by himself, one of which was a corset-steel, and that he went to the house of Barnes to see them. Before this time, and after the transactions testified to by the complainant, Barnes and she had intermarried. Barnes said his wife had a pair of steels made according to his invention in the corsets which she was then wearing, and if she would take them off he would show them to witness. Mrs. Barnes went out, and returned with a pair of corsets and a pair of scissors, and ripped the corsets open and took out the steels. Barnes then explained to witness how they were made and used. ...

The question for our decision is, whether this testimony shows a public use within the meaning of the statute.

We observe, in the first place, that to constitute the public use of an invention it is not necessary that more than one of the patented articles should be publicly used. The use of a great number may tend to strengthen the proof, but one well-defined case of such use is just as effectual to annul the patent as many. For instance, if the inventor of a mower, a printingpress, or a railway-car makes and sells only one of

the articles invented by him, and allows the vendee to use it for two years, without restriction or limitation, the use is just as public as if he had sold and allowed the use of a great number.

We remark, secondly, that, whether the use of an invention is public or private does not necessarily depend upon the number of persons to whom its use is known. If an inventor, having made his device, gives or sells it to another, to be used by the donee or vendee, without limitation or restriction, or injunction of secrecy, and it is so used, such use is public, even though the use and knowledge of the use may be confined to one person.

We say, thirdly, that some inventions are by their very character only capable of being used where they cannot be seen or observed by the public eye. An invention may consist of a lever or spring, hidden in the running gear of a watch, or of a ratchet, shaft, or cog-wheel covered from view in the recesses of a machine for spinning or weaving. Nevertheless, if its inventor sells a machine of which his invention forms a part, and allows it to be used without restriction of any kind, the use is a public one. So, on the other hand, a use necessarily open to public view, if made in good faith solely to test the qualities of the invention, and for the purpose of experiment, is not a public use within the meaning of the statute. *Elizabeth v. Pavement Company*, 97 U.S. 126; *Shaw v. Cooper*, 7 Pet. 292.

Tested by these principles, we think the evidence of the complainant herself shows that for more than two years before the application for the original letters there was, by the consent and allowance of Barnes, a public use of the invention, covered by them. He made and gave to her two pairs of corset-steels, constructed according to his device, one in 1855 and one in 1858. They were presented to her for use. He imposed no obligation of secrecy, nor any condition or restriction whatever. They were not presented for the purpose of experiment, nor to test their qualities. No such claim is set up in her testimony. The invention was at the time complete, and there is no evidence that it was afterwards changed or improved. The donee of the steels used them for years for the purpose and in the manner designed by the inventor. They were not capable of any other use. She might have exhibited them to any person, or made other steels of the same kind, and used or sold them without violating any condition or restriction imposed on her by the inventor.

According to the testimony of the complainant, the invention was completed and put to use in 1855. The inventor slept on his rights for eleven years. Letters-patent were not applied for till March, 1866. In the mean time, the invention had found its way into general, and almost universal, use. A great part of the record is taken up with the testimony of the manufacturers and venders of corset-steels, showing that before he applied for letters the principle of his device was almost universally used in the manufacture of corset-steels. It is fair to presume that having learned from this general use that there was some value in his invention, he attempted to resume, by

his application, what by his acts he had clearly dedicated to the public.

“An abandonment of an invention to the public may be evinced by the conduct of the inventor at any time, even within the two years named in the law. The effect of the law is that no such consequence will necessarily follow from the invention being in public use or on sale, with the inventor’s consent and allowance, at any time within two years before his application; but that, if the invention is in public use or on sale prior to that time, it will be conclusive evidence of abandonment, and the patent will be void.” *Elizabeth v. Pavement Company*, supra.

We are of opinion that the defence of two years’ public use, by the consent and allowance of the inventor, before he made application for letters-patent, is satisfactorily established by the evidence.

Manual of Patent Examination Procedure (Rev. Nov. 2013)

§ 2152.02(d) - On Sale

The pre-AIA case law indicates that on sale activity will bar patentability if the claimed invention was: (1) the subject of a commercial sale or offer for sale, not primarily for experimental purposes; and (2) ready for patenting. See *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 67, 48 USPQ2d 1641, 1646-47 (1998). Contract law principles apply in order to determine whether a commercial sale or offer for sale occurred. ... The phrase “on sale” in AIA 35 U.S.C. 102(a)(1) is treated as having the same meaning as “on sale” in pre-AIA 35 U.S.C. 102(b), except that the sale must make the invention available to the public.

§ 2133.03(b) - "On Sale"

[This provision describes pre-AIA law.]

A sale is a contract between parties wherein the seller agrees “to give and to pass rights of property” in return for the buyer’s payment or promise “to pay the seller for the things bought or sold.” *In re Caveney*, 761 F.2d 671, 676, 226 USPQ 1, 4 (Fed. Cir. 1985). A contract for the sale of goods requires a concrete offer and acceptance of that offer. See, e.g., *Linear Tech.*, 275 F.3d at 1052-54, 61 USPQ2d at 1233-34 (Court held there was no sale within the meaning of pre-AIA 35 U.S.C. 102(b) where prospective purchaser submitted an order for goods at issue, but received an order acknowledgement reading “will advise-not booked.” Prospective purchaser would understand that order was not accepted.) ...

“[A]n assignment or sale of the rights in the invention and potential patent rights is not a sale of ‘the invention’ within the meaning of [pre-AIA] section 102(b).” *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 1267, 229 USPQ 805, 809

(Fed. Cir. 1986); see also *Elan Corp., PLC v. Andrx Pharms. Inc.*, 366 F.3d 1336, 1341, 70 USPQ2d 1722, 1728 (Fed. Cir. 2004); *In re Kollar*, 286 F.3d 1326, 1330 n.3, 1330-1331, 62 USPQ2d 1425, 1428 n.3, 1428-1429 (Fed. Cir. 2002) (distinguishing licenses which trigger the on-sale bar (e.g., a standard computer software license wherein the product is just as immediately transferred to the licensee as if it were sold), from licenses that merely grant rights to an invention which do not per se trigger the on-sale bar (e.g., exclusive rights to market the invention or potential patent rights)); *Group One, Ltd. v. Hallmark Cards, Inc.*, 254 F.3d 1041, 1049 n. 2, 59 USPQ2d 1121, 1129 n. 2 (Fed. Cir. 2001).

2133.03(c) - The “Invention”

[*This provision describes pre-AIA law.*]

The Federal Circuit explained that the Supreme Court’s “ready for patenting” prong applies in the context of both the on sale and public use bars. *Invitrogen Corp. v. Biocrest Manufacturing L.P.*, 424 F.3d 1374, 1379, 76 USPQ2d 1741, 1744 (Fed. Cir. 2005) (“A bar under [pre-AIA] section 102(b) arises where, before the critical date, the invention is in public use and ready for patenting.”). “Ready for patenting,” the second prong of the Pfaff test, “may be satisfied in at least two ways: by proof of reduction to practice before the critical date; or by proof that prior to the critical date the inventor had prepared drawings or other descriptions of the invention that were sufficiently specific to enable a person skilled in the art to practice the invention.” *Id.* at 67, 199 S.Ct. at 311-12, 48 USPQ2d at 1647 (The patent was held invalid because the invention for a computer chip socket was “ready for patenting” when it was offered for sale more than one year prior to the application filing date. Even though the invention had not yet been reduced to practice, the manufacturer was able to produce the claimed computer chip sockets using the inventor’s detailed drawings and specifications, and those sockets contained all elements of invention claimed in the patent.). See also *Weatherchem Corp. v. J.L. Clark Inc.*, 163 F.3d 1326, 1333, 49 USPQ2d 1001, 1006-07 (Fed. Cir. 1998) (The invention was held “ready for patenting” since the detailed drawings of plastic dispensing caps offered for sale “contained each limitation of the claims and were sufficiently specific to enable person skilled in art to practice the invention”).

Questions

1. Suppose that from 1960 to 1972, the Acme Corporation sold the Bait-o-Matic, a grey egg-shaped plastic container containing sharp-grained sand with a grain size of 1/25 of an inch designed to be used to immobilize earthworms. Which claims, if any, of the Lukehart worm-immobilizing patent are invalid because they were anticipated by the Bait-o-Matic?

2. Ivan Inventor is working on a new battery design. Ivan has identified promising materials, but has not yet found a way to combine them safely in a sealed container. Ivan is afraid that others are working on a similar invention. What factors do Ivan and his patent attorney need to consider in deciding when to file?

Pleistocene Park Problem

Two biotechnology firms, Crichton Industries and Spielberg Genetics, have been attempting to clone a woolly mammoth (an elephant-like mammal that became extinct about 3,500 years ago) from scattered preserved DNA fragments. The teams made only slow progress at first; the available mammoth DNA fragments were too short and too numerous to combine into a complete DNA sequence using standard laboratory techniques.

Then, on January 1, 2004, mathematician Rube Goldblum published an academic paper describing efficient ways to arrange books in libraries. Crichton's lead researcher read the paper on February 2, 2005 and realized that the method Goldblum was describing could be used to arrange DNA fragments and compile complete DNA sequences.

Goldblum published (on March 3, 2006), a follow-up academic paper explaining how to apply his book-sorting method to the problem of DNA compilation. An executive at Spielberg read the paper on April 4, 2007, and decided to try the technique on the woolly mammoth problem.

On May 5, 2013, in a Crichton laboratory, a modern elephant implanted with a woolly mammoth embryo using standard artificial insemination techniques gave birth to a live woolly mammoth. On June 6, 2013, a Spielberg elephant successfully gave birth to a woolly mammoth. Because both teams started from the same, publicly available sets of woolly mammoth DNA fragments, their DNA sequences were identical. The next day, June 7, 2013, Spielberg held a press conference to announce the birth; it showed video of the baby mammoth and its scientists passed out CDs with the DNA sequence.

On July 12, 2013, Spielberg filed a patent application claiming "a woolly mammoth, having the DNA sequence ..." Crichton filed its own patent application on August 20, 2013 with an identical claim.

You are an examiner for the USPTO, which has declared an interference between the two applications. Which application, if either, should you allow, and why?

3 Nonobviousness

Patent Act

35 U.S.C. § 103 - *Conditions for patentability; non-obvious subject matter*

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

**KSR Intern. Co. v. Teleflex Inc.
127 S. Ct. 1727 (2007)**

Justice KENNEDY delivered the opinion of the Court.

Teleflex Incorporated and its subsidiary Technology Holding Company—both referred to here as Teleflex—sued KSR International Company for patent infringement. The patent at issue, United States Patent No. 6,237,565 B1, is entitled “Adjustable Pedal Assembly With Electronic Throttle Control.” Supplemental App. 1. The patentee is Steven J. Engelgau, and the patent is referred to as “the Engelgau patent.” Teleflex holds the exclusive license to the patent.

Claim 4 of the Engelgau patent describes a mechanism for combining an electronic sensor with an adjustable automobile pedal so the pedal’s position can be transmitted to a computer that controls the throttle in the vehicle’s engine. When Teleflex accused KSR of infringing the Engelgau patent by adding an electronic sensor to one of KSR’s previously designed pedals, KSR countered that claim 4 was invalid under the Patent Act, 35 U.S.C. § 103, because its subject matter was obvious.

Section 103 forbids issuance of a patent when “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.”

In *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966), the Court set out a framework for applying the statutory language of § 103, language itself based on the logic of the earlier decision in *Hotchkiss v. Greenwood*, 11 How. 248, 13 L.Ed. 683 (1851), and its progeny. See 383 U.S., at 15-17, 86 S.Ct. 684. The analysis is objective:

“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.” *Id.*, at 17-18, 86 S.Ct. 684.

While the sequence of these questions might be reordered in any particular case, the factors continue to define the inquiry that controls. If a court, or patent examiner, conducts this analysis and concludes the claimed subject matter was obvious, the claim is invalid under § 103.

Seeking to resolve the question of obviousness with more uniformity and consistency, the Court of Appeals for the Federal Circuit has employed an approach referred to by the parties as the “teaching, suggestion, or motivation” test (TSM test), under which a patent claim is only proved obvious if “some motivation or suggestion to combine the prior art teachings” can be found in the prior art, the nature of the problem, or the knowledge of a person having ordinary skill in the art. See, e.g., *Al-Site Corp. v. VSI Int’l, Inc.*, 174 F.3d 1308, 1323-1324 (C.A.Fed.1999). *KSR* challenges that test, or at least its application in this case. See 119 Fed.Appx. 282, 286-290 (C.A.Fed.2005). Because the Court of Appeals addressed the question of obviousness in a manner contrary to § 103 and our precedents, we granted certiorari. We now reverse.

I

A

In car engines without computer-controlled throttles, the accelerator pedal interacts with the throttle via cable or other mechanical link. The pedal arm acts as a lever rotating around a pivot point. In a cable-actuated throttle control the rotation caused by pushing down the pedal pulls a cable, which in turn pulls open valves in the carburetor or fuel injection unit. The wider the valves open, the more fuel and air are released, causing combustion to increase and the car to accelerate. When the driver takes his foot off the pedal, the opposite occurs as the cable is released and the valves slide closed.

In the 1990’s it became more common to install computers in cars to control engine operation. Computer-controlled throttles open and close valves in response to electronic signals, not through force transferred from the pedal by a mechanical link. Constant, delicate adjustments of air and fuel mixture are possible. The computer’s rapid processing of factors beyond the pedal’s position improves fuel efficiency and engine performance.

For a computer-controlled throttle to respond to a driver’s operation of the car, the computer must know what is happening with the pedal. A cable or mechanical

link does not suffice for this purpose; at some point, an electronic sensor is necessary to translate the mechanical operation into digital data the computer can understand.

Before discussing sensors further we turn to the mechanical design of the pedal itself. In the traditional design a pedal can be pushed down or released but cannot have its position in the footwell adjusted by sliding the pedal forward or back. As a result, a driver who wishes to be closer or farther from the pedal must either reposition himself in the driver's seat or move the seat in some way. In cars with deep footwells these are imperfect solutions for drivers of smaller stature. To solve the problem, inventors, beginning in the 1970's, designed pedals that could be adjusted to change their location in the footwell. Important for this case are two adjustable pedals disclosed in U.S. Patent Nos. 5,010,782 (filed July 28, 1989) (Asano) and 5,460,061 (filed Sept. 17, 1993) (Redding). The Asano patent reveals a support structure that houses the pedal so that even when the pedal location is adjusted relative to the driver, one of the pedal's pivot points stays fixed. The pedal is also designed so that the force necessary to push the pedal down is the same regardless of adjustments to its location. The Redding patent reveals a different, sliding mechanism where both the pedal and the pivot point are adjusted.

We return to sensors. Well before Engelgau applied for his challenged patent, some inventors had obtained patents involving electronic pedal sensors for computer-controlled throttles. These inventions, such as the device disclosed in U.S. Patent No. 5,241,936 (filed Sept. 9, 1991) ('936), taught that it was preferable to detect the pedal's position in the pedal assembly, not in the engine. The '936 patent disclosed a pedal with an electronic sensor on a pivot point in the pedal assembly. U.S. Patent No. 5,063,811 (filed July 9, 1990) (Smith) taught that to prevent the wires connecting the sensor to the computer from chafing and wearing out, and to avoid grime and damage from the driver's foot, the sensor should be put on a fixed part of the pedal assembly rather than in or on the pedal's footpad.

In addition to patents for pedals with integrated sensors inventors obtained patents for self-contained modular sensors. A modular sensor is designed independently of a given pedal so that it can be taken off the shelf and attached to mechanical pedals of various sorts, enabling the pedals to be used in automobiles with computer-controlled throttles. One such sensor was disclosed in U.S. Patent No. 5,385,068 (filed Dec. 18, 1992) ('068). In 1994, Chevrolet manufactured a line of trucks using modular sensors "attached to the pedal support bracket, adjacent to the pedal and engaged with the pivot shaft about which the pedal rotates in operation." 298 F.Supp.2d 581, 589 (E.D.Mich.2003).

The prior art contained patents involving the placement of sensors on adjustable pedals as well. For example, U.S. Patent No. 5,819,593 (filed Aug. 17, 1995) (Rixon) discloses an adjustable pedal assembly with an electronic sensor for detecting the pedal's position. In the Rixon pedal the sensor is located in the pedal footpad. The

Rixon pedal was known to suffer from wire chafing when the pedal was depressed and released.

This short account of pedal and sensor technology leads to the instant case.

B

KSR, a Canadian company, manufactures and supplies auto parts, including pedal systems. Ford Motor Company hired KSR in 1998 to supply an adjustable pedal system for various lines of automobiles with cable-actuated throttle controls. KSR developed an adjustable mechanical pedal for Ford and obtained U.S. Patent No. 6,151,976 (filed July 16, 1999) ('976) for the design. In 2000, KSR was chosen by General Motors Corporation (GMC or GM) to supply adjustable pedal systems for Chevrolet and GMC light trucks that used engines with computer-controlled throttles. To make the '976 pedal compatible with the trucks, KSR merely took that design and added a modular sensor.

Teleflex is a rival to KSR in the design and manufacture of adjustable pedals. As noted, it is the exclusive licensee of the Engelgau patent. Engelgau filed the patent application on August 22, 2000 as a continuation of a previous application for U.S. Patent No. 6,109,241, which was filed on January 26, 1999. He has sworn he invented the patent's subject matter on February 14, 1998. The Engelgau patent discloses an adjustable electronic pedal described in the 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." Engelgau, col. 2, lines 2-5, Supplemental App. 6. Claim 4 of the patent, at issue here, describes:

A vehicle control pedal apparatus comprising:

- a support adapted to be mounted to a vehicle structure;
 - an adjustable pedal assembly having a pedal arm moveable in for[e] and aft directions with respect to said support;
 - a pivot for pivotally supporting said adjustable pedal assembly with respect to said support and defining a pivot axis; and
 - an electronic control attached to said support for controlling a vehicle system;
- said apparatus characterized by said electronic control being responsive to said pivot for providing a signal that corresponds to pedal arm position as said pedal arm pivots about said pivot axis between rest and applied positions wherein the position of said pivot remains constant while said pedal arm moves in fore and aft directions with respect to said pivot.

We agree with the District Court that the claim discloses "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 al-

lows the sensor to remain in a fixed position while the driver adjusts the pedal.” 298 F.Supp.2d, at 586-587. ...

Upon learning of KSR’s design for GM, Teleflex sent a warning letter informing KSR that its proposal would violate the Engelgau patent. “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 Teleflex’s patents. *Id.*, at 585. KSR refused to enter a royalty arrangement with Teleflex; so Teleflex sued for infringement, asserting KSR’s pedal infringed the Engelgau patent and two other patents. *Ibid.* Teleflex later abandoned its claims regarding the other patents and dedicated the patents to the public. The remaining contention was that KSR’s pedal system for GM infringed claim 4 of the Engelgau patent. ...

C

The District Court granted summary judgment in KSR’s favor. After reviewing the pertinent history of pedal design, the scope of the Engelgau patent, and the relevant prior art, the court considered the validity of the contested claim. By direction of 35 U.S.C. § 282, an issued patent is presumed valid. The District Court applied Graham’s framework to determine whether under summary-judgment standards KSR had overcome the presumption and demonstrated that claim 4 was obvious in light of the prior art in existence when the claimed subject matter was invented. See § 102(a).

The District Court determined, in light of the expert testimony and the parties’ stipulations, that the level of ordinary skill in pedal design was “‘an undergraduate degree in mechanical engineering (or an equivalent amount of industry experience) [and] familiarity with pedal control systems for vehicles.’” 298 F.Supp.2d, at 590. The court then set forth the relevant prior art, including the patents and pedal designs described above.

Following Graham’s direction, the court compared the teachings of the prior art to the claims of Engelgau. It found “little difference.” 298 F.Supp.2d, at 590. Asano taught everything contained in claim 4 except the use of a sensor to detect the pedal’s position and transmit it to the computer controlling the throttle. That additional aspect was revealed in sources such as the ‘068 patent and the sensors used by Chevrolet.

Under the controlling cases from the Court of Appeals for the Federal Circuit, however, the District Court was not permitted to stop there. The court was required also to apply the TSM test. The District Court held KSR had satisfied the test. It reasoned (1) the state of the industry would lead inevitably to combinations of electronic sensors and adjustable pedals, (2) Rixon provided the basis for these developments, and (3) Smith taught a solution to the wire chafing problems in Rixon, namely locating the sensor on the fixed structure of the pedal. This could lead to the

combination of Asano, or a pedal like it, with a pedal position sensor.

The conclusion that the Engelgau design was obvious was supported, in the District Court's view, by the PTO's rejection of the broader version of claim 4. Had Engelgau included Asano in his patent application, it reasoned, the PTO would have found claim 4 to be an obvious combination of Asano and Smith, as it had found the broader version an obvious combination of Redding and Smith. As a final matter, the District Court held that the secondary factor of Teleflex's commercial success with pedals based on Engelgau's design did not alter its conclusion. The District Court granted summary judgment for KSR.

With principal reliance on the TSM test, the Court of Appeals reversed. It ruled the District Court had not been strict enough in applying the test, having failed to make "'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 attach an electronic control to the support bracket of the Asano assembly." 119 Fed.Appx., at 288 (brackets in original) (quoting *In re Kotzab*, 217 F.3d 1365, 1371 (C.A.Fed.2000)). The Court of Appeals held that the District Court was incorrect that the nature of the problem to be solved satisfied this requirement because unless the "prior art references address[ed] the precise problem that the patentee was trying to solve," the problem would not motivate an inventor to look at those references. 119 Fed.Appx., at 288.

Here, the Court of Appeals found, the Asano pedal was designed to solve the "'constant ratio problem'"—that is, to ensure that the force required to depress the pedal is the same no matter how the pedal is adjusted—whereas Engelgau sought to provide a simpler, smaller, cheaper adjustable electronic pedal. *Ibid.* As for Rixon, the court explained, that pedal suffered from the problem of wire chafing but was not designed to solve it. In the court's view Rixon did not teach anything helpful to Engelgau's purpose. Smith, in turn, did not relate to adjustable pedals and did not "necessarily go to the issue of motivation to attach the electronic control on the support bracket of the pedal assembly." *Ibid.* When the patents were interpreted in this way, the Court of Appeals held, they would not have led a person of ordinary skill to put a sensor on the sort of pedal described in Asano.

That it might have been obvious to try the combination of Asano and a sensor was likewise irrelevant, in the court's view, because "'[o]bvious to try" has long been held not to constitute obviousness.'" *Id.*, at 289 (quoting *In re Deuel*, 51 F.3d 1552, 1559 (C.A.Fed.1995)). ...

II

A

We begin by rejecting the rigid approach of the Court of Appeals. Throughout this Court's engagement with the question of obviousness, our cases have set forth an

expansive and flexible approach inconsistent with the way the Court of Appeals applied its TSM test here. To be sure, Graham recognized the need for “uniformity and definiteness.” 383 U.S., at 18, 86 S.Ct. 684. Yet the principles laid down in Graham reaffirmed the “functional approach” of *Hotchkiss*, 11 How. 248, 13 L.Ed. 683. See 383 U.S., at 12, 86 S.Ct. 684. To this end, Graham set forth a broad inquiry and invited courts, where appropriate, to look at any secondary considerations that would prove instructive. *Id.*, at 17, 86 S.Ct. 684.

Neither the enactment of § 103 nor the analysis in Graham disturbed this Court’s earlier instructions concerning the need for caution in granting a patent based on the combination of elements found in the prior art. For over a half century, the Court has held that a “patent for a combination which only unites old elements with no change in their respective functions . . . obviously withdraws what is already known into the field of its monopoly and diminishes the resources available to skillful men.” *Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147, 152, 71 S.Ct. 127, 95 L.Ed. 162 (1950). This is a principal reason for declining to allow patents for what is obvious. The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. Three cases decided after Graham illustrate the application of this doctrine.

In *United States v. Adams*, 383 U.S. 39, 40, 86 S.Ct. 708, 15 L.Ed.2d 572 (1966), a companion case to Graham, the Court considered the obviousness of a “wet battery” that varied from prior designs in two ways: It contained water, rather than the acids conventionally employed in storage batteries; and its electrodes were magnesium and cuprous chloride, rather than zinc and silver chloride. The Court recognized that when a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result. 383 U.S., at 50-51, 86 S.Ct. 708. It nevertheless rejected the Government’s claim that Adams’s battery was obvious. The Court relied upon the corollary principle that when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious. *Id.*, at 51-52, 86 S.Ct. 708. When Adams designed his battery, the prior art warned that risks were involved in using the types of electrodes he employed. The fact that the elements worked together in an unexpected and fruitful manner supported the conclusion that Adams’s design was not obvious to those skilled in the art.

In *Anderson’s-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 90 S.Ct. 305, 24 L.Ed.2d 258 (1969), the Court elaborated on this approach. The subject matter of the patent before the Court was a device combining two pre-existing elements: a radiant-heat burner and a paving machine. The device, the Court concluded, did not create some new synergy: The radiant-heat burner functioned just as a burner was expected to function; and the paving machine did the same. The

two in combination did no more than they would in separate, sequential operation. *Id.*, at 60-62, 90 S.Ct. 305. In those circumstances, “while the combination of old elements performed a useful function, it added nothing to the nature and quality of the radiant-heat burner already patented,” and the patent failed under § 103. *Id.*, at 62, 90 S.Ct. 305 (footnote omitted).

Finally, in *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 96 S.Ct. 1532, 47 L.Ed.2d 784 (1976), the Court derived from the precedents the conclusion that when a patent “simply arranges old elements with each performing the same function it had been known to perform” and yields no more than one would expect from such an arrangement, the combination is obvious. *Id.*, at 282, 96 S.Ct. 1532.

The principles underlying these cases are instructive when the question is whether a patent claiming the combination of elements of prior art is obvious. When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida* and *Anderson’s-Black Rock* are illustrative—a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

Following these principles may be more difficult in other cases than it is here because the claimed subject matter may involve more than the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement. Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit. See *In re Kahn*, 441 F.3d 977, 988 (C.A.Fed.2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”). As our precedents make clear, however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

When it first established the requirement of demonstrating a teaching, suggestion, or motivation to combine known elements in order to show that the combination is obvious, the Court of Customs and Patent Appeals captured a helpful insight. See *Application of Bergel*, 48 C.C.P.A. 1102, 292 F.2d 955, 956-957 (1961). As is clear from cases such as *Adams*, a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.

Helpful insights, however, need not become rigid and mandatory formulas; and when it is so applied, the TSM test is incompatible with our precedents. The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents. The diversity of inventive pursuits and of modern technology counsels against limiting the analysis in this way. In many fields it may be that there is little discussion of obvious techniques or combinations, and it often may be the case that market demand, rather than scientific literature, will drive design trends. Granting patent protection to advances that would occur in the ordinary course without real innovation retards progress and may, in the case of patents combining previously known elements, deprive prior inventions of their value or utility.

In the years since the Court of Customs and Patent Appeals set forth the essence of the TSM test, the Court of Appeals no doubt has applied the test in accord with these principles in many cases. There is no necessary inconsistency between the idea underlying the TSM test and the Graham analysis. But when a court transforms the general principle into a rigid rule that limits the obviousness inquiry, as the Court of Appeals did here, it errs.

C

The flaws in the analysis of the Court of Appeals relate for the most part to the court's narrow conception of the obviousness inquiry reflected in its application of the TSM test. In determining whether the subject matter of a patent claim is obvious, neither the particular motivation nor the avowed purpose of the patentee controls. What matters is the objective reach of the claim. If the claim extends to what is obvious, it is invalid under § 103. One of the ways in which a patent's subject matter can be proved

obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent's claims.

The first error of the Court of Appeals in this case was to foreclose this reasoning by holding that courts and patent examiners should look only to the problem the patentee was trying to solve. 119 Fed.Appx., at 288. The Court of Appeals failed to recognize that the problem motivating the patentee may be only one of many addressed by the patent's subject matter. The question is not whether the combination was obvious to the patentee but whether the combination was obvious to a person with ordinary skill in the art. Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.

The second error of the Court of Appeals lay in its assumption that a person of ordinary skill attempting to solve a problem will be led only to those elements of prior art designed to solve the same problem. *Ibid.* The primary purpose of Asano was solving the constant ratio problem; so, the court concluded, an inventor considering how to put a sensor on an adjustable pedal would have no reason to consider putting it on the Asano pedal. *Ibid.* Common sense teaches, however, that familiar items may have obvious uses beyond their primary purposes, and in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle. Regardless of Asano's primary purpose, the design provided an obvious example of an adjustable pedal with a fixed pivot point; and the prior art was replete with patents indicating that a fixed pivot point was an ideal mount for a sensor. The idea that a designer hoping to make an adjustable electronic pedal would ignore Asano because Asano was designed to solve the constant ratio problem makes little sense. A person of ordinary skill is also a person of ordinary creativity, not an automaton.

The same constricted analysis led the Court of Appeals to conclude, in error, that a patent claim cannot be proved obvious merely by showing that the combination of elements was "obvious to try." *Id.*, at 289 (internal quotation marks omitted). When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103. ...

III

When we apply the standards we have explained to the instant facts, claim 4 must be found obvious. ...

B

The District Court was correct to conclude that, as of the time Engelgau designed the subject matter in claim 4, it was obvious to a person of ordinary skill to combine Asano with a pivot-mounted pedal position sensor. There then existed a marketplace that created a strong incentive to convert mechanical pedals to electronic pedals, and the prior art taught a number of methods for achieving this advance. The Court of Appeals considered the issue too narrowly by, in effect, asking whether a pedal designer writing on a blank slate would have chosen both Asano and a modular sensor similar to the ones used in the Chevrolet truckline and disclosed in the '068 patent. ... The proper question to have asked was whether a pedal designer of ordinary skill, facing the wide range of needs created by developments in the field of endeavor, would have seen a benefit to upgrading Asano with a sensor.

In automotive design, as in many other fields, the interaction of multiple components means that changing one component often requires the others to be modified as well. Technological developments made it clear that engines using computer-controlled throttles would become standard. As a result, designers might have decided to design new pedals from scratch; but they also would have had reason to make pre-existing pedals work with the new engines. Indeed, upgrading its own pre-existing model led KSR to design the pedal now accused of infringing the Engelgau patent.

For a designer starting with Asano, the question was where to attach the sensor. The consequent legal question, then, is whether a pedal designer of ordinary skill starting with Asano would have found it obvious to put the sensor on a fixed pivot point. The prior art discussed above leads us to the conclusion that attaching the sensor where both KSR and Engelgau put it would have been obvious to a person of ordinary skill.

The '936 patent taught the utility of putting the sensor on the pedal device, not in the engine. Smith, in turn, explained to put the sensor not on the pedal's footpad but instead on its support structure. And from the known wire-chafing problems of Rixon, and Smith's teaching that "the pedal assemblies must not precipitate any motion in the connecting wires," Smith, col. 1, lines 35-37, Supplemental App. 274, the designer would know to place the sensor on a nonmoving part of the pedal structure. The most obvious nonmoving point on the structure from which a sensor can easily detect the pedal's position is a pivot point. The designer, accordingly, would follow Smith in mounting the sensor on a pivot, thereby designing an adjustable electronic pedal covered by claim 4.

Just as it was possible to begin with the objective to upgrade Asano to work with a computer-controlled throttle, so too was it possible to take an adjustable electronic pedal like Rixon and seek an improvement that would avoid the wire-chafing problem. Following similar steps to those just explained, a designer would learn from Smith to avoid sensor movement and would come, thereby, to Asano because Asano

disclosed an adjustable pedal with a fixed pivot. ...

Like the District Court, finally, we conclude Teleflex has shown no secondary factors to dislodge the determination that claim 4 is obvious. Proper application of Graham and our other precedents to these facts therefore leads to the conclusion that claim 4 encompassed obvious subject matter. As a result, the claim fails to meet the requirement of § 103. ...

IV

...

We build and create by bringing to the tangible and palpable reality around us new works based on instinct, simple logic, ordinary inferences, extraordinary ideas, and sometimes even genius. These advances, once part of our shared knowledge, define a new threshold from which innovation starts once more. And as progress beginning from higher levels of achievement is expected in the normal course, the results of ordinary innovation are not the subject of exclusive rights under the patent laws. Were it otherwise patents might stifle, rather than promote, the progress of useful arts. See U.S. Const., Art. I, § 8, cl. 8. These premises led to the bar on patents claiming obvious subject matter established in Hotchkiss and codified in § 103. Application of the bar must not be confined within a test or formulation too constrained to serve its purpose.

KSR provided convincing evidence that mounting a modular sensor on a fixed pivot point of the Asano pedal was a design step well within the grasp of a person of ordinary skill in the relevant art. Its arguments, and the record, demonstrate that claim 4 of the Engalgau patent is obvious. In rejecting the District Court's rulings, the Court of Appeals analyzed the issue in a narrow, rigid manner inconsistent with § 103 and our precedents. The judgment of the Court of Appeals is reversed, and the case remanded for further proceedings consistent with this opinion.

It is so ordered.

In re Clay
966 F.2d 656 (Fed. Cir. 1992)

LOURIE, Circuit Judge.

Carl D. Clay appeals the decision of the United States Patent and Trademark Office, Board of Patent Appeals and Interferences, Appeal No. 90-2262, affirming the rejection of claims 1-11 and 13 as being unpatentable under 35 U.S.C. § 103. These are all the remaining claims in application Serial No. 245,083, filed April 28, 1987, entitled "Storage of a Refined Liquid Hydrocarbon Product." We reverse.

BACKGROUND

Clay's invention, assigned to Marathon Oil Company, is a process for storing refined liquid hydrocarbon product in a storage tank having a dead volume between the tank bottom and its outlet port. The process involves preparing a gelation solution which gels after it is placed in the tank's dead volume; the gel can easily be removed by adding to the tank a gel-degrading agent such as hydrogen peroxide. ...

Two prior art references were applied against the claims on appeal. They were U.S. Patent 4,664,294 (Hetherington), which discloses an apparatus for displacing dead space liquid using impervious bladders, or large bags, formed with flexible membranes; and U.S. Patent 4,683,949 (Sydansk), also assigned to Clay's assignee, Marathon Oil Company, which discloses a process for reducing the permeability of hydrocarbon-bearing formations and thus improving oil production, using a gel similar to that in Clay's invention.

The Board agreed with the examiner that, although neither reference alone describes Clay's invention, Hetherington and Sydansk combined support a conclusion of obviousness. It held that one skilled in the art would glean from Hetherington that Clay's invention "was appreciated in the prior art and solutions to that problem generally involved filling the dead space with something." Opinion at 3 (emphasis in original).

The Board also held that Sydansk would have provided one skilled in the art with information that a gelation system would have been impervious to hydrocarbons once the system gelled. The Board combined the references, finding that the "cavities" filled by Sydansk are sufficiently similar to the "volume or void space" being filled by Hetherington for one of ordinary skill to have recognized the applicability of the gel to Hetherington.

DISCUSSION

The issue presented in this appeal is whether the Board's conclusion was correct that Clay's invention would have been obvious from the combined teachings of Hetherington and Sydansk. Although this conclusion is one of law, such determinations are made against a background of several factual inquiries, one of which is the scope and content of the prior art.

A prerequisite to making this finding is determining what is "prior art," in order to consider whether "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." 35 U.S.C. § 103. Although § 103 does not, by its terms, define the "art to which [the] subject matter [sought to be patented] pertains," this determination is frequently couched in terms of whether the art is analogous or not, i.e., whether the art is "too remote to be treated as prior art." *In re Sovish*, 769 F.2d 738, 741, 226 USPQ 771, 773 (Fed.Cir.1985).

Clay argues that the claims at issue were improperly rejected over Hetherington and Sydansk, because Sydansk is nonanalogous art. Whether a reference in the prior art is “analogous” is a fact question. Thus, we review the Board’s decision on this point under the clearly erroneous standard.

Two criteria have evolved for determining whether prior art is analogous: (1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventor’s endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. *In re Deminski*, 796 F.2d 436, 442, 230 USPQ 313, 315 (Fed.Cir.1986); *In re Wood*, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979).

The Board found Sydansk to be within the field of Clay’s endeavor because, as the Examiner stated, “one of ordinary skill in the art would certainly glean from [Sydansk] that the rigid gel as taught therein would have a number of applications within the manipulation of the storage and processing of hydrocarbon liquids ... [and that] the gel as taught in Sydansk would be expected to function in a similar manner as the bladders in the Hetherington patent.” These findings are clearly erroneous.

The PTO argues that Sydansk and Clay’s inventions are part of a common endeavor — “maximizing withdrawal of petroleum stored in petroleum reservoirs.” However, Sydansk cannot be considered to be within Clay’s field of endeavor merely because both relate to the petroleum industry. Sydansk teaches the use of a gel in unconfined and irregular volumes within generally underground natural oil-bearing formations to channel flow in a desired direction; Clay teaches the introduction of gel to the confined dead volume of a man-made storage tank. The Sydansk process operates in extreme conditions, with petroleum formation temperatures as high as 115°C and at significant well bore pressures; Clay’s process apparently operates at ambient temperature and atmospheric pressure. Clay’s field of endeavor is the storage of refined liquid hydrocarbons. The field of endeavor of Sydansk’s invention, on the other hand, is the extraction of crude petroleum. The Board clearly erred in considering Sydansk to be within the same field of endeavor as Clay’s.

Even though the art disclosed in Sydansk is not within Clay’s field of endeavor, the reference may still properly be combined with Hetherington if it is reasonably pertinent to the problem Clay attempts to solve. *In re Wood*, 599 F.2d at 1036, 202 USPQ at 174. A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor’s endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor’s attention in considering his problem. Thus, the purposes of both the invention and the prior art are important in determining whether the reference is reasonably pertinent to the problem the invention attempts to solve. If a reference disclosure has the same purpose as the claimed invention, the reference relates to the same problem,

and that fact supports use of that reference in an obviousness rejection. An inventor may well have been motivated to consider the reference when making his invention. If it is directed to a different purpose, the inventor would accordingly have had less motivation or occasion to consider it.

Sydansk's gel treatment of underground formations functions to fill anomalies¹ so as to improve flow profiles and sweep efficiencies of injection and production fluids through a formation, while Clay's gel functions to displace liquid product from the dead volume of a storage tank. Sydansk is concerned with plugging formation anomalies so that fluid is subsequently diverted by the gel into the formation matrix, thereby forcing bypassed oil contained in the matrix toward a production well. Sydansk is faced with the problem of recovering oil from rock, i.e., from a matrix which is porous, permeable sedimentary rock of a subterranean formation where water has channeled through formation anomalies and bypassed oil present in the matrix. Such a problem is not reasonably pertinent to the particular problem with which Clay was involved — preventing loss of stored product to tank dead volume while preventing contamination of such product. ...

A person having ordinary skill in the art would not reasonably have expected to solve the problem of dead volume in tanks for storing refined petroleum by considering a reference dealing with plugging underground formation anomalies. The Board's finding to the contrary is clearly erroneous. Since Sydansk is non-analogous art, the rejection over Hetherington in view of Sydansk cannot be sustained.

Questions

1. What is the problem the Lukehart patent tries to solve? Would you have framed the problem in this way? What is the method the patent describes for solving that problem? Would you have thought of that method? Having had the method described to you, would you have expected it to work? How much testing would be necessary to discover whether it works or not? Is the invention something that someone who was not specifically searching for a solution to this problem might nonetheless stumble upon?
2. Compare *Adams* and *Anderson's Black-Rock*, discussed in II.A of the Court's opinion in *KSR*. What makes the two cases distinguishable?
3. The Bud Light Foozie consists of a foam can holder attached to a foam we're-number-one finger. Obvious? What about a Sawzie — a foam can holder attached to a rotary saw?

¹Sydansk refers to an anomaly, one of two general region types in an oil-bearing geological formation, as “a volume or void space [e.g., ‘streaks, fractures, fracture networks, vugs, solution channels, caverns, washouts, cavities, etc.’] in the formation having very high permeability relative to the matrix [the other region type, consisting of homogeneous porous rock].”

KSR Problem

In relevant part, claim 4 of the patent in suit in KSR comprises:

- A pedal
- that is adjustable
- and has a fixed pivot,
- and a sensor
- that is in the pedal
- and is and mounted on a fixed position

The Court had before it a number of pieces of prior art, and had to decide whether claim 4 was obvious in light of them. Please look closely at the Court's descriptions of the following prior art:

- Asano
- Redding
- '936
- Smith
- '068
- Certain 1994 Chevrolet trucks
- Rixon

Which of the characteristics of claim 4, as listed above, do each of these prior art references disclose? *Make a chart.* What improvements, if any, does each prior art reference suggest to a person having ordinary skill in the art. Using your chart as a guide, explain whether the Supreme Court's analysis is persuasive.

D Infringement: Similarity**Thorner v. Sony Computer Entertainment America LLC**
669 F.3d 1362 (Fed. Cir. 2012)

MOORE, Circuit Judge.

Craig Thorner and Virtual Reality Feedback Corporation (Appellants, collectively) accused Sony Computer Entertainment America LLC and a number of other Sony entities (Sony, collectively) of infringing claims of U.S. patent no. 6,422,941 ('941 patent) relating to a tactile feedback system for computer video games. The

district court construed disputed claim terms and the parties stipulated to a judgment of noninfringement. Because the district court improperly limited the term “attached to said pad” to mean attachment only to an external surface and erred in its construction of the term “flexible”, we vacate and remand.

BACKGROUND

The ‘941 patent describes a tactile feedback system for use with video games. Figure 2 shows the many different embodiments of the invention:

Tactile feedback controller 110 is part of a larger gaming system that operates one or more of the devices shown above. Each device includes some type of actuator that provides tactile feedback to a user in response to certain game activities. ‘941 patent col.2 ll.44-52. For instance, the actuators in hand-held game controller 598 may vibrate during a crash in a car racing game. Independent claim 1 requires “a flexible pad,” “a plurality of actuators attached to said pad” and a control circuit that activates the actuators in response to game activity. The accused products are hand-held game controllers.

Two claim limitations are relevant to this appeal, “flexible pad” and “attached to said pad.” The district court held that flexible does not mean simply “capable of being flexed.” *Thorner v. Sony Computer Entm’t Am. LLC*, No. 09-cv-1894, 2010 WL 3811283, at *3 (D.N.J. Sept. 23, 2010). It reasoned that this definition was inappropriate because “[m]any objects that are capable of being flexed are not flexible. A steel I-beam is capable of being flexed, but no one would call it ‘flexible.’” *Id.* The court thus construed the term to mean “capable of being noticeably flexed with ease.” *Id.*

The district court then turned to the construction of “attached to said pad.” *Id.* at *5-7. Appellants argued that attached should be given its plain and ordinary meaning and that an actuator can be attached to the inside of an object. Sony argued that “attached to said pad” should be construed as affixed to the exterior surface of the pad and does not include embedded within said pad. The court held that “the specification redefines ‘attached’ by implication.” *Id.* at *6. The court held that the word attached was limited to attached to the outside of an object because the embodiments in the specification consistently use the term “attached” to indicate affixing an actuator to the outer surface of an object and use the word “embedded” when referring to an actuator inside an object. For additional support for the notion that attached and embedded have different meanings, the court pointed to claim 1 which uses the word “attached” and dependent claim 10 which uses the word “embedded.” *Id.*

Following claim construction, the parties stipulated to noninfringement by the accused products. They stated that “under the Court’s construction of the phrase ‘attached to said pad,’ Defendants have not infringed...” The stipulation further stated that the “parties reserve their rights to challenge this or any other construc-

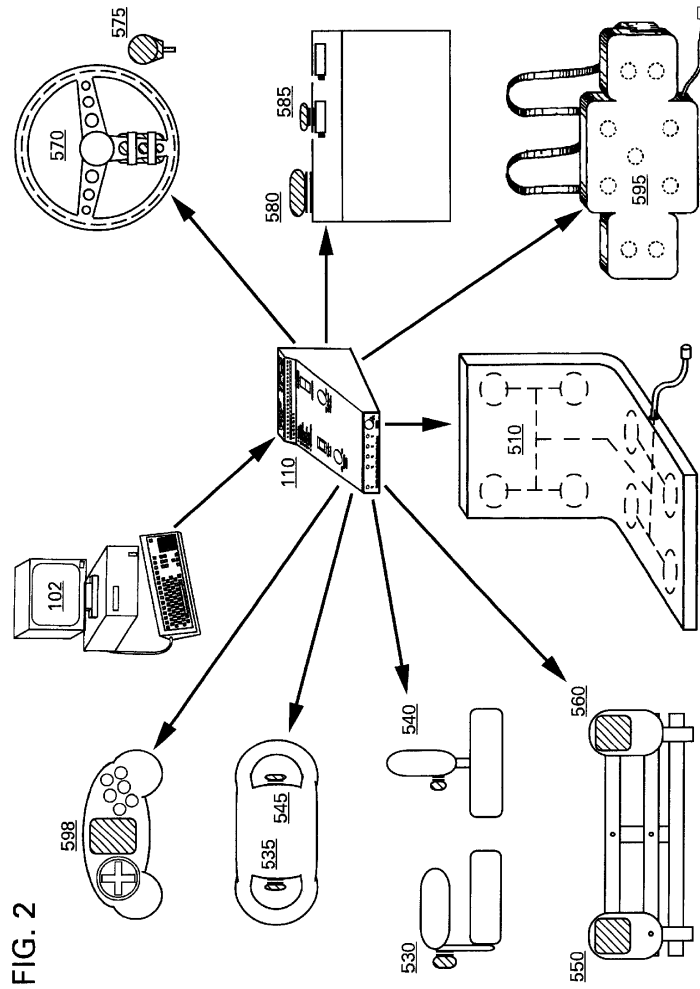


Figure 3.3: U.S. Patent No. 6,422,941, Universal tactile feedback system for computer video games and simulations

tion of the disputed claim phrases of the ‘941 patent on appeal.” J.A. 14-15. We have jurisdiction over this appeal under 28 U.S.C. § 1295(a)(1).

DISCUSSION

We review claim construction *de novo*. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1455-56 (Fed.Cir.1998) (*en banc*). The words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art when read in the context of the specification and prosecution history. See *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed.Cir.2005) (*en banc*). There are only two exceptions to this general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution. *Vitronics Corp. v. Conceptor, Inc.*, 90 F.3d 1576, 1580 (Fed.Cir.1996). The use of the term “attached” in this specification does not meet either of these exceptions.

To act as its own lexicographer, a patentee must “clearly set forth a definition of the disputed claim term” other than its plain and ordinary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed.Cir.2002). It is not enough for a patentee to simply disclose a single embodiment or use a word in the same manner in all embodiments, the patentee must “clearly express an intent” to redefine the term. For example, in *3M Innovative Properties Co. v. Avery Dennison Corp.*, we held that the patentee acted as its own lexicographer when the specification stated: “‘Multiple embossed’ means two or more embossing patterns are superimposed on the web to create a complex pattern of differing depths of embossing.” 350 F.3d 1365, 1369, 1371 (Fed.Cir.2004). Similarly, we limited a patentee to particular examples of solubilizers when it stated in the specification that “[t]he solubilizers suitable according to the invention are defined below.” *Astrazeneca AB v. Mutual Pharm. Co.*, 384 F.3d 1333, 1339 (Fed.Cir. 2004).

The standard for disavowal of claim scope is similarly exacting. “Where the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question.” *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1341 (Fed.Cir. 2001). “The patentee may demonstrate intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.” *Teleflex, Inc. v. Ficoso N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed.Cir.2002); see also *Home Diagnostics, Inc. v. LifeScan, Inc.*, 381 F.3d 1352, 1358 (Fed.Cir.2004) (“Absent a clear disavowal in the specification or the prosecution history, the patentee is entitled to the full scope of its claim language.”). For example, in *SciMed*, the patentee described two dif-

ferent types of catheters in the prior art, those with dual lumens (side-by-side) and those with coaxial lumens. 242 F.3d at 1339. In discussing the prior art, the patentee disparaged the dual lumen configuration as larger than necessary and less pliable than the coaxial type. *Id.* at 1342. Further, the specification repeatedly described the “present invention” as a coaxial design. *Id.* Finally, the specification stated: “The intermediate sleeve structure defined above [coaxial design] is the basic sleeve structure for all embodiments of the present invention contemplated and disclosed herein.” *Id.* at 1343 (emphasis in original). This court held that collectively this amounted to disavowal of the dual lumen design.

Mere criticism of a particular embodiment encompassed in the plain meaning of a claim term is not sufficient to rise to the level of clear disavowal. In *Spine Solutions, Inc. v. Medtronic Sofamor Danek USA, Inc.*, we explained that even where a particular structure makes it “particularly difficult” to obtain certain benefits of the claimed invention, this does not rise to the level of disavowal of the structure. 620 F.3d 1305, 1315 (Fed.Cir.2010). It is likewise not enough that the only embodiments, or all of the embodiments, contain a particular limitation. We do not read limitations from the specification into claims; we do not redefine words. Only the patentee can do that. To constitute disclaimer, there must be a clear and unmistakable disclaimer.

It is the claims that define the metes and bounds of the patentee’s invention. *Phillips*, 415 F.3d at 1313. The patentee is free to choose a broad term and expect to obtain the full scope of its plain and ordinary meaning unless the patentee explicitly redefines the term or disavows its full scope.

Claim 1 of the patent at issue includes the disputed claim terms:

In a computer or video game system, apparatus for providing, in response to signals generated by said computer or video game system, a tactile sensation to a user of said computer or video game system, said apparatus comprising:

a flexible pad;

a plurality of actuators, attached to said pad, for selectively generating tactile sensation; and a control circuit ... for generating a control signal to control activation of said plurality of actuators....

I. “attached to said pad”

Appellants argue that the district court erred by holding that the specification implicitly defined “attached” to mean “affixed to an exterior surface.” They argue that the term does not require any construction and that the plain and ordinary meaning includes affixing an item to either an exterior or an interior surface. They contend that the specification explicitly states whether an attachment is to an interior or exterior surface: “a vibratory actuator can be attached to [the] outer side of the throttle handle.” Appellant’s Br. 13 (quoting ‘941 patent col.39 ll.58-60). They argue this shows that when the applicant wished to distinguish an internal from an external at-

tachment, he did so with deliberate, express language. Thus, appellants argue that the specification contemplates “attached” to have its plain and ordinary meaning—attached to either an interior or exterior surface. Finally, appellants argue that the fact that claim 10 includes the word “embedded” does not mean that “attached” can only mean connected to an exterior surface. Rather, appellants argue that “embedded” is merely a narrower term that includes only attachment to an interior surface.

Sony responds that the patent clearly identified two different connections, “attached to” and “embedded within.” It argues that in every instance where the specification uses the term “attached,” it refers to an attachment to an outer surface. Conversely, in every embodiment where the actuator is placed inside a housing, the specification uses the term “embedded.” See, e.g., ‘941 patent col.32 l.66 (“embedded within or attached to”).

Our case law is clear, claim terms must be given their plain and ordinary meaning to one of skill in the art. *Phillips*, 415 F.3d at 1316. The plain meaning of the term “attached” encompasses either an external or internal attachment. We must decide whether the patentee has redefined this term to mean only attachment to an external surface. As Sony argues, the specification repeatedly uses the term “attached” in reference to embodiments where the actuators are “attached to [an] outer side.” ‘941 patent col.33 ll.40-41. In fact, the specification never uses the word “attached” when referring to an actuator located on the interior of a controller. We hold that this does not rise to the level of either lexicography or disavowal. Both exceptions require a clear and explicit statement by the patentee. *CCS Fitness*, 288 F.3d at 1366; *Teleflex*, 299 F.3d at 1325. It is not enough that the patentee used the term when referencing an attachment to an outer surface in each embodiment. See *Kara Tech.*, 582 F.3d at 1347-48. In fact, the specification explains that an actuator was “attached to [an] outer surface.” See ‘941 patent col.33 ll.40-41. If the applicant had redefined the term “attached” to mean only “attached to an outer surface,” then it would have been unnecessary to specify that the attachment was “to [an] outer surface” in the specification. We conclude that the term attached should be given its plain and ordinary meaning. The specification does not redefine attached nor is there any disavowal.

The fact that the specification uses the two terms “attached” and “embedded” as alternatives does not require a different result. See, e.g., *id.* col.32 l.66. There is nothing inconsistent about the applicant’s use of the narrower term, “embedded,” to describe embodiments affixed to an internal surface. The plain and ordinary meaning of embedded, “attached within,” is narrower than “attached.” Hence it makes sense that the applicant would want to use embedded when it meant to explicitly claim attached to the inside only. That does not mean the word attached automatically means attached to the external surface, as opposed to the broader plain meaning—

attached to either the interior or exterior. ...

Other parts of the claim and specification also support this construction. The claim at issue requires a “flexible pad.” The only embodiment in the specification that includes flexible material is the seat cushion 510 shown in Figure 2. The specification states that “the tactile feedback seating unit 510 is a semi-rigid flexible foam structure ... with a plurality of actuators embedded within the foam structure.” ‘941 patent col.37 ll.6-10. Thus, the only flexible embodiment in the specification has embedded actuators. If we agreed with Sony that “attached” must mean attached to an outer surface, then the claim would exclude the only flexible embodiment disclosed in the specification. This is further evidence that the term “attached” should have its plain and ordinary meaning which includes either internal or external attachments.

We hold that the term “attached to said pad” should be given its plain and ordinary meaning which encompasses either internal or external attachment. Because the parties based the stipulation of noninfringement on the district court’s erroneous construction of this claim term, we vacate and remand.

II. “flexible pad” ...

Appellants argue that the term “flexible” simply means “capable of being flexed” and that the district court erred by requiring “capable of being noticeably flexed with ease.” They note that the specification only uses the term “flexible pad” when referring to a “semi-rigid” structure and that a “semi-rigid” structure would certainly not be “noticeably flexed with ease.” Appellant’s Br. 15-16 (citing ‘941 patent col.37 ll.6-7, 24, 49).

Sony responds that although the specification uses the term to refer to a “semi-rigid” structure, that structure is made out of foam in every embodiment. It argues that foam is capable of being noticeably flexed with ease and thus a rigid, barely bendable material should not be considered “flexible.” Sony also points to portions of the Markman hearing where the district court judge inspected one of the accused hard plastic controllers. The judge noted that the controller was rigid and “[i]f I try to flex this thing, I think that you’re going to see it snap.” J.A. 523-24.

We agree with the appellants that the district court improperly limited the term. Neither the claims nor the specification requires the “flexible pad” to be noticeably flexed with ease. The specification says only that the flexible pad must be a semi-rigid structure. The task of determining the degree of flexibility, the degree of rigidity that amounts to “semi-rigid,” is part of the infringement analysis, not part of the claim construction. The district court is of course free on summary judgment to decide that there is no genuine issue of material fact that the accused products in this case do not meet the plain and ordinary meaning of the term “flexible.” We do not mean to suggest that summary judgment is improper in this case, only that claim construction

is the wrong venue for this determination.

Freedman Seating Co. v. American Seating Co.
420 F.3d 1350 (Fed. Cir. 2005)

SCHALL, Circuit Judge.

This is a patent infringement case. Freedman Seating Company (“Freedman”) sued American Seating Company and Hi-Tech Seating Products (doing business as Kustom Fit) (collectively, “American Seating”) in the United States District Court for the Central District of California for infringement of U.S. Patent No. 5,492,389 (issued Feb. 20, 1996) (“the ‘389 patent”) and for unfair competition in violation of the Lanham Act, 15 U.S.C. § 1125 (2000). The district court granted summary judgment in favor of Freedman both on the issue of infringement under the doctrine of equivalents and on American Seating’s counterclaim of invalidity by reason of obviousness. ...

American Seating now appeals all aspects of the district court’s summary judgment decision that were unfavorable to it. ... Because we conclude that the judgment of infringement under the doctrine of equivalents has the effect of vitiating a limitation of the claims of the ‘389 patent, we reverse the judgment and remand the case to the district court with instructions to enter judgment of non-infringement in favor of American Seating. ...

BACKGROUND

I.

A.

Freedman manufactures seats used in public transportation vehicles. Its product line includes stowable seats, which are seats that have the ability to fold away in order to create more interior space in a vehicle. They are particularly useful for accommodating passengers with wheelchairs, but may be used whenever more interior space is needed.

Freedman also owns the ‘389 patent, titled “Stowable Seat.” The figures shown below are representative of the stowable seat claimed in the ‘389 patent.

Figure 1 shows the stowable seat (10) in the horizontal (or deployed) position, while figure 2 shows the stowable seat in the vertical (or stowed) position. Moving the seat from its horizontal to vertical position involves “folding the seatback (16) flat against the seatbase (14), unlocking the seatbase from its horizontally deployed position and raising the seatbase to its vertically stowed position where it is locked in place.” ‘389 patent, col. 1, ll. 19-24 (numerals added).

As shown by figure 1, the invention of the ‘389 patent does not use an aisle leg to support the seat when in the horizontal position. See *id.* col. 1, ll. 8-14; col. 3, ll.

U.S. Patent

Feb. 20, 1996

Sheet 1 of 3

5,492,389

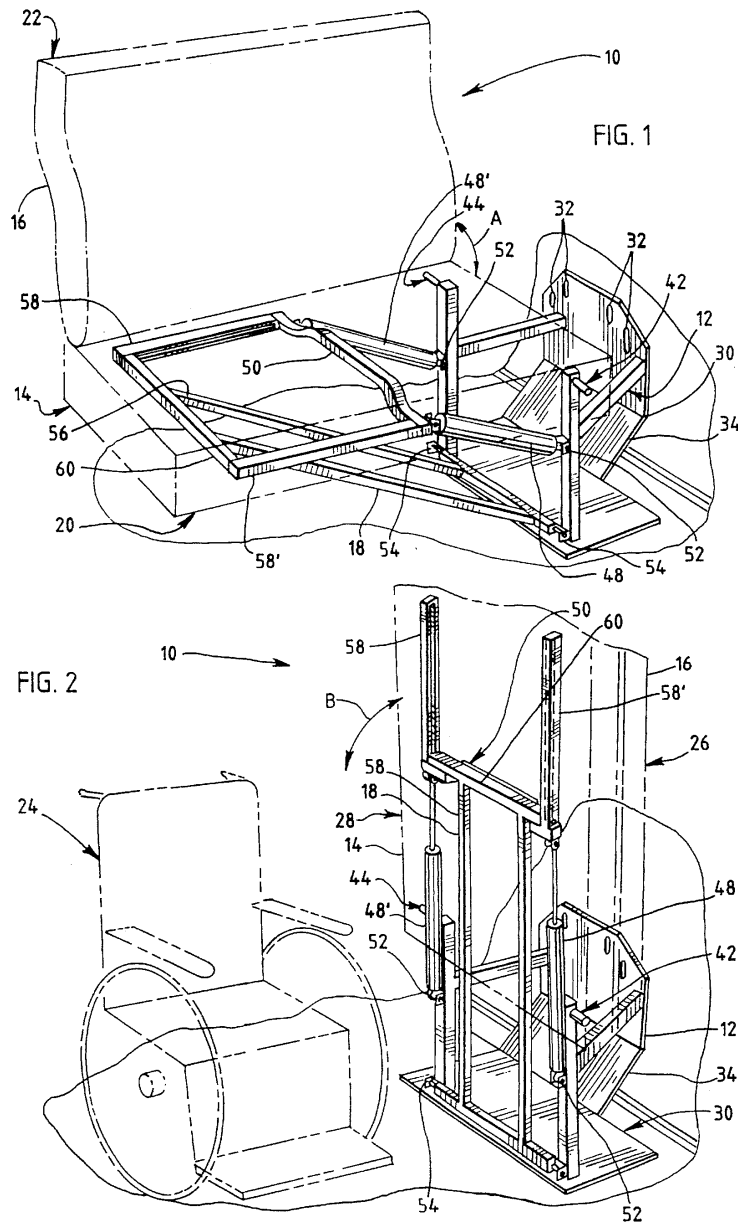


Figure 3.4: U.S. Patent No. 5,492,389, Stowable seat

32-34. Rather, the invention is based on a cantilever design, which uses a diagonal truss (18), also referred to as a support member, to support the aisle-end of the seat when in the horizontal position. This design, according to the '389 patent, avoids difficulties attendant with stowing and deploying seats that have a separate aisle leg. Id. col. 1, ll. 25-35.

In addition to providing aisle support, the diagonal truss allows for translational movement of the seatbase between the horizontal and vertical positions. This is due to the truss having a fixed end that is attached to the seat's frame (12) at a pivot point (54), and a movable end (56) that is "slidably mounted" in a runner track (58). Id. col. 3, ll. 40-47. When stowing the seat, the movable end of the diagonal truss slides on the runner track toward the middle of the seatbase, while the fixed end of the diagonal truss rotates upward until the seat is in the vertical position. Similarly, when the seat is deployed again, the movable end of the diagonal truss slides toward the aisle end of the seatbase, while the fixed end rotates downward until the seat is in the horizontal position. This folding mechanism created by the slidably mounted moveable end is known in the field of mechanical engineering as a "slider crank," which is a particular type of "four bar mechanism."

Claim 1 is representative of the claims asserted against American Seating; it reads:

A stowable seat for mounting to support member of a vehicle wherein a space may be selectively provided for positioning an article adjacent to the stowable seat, when stowed the seat comprising:

a frame attached to a support member;

a cantilevered seatbase having a free end, a pivotable end including a pivot mounted thereto for rotatably associating said pivotable end with said frame and for providing said seatbase with a range of motion extending from a horizontally deployed position to a vertically stowed position, a support member for supporting said seatbase in said deployed position including a moveable end **slidably mounted** to said seatbase and a fixed end journalled with said frame, and a first lock near said free end for releasably locking said movable end to maintain said seatbase in said deployed position; and

a seatback having a pivot for rotatably associating said seatback with said seatbase and for providing said seatback with a range of motion extending from an unfolded position to a folded position, said range of motion of said seatback being perpendicular to said range of motion of said seatbase, said seatback in said unfolded position adapted to be a predetermined angle with respect to said seatbase in said deployed position to provide seating and said seatback in said folded position adapted to be

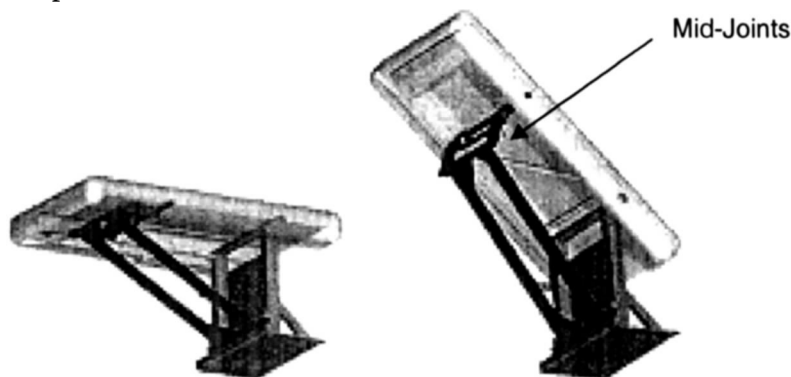
adjacent said seatbase for stowing to provide the space for the article.
(Emphasis added).

B.

American Seating Company and Kustom Fit also manufacture and market seating products for the transportation industry. One particular seat is the Horizon EZ Fold (“EZ Fold”), which is a stowable seat manufactured by Kustom Fit and sold by American Seating Company. The EZ Fold is in many respects similar, if not identical, to the invention claimed in the ‘389 patent. Most notably, neither device has an aisle leg. However, and important to this case, the two products use different types of support structures in lieu of the aisle leg. The invention claimed in the ‘389 patent, of course, uses the slider crank, which is described in part by the “slidably mounted” limitation. The EZ Fold, on the other hand, uses what is known as a “fourth link.”

Like the slider crank, the fourth link is also a specific type of four bar mechanism. However, the two mechanisms differ in that, where the moveable end of the ‘389 patent’s support member is slidably mounted to the seatbase, the moveable end of the EZ Fold’s support member is rotatably mounted to the seatbase. Therefore, the moveable end of the EZ Fold’s support member does not slide or otherwise move along the seatbase. Rather, its only range of motion consists of rotation throughout its revolute joints. That said, the EZ Fold’s fourth link mechanism still provides the seatbase with fluid translational motion, and thereby allows the seat to fold between the deployed and stowed positions. It does this through an extra set of revolute joints located in the midsection of its support member (“mid-joints”). These mid-joints are shown below in two representative illustrations of the EZ Fold product.

The illustration on the left shows the seat in the fully deployed position, and the illustration on the right shows the device in transition between the deployed and stowed positions.



II.

On July 5, 2002, Freedman sued both American Seating Company and Kustom Fit for patent infringement and unfair competition under the Lanham Act. With respect to the claim for patent infringement, Freedman alleged that American Seating Company's EZ Fold infringed the '389 patent. Freedman alleged that Kustom Fit also infringed as a result of its role in developing and manufacturing the EZ Fold for American Seating Company. ...

In due course, both parties filed motions for summary judgment on the issue of infringement. ... With respect to the issue of infringement, the court stated that there really was no dispute as to claim construction or the structure of the accused product. Summary Judgment I, slip op. at 9. In fact, the parties generally agreed that the EZ Fold literally meets all of the limitations of claim 1 except for the limitation requiring that the movable end of the support member be "slidably mounted" to the seatbase. *Id.* The accused product does not literally meet this limitation because the EZ Fold's support member is rotatably mounted, not slidably mounted, to the seatbase. *Id.* The district court therefore identified the sole issue before it as "whether the '389 Patent's support member and movable end is equivalent to that found in the accused device." *Id.*

American Seating argued that its support member and moveable end were not equivalent to the corresponding structure claimed by the '389 patent because its system used a fourth link, which created a substantially different support structure than the slider crank of the '389 patent. *Id.* at 10. In particular, American Seating argued that the support structures of the two devices created substantially different distribution forces. The district court disagreed. As an initial matter, the court stated that force distributions were not claimed in the '389 patent and were therefore of minimal relevance. *Id.* at 11. In addition, the court found that any difference in force distributions was insubstantial, and that Freedman's "slider-crank and [American Seating's] fourth link perform substantially the same function in substantially the same manner to achieve substantially the same result." *Id.* The court therefore granted Freedman summary judgment of infringement by equivalence. *Id.* at 11-12. ...

DISCUSSION ...

I.

We review summary judgment decisions *de novo*, reapplying the standard used by the district court. ...

II.

Patent infringement is a two step inquiry. First, the court must construe the asserted claim. *RF Del., Inc. v. Pac. Keystone Techs., Inc.*, 326 F.3d 1255, 1266 (Fed.Cir.2003). Second, the court must determine whether the accused product or process contains each limitation of the properly construed claims, either literally or

by a substantial equivalent. *Id.* The first step is a question of law; the second step is a question of fact. *Id.* ...

B.

Under the doctrine of equivalents, “a product or process that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is ‘equivalence’ between the elements of the accused product or process and the claimed elements of the patented invention.” *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21, 117 S.Ct. 1040, 137 L.Ed.2d 146 (1997) (citing *Graver Tank*, 339 U.S. at 609, 70 S.Ct. 854). The doctrine evolved in recognition of the fact that

The language in the patent claims may not capture every nuance of the invention or describe with complete precision the range of its novelty. If patents were always interpreted by their literal terms, their value would be greatly diminished. Unimportant and insubstantial substitutes for certain elements could defeat the patent, and its value to inventors could be destroyed by simple acts of copying.

Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722, 731, 122 S.Ct. 1831, 152 L.Ed.2d 944 (2002); *Graver Tank*, 339 U.S. at 605, 70 S.Ct. 854 (“[T]o permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and useless thing.”). At the same time, the doctrine of equivalents necessarily adds uncertainty to the scope of patent claims, and thereby detracts from the public-notice function of patent claims and risks deterring non-infringing and potentially innovative endeavors. See *Festo*, 535 U.S. at 727, 122 S.Ct. 1831 (“If the range of equivalents is unclear, competitors may be unable to determine what is a permitted alternative to a patented invention and what is an infringing equivalent.”); *Warner-Jenkinson*, 520 U.S. at 29, 117 S.Ct. 1040 (“There can be no denying that the doctrine of equivalents, when applied broadly, conflicts with the definitional and public-notice functions of the statutory claiming requirements.”). In recognition of this risk, and in an effort to strike the proper balance between protecting patentees while also providing sufficient notice to the public, various rules of law have emerged to constrain when and how the doctrine of equivalents is to be applied.

Of relevance to this case is the “all limitations” rule.⁴ The rule holds that an accused product or process is not infringing unless it contains each limitation of the

⁴There are other constraints not relevant to this appeal, such as the doctrine of prosecution history estoppel, see generally *Festo*, 535 U.S. at 733-41, 122 S.Ct. 1831, and the rule of subject matter dedication, see generally *Johnson & Johnston Assocs. Inc. v. R.E. Serv. Co.*, 285 F.3d 1046 (Fed.Cir.2002) (en banc).

claim, either literally or by an equivalent. This principle has two primary implications for the doctrine of equivalents. First, the all limitations rule requires that equivalence be assessed on a limitation-by-limitation basis, as opposed to from the perspective of the invention as a whole. Second, an element of an accused product or process is not, as a matter of law, equivalent to a limitation of the claimed invention if such a finding would entirely vitiate the limitation.

There is no set formula for determining whether a finding of equivalence would vitiate a claim limitation, and thereby violate the all limitations rule. Rather, courts must consider the totality of the circumstances of each case and determine whether the alleged equivalent can be fairly characterized as an insubstantial change from the claimed subject matter without rendering the pertinent limitation meaningless. ...

Conversely, in *Sage Products* we affirmed the district court's grant of summary judgment of non-infringement under the doctrine of equivalents. 126 F.3d at 1421. One of the asserted patents described a container for discarding syringes and other like materials and claimed, among other things, "an elongated slot at the top of the container body" and a barrier means comprised of "a first constriction extending over said slot." *Id.* at 1422. We agreed that the district court properly interpreted "top of the container body" to mean "highest point, level, or part of." *Id.* at 1423. The accused product differed from the claimed invention in that the slot was located in the interior of the container rather than at the top of the container. *Id.*

We concluded that finding infringement under these circumstances would vitiate the "slot at the top of the container body" and "extending over said slot" limitations. *Id.* at 1424-26. We reached our conclusion based on several considerations, including the simplicity of the structure, the specificity and narrowness of the claim, and the foreseeability of variations at the time of filing the claim with the PTO:

The claim at issue defines a relatively simple structural device. A skilled patent drafter would foresee the limiting potential of the "over said slot" limitation. No subtlety of language or complexity of the technology, nor any subsequent change in the state of the art, such as later-developed technology, obfuscated the significance of this limitation at the time of its incorporation into the claim. If [the patentee] desired broad patent protection for any container that performed a function similar to its claimed container, it could have sought claims with fewer structural encumbrances. . . . Instead, [the patentee] left the PTO with manifestly limited claims that it now seeks to expand through the doctrine of 1361*1361 equivalents. However, as between the patentee who had a clear opportunity to negotiate broader claims but did not do so, and the public at large, it is the patentee who must bear the cost of its failure to seek protection for this foreseeable alteration of its claimed

structure.

Id. at 1425 (citation and footnote omitted). Compare *Hughes Aircraft Co. v. United States*, 140 F.3d 1470, 1475 (Fed.Cir.1998) (“This is a case in which a ‘subsequent change in the state of the art, such as later-developed technology, obfuscated the significance of [the] limitation at the time of its incorporation into the claim.’”).

In *Tronzo v. Biomet, Inc.*, 156 F.3d 1154 (Fed.Cir.1998), we similarly concluded that a finding of equivalence would vitiate the claimed limitation. The asserted claims related to an artificial hip socket and included a limitation requiring that the prosthesis’s body have “a generally conical outer surface.” Id. at 1156. In finding infringement, the jury concluded that the hemispherical shape of the accused product’s hemispherical cup was equivalent to the “generally conical outer surface” limitation. Id. We reversed, finding no infringement as a matter of law. We were particularly troubled by expert testimony submitted by the plaintiff, Tronzo, stating that “when either a hemispherical cup or trapezoidal cup or any other shape cup is successfully implanted into the body, it functions almost exactly the same way.” Id. at 1160 (emphasis in original). We stated that, according to this theory of infringement, “any shape would be equivalent to the conical limitation.” Id. (emphasis added). “Such a result,” we concluded, “is impermissible under the all-elements rule of Warner-Jenkinson because it would write the ‘generally conical outer surface’ limitation out of the claims.” Id.; see also *Asyst Techs., Inc. v. Emtrak, Inc.*, 402 F.3d 1188, 1195 (Fed.Cir.2005) (holding that, under the “specific exclusion” principle, “the term ‘mounted’ can fairly be said to specifically exclude objects that are ‘unmounted’”); *Moore U.S.A.*, 229 F.3d at 1106 (“[T]o allow what is undisputedly a minority (i.e., 47.8%) to be equivalent to a majority would vitiate the requirement that the ‘first and second longitudinal strips of adhesive . . . extend the majority of the lengths of said longitudinal marginal portions.’”).

In the instant case, we think the district court’s finding of infringement under the doctrine of equivalents had the effect of entirely vitiating the “slidably mounted” limitation. The parties agree that all of the claims require a support member having “a moveable end slidably mounted to” the seatbase. See, e.g., ‘389 patent, claim 1 & claim 5.[5] It is also not disputed that the moveable end of the EZ Fold’s support member is rotatably mounted, not slidably mounted, to the seatbase. Therefore, while the moveable end of the EZ Fold’s support member has the ability to rotate, it cannot slide or otherwise move along the seatbase. It is confined to a fixed location. We think that this structural difference in the mounting of the moveable end to the seatbase is not a “subtle difference in degree,” but rather, “a clear, substantial difference or difference in kind.” *Ethicon*, 149 F.3d at 1321.

Freedman argues that the slider crank claimed in the ‘389 patent and the fourth link mechanism used in the EZ Fold function in the same way to produce identical

results. (Br. of Appellee at 17-21.) 1362*1362 Freedman asserts that this is because “[b]oth the infringing seat and the claimed structure of the ‘389 patent provide the moveable end of the support member with both translational and rotational motion relative to the seatbase.” (Id. at 18.) The problem, however, is that taken to its logical conclusion, Freedman’s argument would mean that any support member capable of allowing translational and rotational motion would be equivalent to a support member “slidably mounted to said seatbase,” which reads “slidably mounted” completely out of the claims. This is the precise type of overextension of the doctrine of equivalents that the claim vitiation doctrine is intended to prevent. Indeed, we rejected this same type of argument in *Tronzo*. See 156 F.3d at 1160 (holding that finding all shapes to be equivalent structure would entirely vitiate the limitation requiring a “generally conical shape” (emphasis added)).

In sum, we hold that the district court’s finding of infringement entirely vitiated the “slidably mounted” limitation of the ‘389 patent. We therefore reverse the court’s grant of summary judgment and remand with instructions to enter judgment of non-infringement in favor of American Seating. ...

Super Soaker Problem

This is claim 1 from U.S. Patent No. 4,239,129:

A toy comprising an elongated housing [case] having a chamber therein for a liquid [tank], a pump including a piston having an exposed rod [piston rod] and extending rearwardly of said toy facilitating manual operation for building up an appreciable amount of pressure in said chamber for ejecting a stream of liquid therefrom an appreciable distance substantially forwardly of said toy, and means for controlling the ejection.

Does the **Super Soaker 50** infringe this claim? Note that to use a Super Soaker, one fills it with water through the orange cap at the back top. Sliding the yellow handle back and forth along the white barrel pumps air into the green part, along with water. Pulling the trigger opens a valve that causes the air to press water forward, resulting in the Super Soaker’s famed superior soaking ability. (Conventional water pistols didn’t store up compressed air; they drove water out the barrel using the force of the trigger pull itself.)

E Infringement: Prohibited Conduct

Patent Act

35 U.S.C. § 271 - *Infringement of patent*

- (a) Except as otherwise provided in this title, whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent.
- (b) Whoever actively induces infringement of a patent shall be liable as an infringer.
- (c) Whoever offers to sell or sells within the United States or imports into the United States a component of a patented machine, manufacture, combination or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer.

Limelight Networks, Inc. v. Akamai Technologies, Inc.
134 S. Ct. 2111 (2014)

Justice ALITO delivered the opinion of the Court...

[MIT owned U.S. Patent No. 6,108,703 on a method of delivering content online; Akamai was the exclusive licensee.] The ‘703 patent provides for the designation of certain components of a content provider’s Web site (often large files, such as video or music files) to be stored on Akamai’s servers and accessed from those servers by Internet users. The process of designating components to be stored on Akamai’s servers is known as “tagging.” ...

Petitioner Limelight Networks, Inc., also operates a CDN and carries out several of the steps claimed in the ‘703 patent. But instead of tagging those components of its customers’ Web sites that it intends to store on its servers (a step included in the ‘703 patent), Limelight requires its customers to do their own tagging. Respondents claim that Limelight “provides instructions and offers technical assistance” to its customers regarding how to tag, but the record is undisputed that Limelight does not tag the components to be stored on its servers. ...

Neither the Federal Circuit nor respondents dispute the proposition that liability for inducement must be predicated on direct infringement. This is for good reason, as our case law leaves no doubt that inducement liability may arise if, but only if, there is direct infringement.

One might think that this simple truth is enough to dispose of this appeal. But the Federal Circuit reasoned that a defendant can be liable for inducing infringement under § 271(b) even if no one has committed direct infringement within the terms of § 271(a) (or any other provision of the patent laws), because direct infringement

can exist independently of a violation of these statutory provisions.

The Federal Circuit's analysis fundamentally misunderstands what it means to infringe a method patent. A method patent claims a number of steps; under this Court's case law, the patent is not infringed unless all the steps are carried out. This principle follows ineluctably from what a patent is: the conferral of rights in a particular claimed set of elements. Each element contained in a patent claim is deemed material to defining the scope of the patented invention, and a patentee's rights extend only to the claimed combination of elements, and no further.

The Federal Circuit seems to have adopted the view that Limelight induced infringement on the theory that the steps that Limelight and its customers perform would infringe the '703 patent if all the steps were performed by the same person. But we have already rejected the notion that conduct which would be infringing in altered circumstances can form the basis for contributory infringement, and we see no reason to apply a different rule for inducement. In *Deepsouth Packing Co. v. Laitram Corp.*, 406 U.S. 518 (1972), a manufacturer produced components of a patented machine and then exported those components overseas to be assembled by its foreign customers. (The assembly by the foreign customers did not violate U.S. patent laws.) In both *Deepsouth* and this case, the conduct that the defendant induced or contributed to would have been infringing if committed in altered circumstances: in *Deepsouth* if the machines had been assembled in the United States, and in this case if performance of all of the claimed steps had been attributable to the same person. In *Deepsouth*, we rejected the possibility of contributory infringement because the machines had not been assembled in the United States, and direct infringement had consequently never occurred. Similarly, in this case, performance of all the claimed steps cannot be attributed to a single person, so direct infringement never occurred. Limelight cannot be liable for inducing infringement that never came to pass.

Akamai Technologies, Inc. v. Limelight Networks, Inc.

--- F.3d --- (Fed. Cir. Aug. 13, 2015) (en banc)

Per Curiam.

Direct infringement under § 271(a) occurs where all steps of a claimed method are performed by or attributable to a single entity. Where more than one actor is involved in practicing the steps, a court must determine whether the acts of one are attributable to the other such that a single entity is responsible for the infringement. We will hold an entity responsible for others' performance of method steps in two sets of circumstances: (1) where that entity directs or controls others' performance, and (2) where the actors form a joint enterprise. ...

The jury heard substantial evidence from which it could find that Limelight directs or controls its customers' performance of each remaining method step, such

that all steps of the method are attributable to Limelight. Specifically, Akamai presented substantial evidence demonstrating that Limelight conditions its customers' use of its content delivery network upon its customers' performance of the tagging and serving steps, and that Limelight establishes the manner or timing of its customers' performance. ... Therefore, Limelight is liable for direct infringement.

Global-Tech Appliances, Inc. v. SEB S.A.
131 S. Ct. 2060 (2011)

Justice ALITO delivered the opinion of the Court...

[SEB held a U.S. patent on a deep fryer whose exterior surface remained cool to the touch. Pentalpha cloned an SEB fryer it purchased in Hong Kong (which did not bear U.S. patent markings). It sold infringing fryers to Sunbeam, Fingerhut, and Montgomery Ward, which resold them in the United States. A jury found for SEB, and the district court and Federal Circuit rejected Pentalpha's argument that it did not "induce" these sales under § 271(b) because it did not know about the patent.]

[W]e now hold that induced infringement under § 271(b) requires knowledge that the induced acts constitute patent infringement. ... We nevertheless affirm the judgment of the Court of Appeals because the evidence was plainly sufficient to support a finding of Pentalpha's knowledge under the doctrine of willful blindness, [under which] (1) the defendant must subjectively believe that there is a high probability that a fact exists and (2) the defendant must take deliberate actions to avoid learning of that fact. ... Pentalpha's belief that SEB's fryer embodied advanced technology that would be valuable in the U.S. market is evidenced by its decision to copy all but the cosmetic features of SEB's fryer. ... Even more telling is [a Pentalpha executive's] decision not to inform the attorney from whom Pentalpha sought a right-to-use opinion that the product to be evaluated was simply a knock-off of SEB's deep fryer.

Commil USA, LLC v. Cisco Systems Inc.
135 S. Ct. 1920 (2015)

Justice KENNEDY delivered the opinion of the Court...

The question the Court confronts today concerns whether a defendant's belief regarding patent validity is a defense to a claim of induced infringement. It is not.

...

Invalidity is an affirmative defense that can preclude enforcement of a patent against otherwise infringing conduct. An accused infringer can, of course, attempt to prove that the patent in suit is invalid; if the patent is indeed invalid, and shown to be so under proper procedures, there is no liability. See That is because invalidity is

not a defense to infringement, it is a defense to liability. And because of that fact, a belief as to invalidity cannot negate the scienter required for induced infringement.

Lucent Technologies, Inc. v. Gateway, Inc.
580 F.3d 1301 (Fed. Cir. 2009)

MICHEL, Chief Judge....

In December 1986, three computer engineers at [Lucent’s predecessor] AT&T filed a patent application, which eventually issued as the Day patent. The patent is generally directed to a method of entering information into fields on a computer screen without using a keyboard. A user fills in the displayed fields by choosing concurrently displayed, predefined tools adapted to facilitate the inputting of the information in a particular field, wherein the predefined tools include an on-screen graphical keyboard, a menu, and a calculator. ...

Lucent asserts that certain features of Outlook, Money, and Windows Mobile, when used, practice the methods of claims 19 and 21. For instance, Outlook includes a calendar tool that allows the user to enter dates in a form when preparing a record of an appointment. The tool displays a monthly calendar as a grid of numbered dates, along with graphical controls that allow the user to scroll to adjacent months or skip directly to a different month and year. Once the user defines a date with the tool, the software enters the numerical day, month, and year into the corresponding field in the appointment form. Similar to the number pad tool illustrated in the Day patent, Outlook’s calendar date-picker tool enables the user to select a series of numbers, corresponding to the day, month, and year, using graphical controls. This date-picker calendar tool is incorporated in a few of Outlook’s features. Microsoft Money and Windows Mobile have similar functionalities. ...

According to Microsoft, Lucent did not prove contributory infringement [under § 271(c)] because the products have substantial noninfringing uses. Lucent counters that the date-picker tool does not have any noninfringing uses. Thus, as framed by the parties, the main issue reduces to whether the “material or apparatus” is the entire software package or just the particular tool (e.g., the calendar date-picker) that performs the claimed method. If the former, then Microsoft prevails because the entire software package has substantial noninfringing uses. If the material or apparatus is the specific date-picker tool, then Lucent wins because that tool was “especially made or especially adapted for” practicing the claimed method.

One example illustrates the problem with Microsoft’s approach. Consider a software program comprising five—and only five—features. Each of the five features is separately and distinctly patented using a method claim. That is, the first feature infringes a method claim in a first patent, the second feature infringes a method claim in a second patent, and so forth. Assume also that the company selling the software

doesn't provide specific instructions on how to use the five features, thus taking potential liability outside the realm of § 271(b). In this scenario, under Microsoft's position, the software seller can never be liable for contributory infringement of any one of the method patents because the entire software program is capable of substantial noninfringing use. This seems both untenable as a practical outcome and inconsistent with both the statute and governing precedent.

Similarly, if, instead of selling Outlook with the date-picker, Microsoft had offered the date-picker for sale as a separate download to be used with Outlook, there would be little dispute that Microsoft was contributing to infringement of the Day patent. ...

In *Hodosh v. Block Drug Co.*, 833 F.2d 1575 (Fed. Cir. 1987), the patent at issue claimed "a method for desensitizing teeth with a composition containing an alkali metal nitrate." The accused infringer sold toothpaste, e.g., "Sensodyne-F," containing potassium nitrate, an alkali metal nitrate. The accused infringer argued that the sale of the toothpaste, which itself was not patented, could not constitute contributory infringement because the toothpaste contained a staple article, i.e., potassium nitrate. The court rejected this argument. While potassium nitrate, when sold in bulk form, was "a staple article or commodity of commerce suitable for substantial noninfringing use," it was suitable only for the infringing use when sold as an ingredient in the toothpaste specially made to perform the patented method of desensitizing teeth.

Here, the infringing feature for completing the forms, i.e., the date-picker tool, is suitable only for an infringing use. Inclusion of the date-picker feature within a larger program does not change the date-picker's ability to infringe. Because Microsoft included the date-picker tool in Outlook, the jury could reasonably conclude, based on the evidence presented, that Microsoft intended computer users to use the tool—perhaps not frequently—and the only intended use of the tool infringed the Day patent.

Questions

1. Suppose that the Plano Bait Shop is selling empty open-topped rectangular aluminum boxes, with a length slightly less than the width of a bait box, lips at each end that are the right shape to attach to the top edges of a bait box, and a detachable plastic cover. Some buyers take the boxes, fill them with sharp-grained sand, and use it to immobilize earthworms. Others take the boxes and fill them with fish hooks, washcloths, or other items. Who, if anyone, is infringing? Does it matter if Plano includes instructions with the boxes explaining how to fill them with sand to immobilize earthworms?

F Defenses

Bowman v. Monsanto Co. 133 S. Ct. 1761 (2013)

Justice Kagan delivered the opinion of the Court:

Under the doctrine of patent exhaustion, the authorized sale of a patented article gives the purchaser, or any subsequent owner, a right to use or resell that article. Such a sale, however, does not allow the purchaser to make new copies of the patented invention. The question in this case is whether a farmer who buys patented seeds may reproduce them through planting and harvesting without the patent holder's permission. We hold that he may not.

I

Respondent Monsanto invented a genetic modification that enables soybean plants to survive exposure to glyphosate, the active ingredient in many herbicides (including Monsanto's own Roundup). Monsanto markets soybean seed containing this altered genetic material as Roundup Ready seed. Farmers planting that seed can use a glyphosate-based herbicide to kill weeds without damaging their crops. Two patents issued to Monsanto cover various aspects of its Roundup Ready technology, including a seed incorporating the genetic alteration.

Monsanto sells, and allows other companies to sell, Roundup Ready soybean seeds to growers who assent to a special licensing agreement. That agreement permits a grower to plant the purchased seeds in one (and only one) season. He can then consume the resulting crop or sell it as a commodity, usually to a grain elevator or agricultural processor. But under the agreement, the farmer may not save any of the harvested soybeans for replanting, nor may he supply them to anyone else for that purpose. These restrictions reflect the ease of producing new generations of Roundup Ready seed. Because glyphosate resistance comes from the seed's genetic material, that trait is passed on from the planted seed to the harvested soybeans: Indeed, a single Roundup Ready seed can grow a plant containing dozens of genetically identical beans, each of which, if replanted, can grow another such plant—and so on and so on. The agreement's terms prevent the farmer from co-opting that process to produce his own Roundup Ready seeds, forcing him instead to buy from Monsanto each season.

Petitioner Vernon Bowman is a farmer in Indiana who, it is fair to say, appreciates Roundup Ready soybean seed. He purchased Roundup Ready each year, from a company affiliated with Monsanto, for his first crop of the season. In accord with the agreement just described, he used all of that seed for planting, and sold his entire

crop to a grain elevator (which typically would resell it to an agricultural processor for human or animal consumption).

Bowman, however, devised a less orthodox approach for his second crop of each season. Because he thought such late-season planting “risky,” he did not want to pay the premium price that Monsanto charges for Roundup Ready seed. He therefore went to a grain elevator; purchased “commodity soybeans” intended for human or animal consumption; and planted them in his fields. Those soybeans came from prior harvests of other local farmers. And because most of those farmers also used Roundup Ready seed, Bowman could anticipate that many of the purchased soybeans would contain Monsanto’s patented technology. When he applied a glyphosate-based herbicide to his fields, he confirmed that this was so; a significant proportion of the new plants survived the treatment, and produced in their turn a new crop of soybeans with the Roundup Ready trait. Bowman saved seed from that crop to use in his late-season planting the next year—and then the next, and the next, until he had harvested eight crops in that way. Each year, that is, he planted saved seed from the year before (sometimes adding more soybeans bought from the grain elevator), sprayed his fields with glyphosate to kill weeds (and any non-resistant plants), and produced a new crop of glyphosate-resistant—i.e., Roundup Ready—soybeans.

After discovering this practice, Monsanto sued Bowman for infringing its patents on Roundup Ready seed. Bowman raised patent exhaustion as a defense, arguing that Monsanto could not control his use of the soybeans because they were the subject of a prior authorized sale (from local farmers to the grain elevator). The District Court rejected that argument, and awarded damages to Monsanto of \$84,456. The Federal Circuit affirmed. It reasoned that patent exhaustion did not protect Bowman because he had “created a newly infringing article.” The “right to use” a patented article following an authorized sale, the court explained, “does not include the right to construct an essentially new article on the template of the original, for the right to make the article remains with the patentee.” Accordingly, Bowman could not “‘replicate’ Monsanto’s patented technology by planting it in the ground to create newly infringing genetic material, seeds, and plants.”

We granted certiorari to consider the important question of patent law raised in this case, and now affirm.

II

The doctrine of patent exhaustion limits a patentee’s right to control what others can do with an article embodying or containing an invention. Under the doctrine, the initial authorized sale of a patented item terminates all patent rights to that item. And by “exhaust[ing] the [patentee’s] monopoly” in that item, the sale confers on the purchaser, or any subsequent owner, “the right to use [or] sell” the thing as he

sees fit. *United States v. Univis Lens Co.*, 316 U.S. 241, 249–250 (1942). We have explained the basis for the doctrine as follows: “[T]he purpose of the patent law is fulfilled with respect to any particular article when the patentee has received his reward ... by the sale of the article”; once that “purpose is realized the patent law affords no basis for restraining the use and enjoyment of the thing sold.” *Id.*, at 251.

Consistent with that rationale, the doctrine restricts a patentee’s rights only as to the “particular article” sold, *ibid.*; it leaves untouched the patentee’s ability to prevent a buyer from making new copies of the patented item. The purchaser of the patented machine ... does not acquire any right to construct another machine either for his own use or to be vended to another. Rather, a second creation of the patented item calls the monopoly, conferred by the patent grant, into play for a second time. That is because the patent holder has “received his reward” only for the actual article sold, and not for subsequent recreations of it. *Univis*, 316 U.S., at 251. If the purchaser of that article could make and sell endless copies, the patent would effectively protect the invention for just a single sale. Bowman himself disputes none of this analysis as a general matter: He forthrightly acknowledges the “well settled” principle “that the exhaustion doctrine does not extend to the right to ‘make’ a new product.”

Unfortunately for Bowman, that principle decides this case against him. Under the patent exhaustion doctrine, Bowman could resell the patented soybeans he purchased from the grain elevator; so too he could consume the beans himself or feed them to his animals. Monsanto, although the patent holder, would have no business interfering in those uses of Roundup Ready beans. But the exhaustion doctrine does not enable Bowman to make additional patented soybeans without Monsanto’s permission (either express or implied). And that is precisely what Bowman did. He took the soybeans he purchased home; planted them in his fields at the time he thought best; applied glyphosate to kill weeds (as well as any soy plants lacking the Roundup Ready trait); and finally harvested more (many more) beans than he started with. That is how “to ‘make’ a new product,” to use Bowman’s words, when the original product is a seed. Because Bowman thus reproduced Monsanto’s patented invention, the exhaustion doctrine does not protect him.

Were the matter otherwise, Monsanto’s patent would provide scant benefit. After inventing the Roundup Ready trait, Monsanto would, to be sure, “receiv[e] [its] reward” for the first seeds it sells. *Univis*, 316 U.S., at 251. But in short order, other seed companies could reproduce the product and market it to growers, thus depriving Monsanto of its monopoly. And farmers themselves need only buy the seed once, whether from Monsanto, a competitor, or (as here) a grain elevator. The grower could multiply his initial purchase, and then multiply that new creation, ad infinitum—each time profiting from the patented seed without compensating its inventor. Bowman’s late-season plantings offer a prime illustration. After buying

beans for a single harvest, Bowman saved enough seed each year to reduce or eliminate the need for additional purchases. Monsanto still held its patent, but received no gain from Bowman's annual production and sale of Roundup Ready soybeans. The exhaustion doctrine is limited to the "particular item" sold to avoid just such a mismatch between invention and reward. ...

Bowman principally argues that exhaustion should apply here because seeds are meant to be planted. The exhaustion doctrine, he reminds us, typically prevents a patentee from controlling the use of a patented product following an authorized sale. And in planting Roundup Ready seeds, Bowman continues, he is merely using them in the normal way farmers do. Bowman thus concludes that allowing Monsanto to interfere with that use would "creat[e] an impermissible exception to the exhaustion doctrine" for patented seeds and other "self-replicating technologies.

But it is really Bowman who is asking for an unprecedented exception—to what he concedes is the "well settled" rule that "the exhaustion doctrine does not extend to the right to 'make' a new product." Reproducing a patented article no doubt "uses" it after a fashion. But as already explained, we have always drawn the boundaries of the exhaustion doctrine to exclude that activity, so that the patentee retains an undiminished right to prohibit others from making the thing his patent protects. See, e.g., *Cotton-Tie Co. v. Simmons*, 106 U.S. 89, 93–94 (1882) (holding that a purchaser could not "use" the buckle from a patented cotton-bale tie to "make" a new tie). That is because, once again, if simple copying were a protected use, a patent would plummet in value after the first sale of the first item containing the invention. The undiluted patent monopoly, it might be said, would extend not for 20 years (as the Patent Act promises), but for only one transaction. And that would result in less incentive for innovation than Congress wanted. Hence our repeated insistence that exhaustion applies only to the particular item sold, and not to reproductions.

Nor do we think that rule will prevent farmers from making appropriate use of the Roundup Ready seed they buy. Bowman himself stands in a peculiarly poor position to assert such a claim. As noted earlier, the commodity soybeans he purchased were intended not for planting, but for consumption. Indeed, Bowman conceded in deposition testimony that he knew of no other farmer who employed beans bought from a grain elevator to grow a new crop. So a non-replicating use of the commodity beans at issue here was not just available, but standard fare. And in the more ordinary case, when a farmer purchases Roundup Ready seed qua seed—that is, seed intended to grow a crop—he will be able to plant it. Monsanto, to be sure, conditions the farmer's ability to reproduce Roundup Ready; but it does not—could not realistically—preclude all planting. No sane farmer, after all, would buy the product without some ability to grow soybeans from it. And so Monsanto, predictably enough, sells Roundup Ready seed to farmers with a license to use it to make a crop. Applying our usual rule in this context therefore will allow farmers to benefit from

Roundup Ready, even as it rewards Monsanto for its innovation.

Still, Bowman has another seeds-are-special argument: that soybeans naturally “self-replicate or ‘sprout’ unless stored in a controlled manner,” and thus “it was the planted soybean, not Bowman” himself, that made replicas of Monsanto’s patented invention. Brief for Petitioner 42; see Tr. of Oral Arg. 14 (“[F]armers, when they plant seeds, they don’t exercise any control ... over their crop” or “over the creative process”). But we think that blame-the-bean defense tough to credit. Bowman was not a passive observer of his soybeans’ multiplication; or put another way, the seeds he purchased (miraculous though they might be in other respects) did not spontaneously create eight successive soybean crops. As we have explained, Bowman devised and executed a novel way to harvest crops from Roundup Ready seeds without paying the usual premium. He purchased beans from a grain elevator anticipating that many would be Roundup Ready; applied a glyphosate-based herbicide in a way that culled any plants without the patented trait; and saved beans from the rest for the next season. He then planted those Roundup Ready beans at a chosen time; tended and treated them, including by exploiting their patented glyphosate-resistance; and harvested many more seeds, which he either marketed or saved to begin the next cycle. In all this, the bean surely figured. But it was Bowman, and not the bean, who controlled the reproduction (unto the eighth generation) of Monsanto’s patented invention.

Our holding today is limited—addressing the situation before us, rather than every one involving a self-replicating product. We recognize that such inventions are becoming ever more prevalent, complex, and diverse. In another case, the article’s self-replication might occur outside the purchaser’s control. Or it might be a necessary but incidental step in using the item for another purpose. Cf. 17 U.S.C. § 117(a)(1) (“[I]t is not [a copyright] infringement for the owner of a copy of a computer program to make ... another copy or adaptation of that computer program provide[d] that such a new copy or adaptation is created as an essential step in the utilization of the computer program”). We need not address here whether or how the doctrine of patent exhaustion would apply in such circumstances. In the case at hand, Bowman planted Monsanto’s patented soybeans solely to make and market replicas of them, thus depriving the company of the reward patent law provides for the sale of each article. Patent exhaustion provides no haven for that conduct. We accordingly affirm the judgment of the Court of Appeals for the Federal Circuit.

Madey v. Duke University
307 F.3d 1351 (Fed Cir. (2002))

[Madey owned a patent on certain laser technology. Duke practiced the patent as part of a research project under a federally funded grant.]

Madey argues, and we agree, that the district court had an overly broad concep-

tion of the very narrow and strictly limited experimental use defense. The district court stated that the experimental use defense inoculated uses that "were solely for research, academic, or experimental purposes," and that the defense covered use that "is made for experimental, non-profit purposes only." *Id.* at 9. Both formulations are too broad and stand in sharp contrast to our admonitions in *Embrex* and *Roche* that the experimental use defense is very narrow and strictly limited. In *Embrex*, we followed the teachings of *Roche* and *Pitcairn* to hold that the defense was very narrow and limited to actions performed "for amusement, to satisfy idle curiosity, or for strictly philosophical inquiry." *Embrex*, 216 F.3d at 1349, 55 USPQ2d at 1163. Further, use does not qualify for the experimental use defense when it is undertaken in the "guise of scientific inquiry" but has "definite, cognizable, and not insubstantial commercial purposes." *Id.* ...

Our precedent clearly does not immunize use that is in any way commercial in nature. Similarly, our precedent does not immunize any conduct that is in keeping with the alleged infringer's legitimate business, regardless of commercial implications. For example, major research universities, such as *Duke*, often sanction and fund research projects with arguably no commercial application whatsoever. However, these projects unmistakably further the institution's legitimate business objectives, including educating and enlightening students and faculty participating in these projects. These projects also serve, for example, to increase the status of the institution and lure lucrative research grants, students and faculty. ...

In the present case, the district court attached too great a weight to the nonprofit, educational status of *Duke*, effectively suppressing the fact that *Duke*'s acts appear to be in accordance with any reasonable interpretation of *Duke*'s legitimate business objectives. ... The correct focus should not be on the non-profit status of *Duke* but on the legitimate business *Duke* is involved in and whether or not the use was solely for amusement, to satisfy idle curiosity, or for strictly philosophical inquiry.