

CHAPTER 5: NOVELTY UNDER THE AIA

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Chapter 5

NOVELTY UNDER THE AIA

[A]ntiquity envies new improvements, and novelty is not content to add without defacing.

—**Francis Bacon**¹

Ideas won't keep. Something must be done about them.

—**Alfred North Whitehead**²

PREFACE TO CHAPTERS 5 & 6: THE NEW AND THE OLD IN NOVELTY

To obtain a patent, you must do something *new*. This is bedrock patent law, and has been for a long time, at least since the seventeenth century. Before delving into the details of novelty law, however, we might first reflect on why novelty is required at all. Consider the following passage from a stellar nineteenth century treatise:

An inventor does not become entitled to a patent merely by exercising his creative faculties in the production of an art [i.e., process] or instrument. The consideration for the grant of his exclusive privilege is the benefit which he confers upon the public by placing in their hands a means through the use of which their wants may be supplied. If the same means has already been made available to them by the inventive genius of a prior inventor, or if though they receive it first from him it is incapable of useful application, no benefit results to them from his inventive act and there is no consideration for his patent. When this want of consideration becomes apparent before a patent has been granted it will be refused; when afterward, the patent is defeated.

¹ WILLIAM ROBINSON, THE LAW OF PATENTS FOR USEFUL INVENTIONS § 22, at 305 (1890). Robinson analogizes the novelty of an invention to the consideration necessary to make a contract binding. This analogy makes the policy rationale behind the novelty requirement clear: society's contract with the inventor is binding because the inventor has given something of value (due to its newness) in exchange for the patent. Indeed, if the inventor's product is truly new, then the patent does not restrict the public's pre-existing economic freedoms for the public is not constrained in using anything that it previously had.

Yet although the concept of novelty is relatively straightforward, the law's attempt to define novelty with specificity gives rise to a good amount of complexity. The key statute here is

¹ Quoted in 2 THE GREAT IDEAS: A SYNTOPICON OF GREAT BOOKS OF THE WESTERN WORLD (M. Adler ed., 1955), at 444.

² DIALOGUES OF ALFRED NORTH WHITEHEAD (2001 ed.), at 98.

35 U.S.C. § 102 and it generates a host of issues concerning what, precisely, is considered the “new” and what is considered the “old” or, in patent law terms, the “prior art.” Our job in this Chapter and the next is to make sense of these issues and to show how they relate to the central concept of newness in patent law.

The task of teaching the law of novelty—the law of § 102—has become more challenging because, as of 2013, the U.S. patent system now operates under two parallel system for defining novelty and prior art. The current or “new law” is based on the “first-inventor-to-file” system established by the America Invents Act of 2011, 125 Stat. 284 (2011), or “AIA” for short. Under the AIA version of § 102, novelty is tested *as of the date that the patent application was first filed*, subject to certain exceptions. By contrast, the “old law” of novelty, which will be covered in Chapter 6, is based on the “first-to-invent” system that tests novelty *as of the date of invention*, again with certain exceptions. As we will explain below, both of the two systems must be studied because, for years to come, the old system will remain applicable to most issued patents (and thus to most patents in litigation) while the AIA system will apply to all new patent applications.

In approaching all issues of novelty, you must first decide what version of § 102 applies, the AIA or the pre-AIA version. To explain the transition rule between two systems, we need to introduce the statutory concept of an “**effective filing date**.” The adjective “effective” is necessary because patent applications are often filed in lengthy “chains” or lineages, with each later application entitled to claim, as its “effective” filing date, the filing date of an earlier application filed in the United States or in a foreign country. The earliest application in a chain is called the “parent” application, and provided certain rules are followed, each subsequent application can use the parent application’s filing date as its “effective filing date.”

Given the importance of the “effective filing date,” it is worthwhile to set forth the explicit statutory definition of the term, which is found in 35 U.S.C. § 100(i)(1):

- (i) (1) The term “effective filing date” for a claimed invention in a patent or application for patent means—
 - (A) if subparagraph (B) does not apply, the actual filing date of the patent or the application for the patent containing a claim to the invention; or
 - (B) the filing date of the earliest application for which the patent or application is entitled, as to such invention, to a right of priority under section 119, 365 (a), or 365 (b) or to the benefit of an earlier filing date under section 120, 121, or 365 (c).

Despite its apparent complexity, this statute is easy to explain. The default rule (A) is that the effective filing date is the “**actual filing date**” of that application—meaning the day it was actually filed at the U.S. PTO. Part (B) of the definition, however, allows the applicant to claim an earlier effective filing date based on: (i) an application filed in a foreign country (§ 119(a)); (ii) an application under the Patent Cooperation Treat (§ 365); (iii) a U.S. provisional application (§119(e)); or (iv) a prior-filed U.S. application (§ 120 in most cases, and § 121 where the PTO has required a divisional application).

Section 119(a) is especially important, for it implements the 1883 **Paris Convention**—a 19th century treaty discussed in Chapter 1 that, among other things, gives inventors the right to file patent applications covering the same subject matter in any “member” country (any country agreeing to the treaty, which is now essentially all countries) and to have all applications treated as if they had all been filed on the same date that the first application was filed, *provided* that all the applications are all filed within *one year* of the first and each claims priority to the first. Thus,

if an inventor files a patent application in Korea on January 10, 2017, and then files a patent application on the same invention at the U.S. PTO one year later (on January 10, 2018), the U.S. PTO will recognize the application as if it had been filed on January 10, 2017—i.e., the same date as the Korean application was filed (provided, of course, that the inventor’s attorney claims priority to the earlier Korean filing date in the U.S. application). Because the concept of an “effective filing date” is often defined by a filing date in a foreign patent office, this book will at times use the term “**global effective filing date**” to emphasize the global nature of the inquiry into filing date.

Now that we have introduced the statutory concept of an “effective filing date,” the transition rule from the pre-AIA system to the new AIA system is fairly simple to explain, and fairly simple to remember. The new AIA system applies to all patent applications that contain any claim entitled to a global effective filing date *on or after* March 16, 2013. *See* AIA § 3(n)(1), 125 Stat. at 293. Now is there an easy way to remember this transition date? We think there is, and indeed, throughout this chapter we will supply little mnemonics designed to help you remember certain key rules of the two systems.³ The month of this crucial date is easy to remember because it is March, and the new system marches the U.S. forward into a new era of patent law. The day and year are easy to remember because the digits of the day (16th) sum to 7 (1 + 6), and that lucky sum is appropriate because the transition date will be lucky for some (especially accused infringers). The year of the transition is 2013 or just ’13, and that unlucky number is also appropriate because the transition will be unlucky for some parties (usually patentees).

One feature of the dividing line is that, in general, the rule favors application of the AIA system. Thus, if an application is filed *exactly on* March 16, 2013, it is subject to the new system. Similarly, if *any single claim* in the application is entitled to a filing date of March 16, 2013, or later, the *whole* application is subject to the AIA. To have the pre-AIA system to apply to it, the *entirety* of an application or patent must be entitled to an effective filing date *before* March 16, 2013.

Note that this dividing line means that the two systems for determining novelty will continue to coexist for a good many years. While all newly filed patent applications are currently being evaluated under the AIA, those with effective filing dates before March 16, 2013, remain subject to the pre-AIA approach. The end result of the transition is that, for the next two decades, many issued patents will continue to be governed by the old first-to-invent system, even as most (and eventually all) pending patent applications will be governed by the new first-to-file system. Attorneys who intend to practice during the next twenty years will have to understand both systems.

Although the dividing line between the AIA and pre-AIA law is fairly bright-line, there is one nuance that demands attention. Because the AIA imposes its novelty system on any application in which *at least one present or past claim* is entitled to a filing date of March 16, 2013, or later, the AIA system could be applied to claims that initially were subject to the pre-AIA priority system. How so?

The nuance here involves continuation-in-part applications. When an applicant files a continuation application (an application that, as explained in Chapter 1, claims the effective filing

³ In supplying these mnemonics, we realize that many readers may find them humorous. Please do chuckle—humor helps in memorization.

date of an earlier “parent” U.S. application), the applicant may choose to include new matter in the application. Any claim supported by the new matter is then entitled only to the actual filing date of the new application, and the application is considered a continuation-*in-part* application.⁴

The end result of this nuance is that parties prosecuting any pending patent application (meaning currently pending on or after March 16, 2013) have the ability to switch from the pre-AIA system into the AIA system. All they have to do is to file a continuation application, add some new matter (e.g., disclosing an additional tweak to their technology), and then add at least one new claim that requires the new matter for support (e.g., the previously claimed invention combined with the new tweak). Even if that new claim is ultimately deemed not patentable, the application will have contained a claim that would be entitled to an effective filing date on or after March 16, 2013—hence the whole of the application will be then judged under the new AIA system (albeit with one exception discussed below!). Will many pending patent applicants chose to switch from the pre-AIA to the AIA system? Generally, we think “no” because the pre-AIA system is somewhat more favorable to patent applicants.

There is one situation in which an applicant might want to switch from the pre-AIA priority system to the AIA priority system. If a patent applicant under the pre-AIA system had been the first to file a patent application on the relevant invention but she believed that her application was likely to lose to an application filed by another inventor who invented first, then that first-to-file party would love to be able to switch to the AIA’s first-to-file system because the first-to-file generally wins under the AIA. Congress, however, thought of this incentive and provided that in such situations (where a party’s application previously included a claim entitled to a pre-AIA effective filing date but later was amended to include post-AIA claims), the old first-to-invent priority rules under pre-AIA § 102(g) and associated pre-AIA provisions still apply. See AIA § 3(n)(2). Thus, although the AIA’s general transition rule is that the new statute applies to any patent application containing at least one claim with an effective filing date on or after March 16, 2013, that general rule is subject to an exception: The old first-to-invent priority rules in pre-AIA § 102(g) continue to apply to any patent applications with some claims entitled to a pre-March 16, 2013 effective filing date.

Now that we have explained the transition rule between the old and new systems of priority, we can begin the main part of this Chapter, which will cover the AIA’s version of § 102 and the newer system for defining novelty. If, however, you need to evaluate the novelty of a patent or patent application still governed by the pre-AIA version of § 102, you should turn to Chapter 6.

⁴ Theoretically, new claims supported by new matter *should* be entitled only to the new actual filing date. As discussed in Chapter 4, new matter cannot be inserted into an application if the application is to retain its entitlement to an earlier filing date. The “penalty” for adding new material to support new claims is always that the new claims are entitled only to priority as of the date that all of the supporting material was filed at the PTO.

A. PRIOR ART UNDER AIA § 102(a)

The analysis for determining novelty under the AIA can be broken down into three parts, which correspond to the three subchapters in this Chapter.

The first part of novelty analysis (to be covered in this subchapter) is determining whether any particular item can qualify, under one or more the relevant prior art categories in § 102(a), as a piece of prior art—i.e., whether it can qualify as what is often called a prior art “**reference**.” The relevant inquiry here turns on (i) whether the item fits within a relevant category of things that potentially qualify as prior art, and (ii) whether the item is truly “prior” art to a particular patent application —i.e., whether the **effective date of the reference** (the precise date when a reference is deemed to have entered the art) came *before* the “**critical date**” for testing novelty. Under the AIA, the critical date for testing novelty is always the effective filing date of patent application being evaluated. Thus, in discussing the AIA, we will often simply say that novelty is tested as of the effective filing date of the application being evaluated. In Chapter 6, however, we will see that the law under pre-AIA law is—as is often true—more complicated, and the critical date for evaluating whether a reference is prior art varies. The term “critical date” was developed in the pre-AIA era as a convenient shorthand for the date to test novelty.

The two subcomponents of the novelty inquiry are interrelated, with a single legal standard typically controlling both *whether* and *when* something can be considered part of the prior art. Consider, for example, the concept of a “printed publication,” which is a statutory category of prior art under the AIA’s § 102(a)(1). The case law defining “printed publications” requires, roughly speaking, a certain degree of public access in order for something to qualify as a “printed publication,” and that case law helps to define not just whether but also when something qualifies as prior art. For example, the public accessibility standard explains why a widely-circulated magazine such as *Science* does qualify as a “printed publication” (because the public has access to it), but a letter mailed to a single person and then filed in a desk drawer does not (because the public does not have access to that). The same legal standard, however, also helps in determining *when* something is recognized as entering the prior art. Does an issue of *Science* become part of the prior art on the day it is fully printed and the publisher places copies in the mail? (No, because the public still does not have access to the journal.) What about when the copy of the magazine has reached a public library, is indexed in the library’s catalog, and is available for reading? (Yes, because the public does have access, even if no member of the public has yet read the magazine.)

The second part of novelty analysis under the AIA is to determine whether a reference apparently qualifying as prior art under § 102(a) can be excluded from the prior art under the exceptions in § 102(b). This topic will be covered in subchapter B, *infra*, of this Chapter.

Once the universe of prior art references is determined by applying the rules in § 102(a) and the exceptions in §102(b), it is possible to conduct the third and final part of the novelty analysis, which requires a very careful analysis of whether the information disclosed in any **single** prior art reference is sufficient to **anticipate** the relevant invention—i.e., to render the invention non-novel. The standard for anticipation will be discussed in subchapter C, *infra*. It is important to emphasize that a reference, such a magazine article, could fully qualify as a piece of prior art even though the reference does not anticipate the invention. Moreover, a lawyer analyzing the validity of a patent needs to know the entire universe of references qualifying as prior art, including references that clearly do not anticipate an invention, because prior art references are

also relevant in applying other legal doctrines (such as the obviousness doctrine covered in Chapter 7).

Without further ado, let us turn to the topic of this subchapter—examining the categories of prior art listed in AIA § 102(a). The relevant statutory language is:

35 U.S. Code § 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.

That statutory subsection provides six categories of potential prior art references. The five contained in subsection (a)(1) cover things (i) described in a printed publications; (ii) patented; (iii) in public use; (iv) on sale; and (v) otherwise available to the public. (We have changed the order of the first two categories for reasons that will be explained later on.) The five categories of prior art in subsection (a)(1) cover what we will call “one-time-period” prior art references because, for these categories of prior art, an attorney can examine an item *at a single point in time* and determine based on *then-existing conditions* whether the item does, or does not, qualify as prior art *at that time*.

By contrast, the sixth category of prior art—the one contained in subsection (a)(2)—contains what we will call “two-time-period” prior art references. This category includes any patent application filed by another inventor (i.e., not filed by the inventor listed in the application being evaluated for novelty) if that application *eventually* is published (or deemed published) as U.S. patent application or is issued as a U.S. patent. The analysis thus requires information about two separate time periods. Another inventor’s patent application qualifies as a reference under § 102(a)(2) but only if (i) it has an effective filing date prior to the filing date of the patent application being evaluated; and (ii) it is *eventually* issued as a U.S. patent or published (or deemed published) as a U.S. patent application. For such “two-time-period” category of prior art, the prior art status of the reference at a given point in time often depends on future events.

For example, consider a patent application filed by another inventor in the Germany Patent Office on January 10, 2018. Is that application prior art to a U.S. application filed at the USPTO a few weeks later on February 1, 2018? If we were to ask that question in June of 2018, the answer may well be that we can’t know ... yet. The German application will be prior art *if* it matures into an issued U.S. patent or a published (or deemed published) U.S. application. Those conditions could occur in the future if the German applicant files a U.S. application on or before January 10, 2019 (which would allow the German applicant to obtain an “effective filing date” of January 10, 2018, for the U.S. application), and that application then gets issued as a U.S. patent or is published (or deemed published) as a U.S. application. But in June of 2018, those events have yet to happen, so it’s not yet known whether the German application will be prior art to the

U.S. application. Note, however, that if either of those events (issuance as a U.S. patent or publication as a U.S. patent application) do occur in the future, the effective date of the reference is the date when the patent application was “effectively filed”—i.e., the global effective filing date, which here would be the filing date in Germany. In other words, once the reference does enter the prior art (at the time of publication or issuance), it is backdated to an earlier time (the global effective filing date).

The phrases “one-time-period” and “two-time-period” prior art are also really great mnemonics for remembering which types of prior art fall into subsections (a)(1) and (a)(2) of the statute. As we will see later, the exceptions in subsections (b)(1) and (b)(2) parallel (a)(1) and (a)(2), so the mnemonic has a double payoff.

In sum, the structure of the AIA’s § 102 is:

AIA Version of § 102 (Prior Art Includes Art Existing <i>Before</i> the Effective Filing Date of the Application Being Evaluated)	
(a)(1) “One-time-period” prior art:	(i) Printed publications
	(ii) Patented.
	(iii) In public use.
	(iv) On sale.
	(v) Otherwise available to the public.
(a)(2) “Two-time-period” prior art:	(vi) Disclosed in a U.S. patent application, filed by another, that eventually is published as a U.S. patent application or issued as a U.S. patent.

1. One-Time-Period Prior Art in § 102(a)(1)

Below, we discuss the five categories of prior art listed in subsection (a)(1). These five categories apply *universally*—i.e., they apply to references created *anywhere* in the world by *anyone*, including those references created by the inventor herself. As we will see in subchapter B, some references created by the inventor herself might be excluded from the prior art under one of the exceptions in §102(b), but presumptively those references are included in the analysis under § 102(a).

We should also note that the cases in this section were decided under various provisions of the pre-AIA version of § 102. The operative legal language is, however, identical even though the subsection in which the legal language existed and the timing of the inquiry were not necessarily the same. We have edited the cases so that the different subsection citations and different timing inquiries do not cause confusion.

We also want to make one other introductory point. With the exception of the new category “otherwise available to the public,” all of the prior art categories in § 102(a)(1) are drawn from the pre-AIA “**statutory bar**” provisions, which barred the issuance of a patent if the invention was patented, described in a printed publications, in public use or on sale more than one

year before the application filing date. Strictly speaking, the statutory bars of pre-AIA law were not considered “prior art” because “prior art” under pre-AIA law technically referred to items that were *prior to the date of invention* (which could have occurred years before the application filing date). Despite that technical difference, many and perhaps even most lawyers and judges would often refer to references under the statutory bars to be “prior art.” Moreover, the statutory bar provisions of the pre-AIA statute were very similar to § 102(a)(1), only with a different timing rule: The critical date for the statutory bars was *one year prior to the application filing date*, whereas the critical date for AIA § 102(a)(1) is always *the global effective filing date*.

Even that difference is not so large as it may first seem because, while the AIA § 102(a) includes any prior art references arising prior to an application’s effective filing date, AIA § 102(b) excludes some of those references if they arose within a year prior to filing. The general policy of patent law—both before and after the AIA—is to include into the prior art most publicly disclosed and used technology, including that disclosed and used *by the patent applicant herself*, unless Congress has provided a specific exemption to keep the matter from entering the prior art. And under both AIA and pre-AIA law, those exemptions *never* cover information that was publicly available more than one year before the patent application’s filing date.

We make this introductory point because, in the cases that follow, you will sometimes see the terms “statutory bar” or simply “bar.” We have edited the cases to reduce the number of times such terms appear, but sometimes the original source used the term so frequently that editing the term out would be more distracting than leaving it as is. In general, we believe that you should read references such as “the statutory bar in § 102” as meaning “the prior art category in § 102.”

It is possible—though we think generally unlikely—that the prior art categories in the AIA’s § 102(a)(1) could be interpreted differently than identical categories in the statutory bars provisions of pre-AIA § 102. Indeed, in at least one instance, some commentators and even the PTO itself have taken the position that one category of prior art (“in public use”) should be interpreted much differently under the AIA than it was under pre-AIA law. See the discussion below concerning *Metallizing Engineering Co. v. Kenyon Bearing & Auto Parts*, 153 F.2d 516 (2d Cir. 1946). In most circumstances, however, the vast majority of commentators tend to agree that the pre-AIA law is likely to be followed for the simple reason that, in enacting the new statute, Congress kept the old categories.

We now turn to that case law. For reasons that will become obvious, we begin with the category of “described in a printed publication” before turning to “patented” art.

a. “Described in a Printed Publication”

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] because it had already been described in a printed publication [at the relevant time when novelty was tested under the pre-AIA version of § 102]. We affirm.

BACKGROUND

A.

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. ...

DISCUSSION

...

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]. 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* [890 F.2d 1158, 1159 (Fed. Cir.1989)], *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 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 [§ 102]. *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” category of prior art] 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” [under § 102].

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” [category of prior art] to instances in which copies of a reference were actually offered for distribution. *MIT*, 774 F.2d at 1108–10.⁴

⁴ With 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 [§ 102]. Furthermore, a presentation that includes a transient

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.* 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]. 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] “printed publication” inquiry.

C.

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

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

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].

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]). 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] 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] 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 [§ 102]. 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].

CONCLUSION

For the aforementioned reasons, the decision of the Board is affirmed.

NOTES ON THE PUBLICATION STANDARD

1. The Limits of Ephemeral Publication. If you had a client who had made a presentation similar to the one in *Klopfenstein*, but using a computer-based slideshow program (e.g., PowerPoint) followed by a short-duration posting on the internet, would this be a printed publication? Cf. *SRI Intern'l, Inc. v. Internet Security Systems, Inc.*, 511 F. 3d 1186, 1197 (Fed. Cir. 2008) (holding seven-day posting on the internet, “not catalogued or indexed in a meaningful way,” is not a printed publication unless additional evidence of public accessibility can be found).

What if your client had delivered a lecture to a technical audience and made an abstract of the talk “available only upon individual request”? See *Norian Corp. v. Stryker Corp.*, 363 F.3d 1321, 1330 (Fed. Cir. 2004) (not a publication at least if requests and dissemination are not proven).

Klopfenstein itself has proved to be quite controversial. One commentator has argued that the decision “seems sure to result in a further stifling of scholarly discourse prior to the filing of patent applications” and that the court departed from “previous caselaw [which] had required the distribution of at least some copies or the indexing and cataloguing of at least one physical copy of a reference before such information would be considered patent-defeating prior art.” Margo A. Bagley, *Academic Disclosure and Proprietary Rights: Putting Patents in Their Proper Place*, 47 B.C. L. REV. 217, 221 (2006). By contrast, another commentator contends that the case law had long emphasized public accessibility as the touchstone of publication and that universities should respond to the decision by “giv[ing] faculty a reason to care about patentability issues.” Sean B. Seymore, *The “Printed Publication” Bar After Klopfenstein: Has the Federal Circuit Changed the Way Professors Should Talk About Science?* 40 AKRON L. REV. 493, 497 (2007).

2. Oral Presentations as Prior Art. Prior to the enactment of the AIA, one standard question was whether an oral presentation alone could constitute “printed publication.” In other words, if the presentation in *Klopfenstein* had not included written slides shown to the audience and posters, would it still be considered prior art? The AIA version of § 102(a), however, now includes a new catch-all category “otherwise available to the public,” and that category probably makes the question largely moot. It is possible that the category of “printed” publication cannot be stretched to include oral presentations, but even if that’s so, the catch-all category of “otherwise available to the public” would still be applicable. Of course, it’s possible that the lack of slides and posters would be factors in the analysis in deciding whether the information was truly “available” to the public, but the oral presentation would not be *per se* outside the prior art merely because it is not “printed.”

3. Norms of Confidentiality. Note this language in the *Klopfenstein* opinion:

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.”

It may be expected that this will engender future litigation, given the difficulty of making this assessment and what may be at stake.

4. “Enough Currency to Make the Work Part of the Possessions of the Art.”

Jockmus v. Leviton, 28 F.2d 812 (2d Cir. 1928), an opinion by Learned Hand, established the important principle that, for purposes of the patent law, printed publications are not limited to formal publications such as widely circulated magazines and newspapers. The case itself involved a commercial catalogue of electric supplies sold by a German company. At least 50 copies of the catalogue were circulated, and it was translated into French. Judge Hand reasoned that a work qualifies as a printed publication provided that it has “enough currency to make the work part of the possessions of the art.” *Id.* at 813. Widely circulated catalogues meet that standard, he reasoned, because “[a] single copy in a library, though more permanent, is far less fitted to inform the craft than a catalogue freely circulated, however ephemeral its existence; for the catalogue goes direct to those whose interests make them likely to observe and remember whatever it may contain that is new and useful.” *Id.* at 813-14. *Jockmus* is also frequently cited for the proposition that a prior art publication must *enable* the making of an invention to count as anticipatory prior art. See Chapter 5.C, *infra*.

On the question of what constitutes a publication, consider the case of *Aluminum Co. of Am. v. Reynolds Metal Co.*, 1989 U.S. Dist. LEXIS 15357 (N.D. Ill. Dec. 21, 1990), where the patent holder had, as per its obligations under a research contract with the Navy, issued a “progress letter” that was mailed to 33 recipients without any secrecy notice. In determining whether the letter was a printed publication for § 102 purposes, the court stated that “[a]t first glance, the [letter] does look like a publication” because the 33 copies were distributed not just to government groups, but to nongovernmental companies and individuals too. *Id.* at *4. Nonetheless, the court ultimately concluded that the progress letter was not a publication because the evidence showed that “within defense industry circles, the practice was to keep [such letters] under wraps” and to treat them as if they “had been marked ‘for your eyes only.’ ” *Id.* at *6–*7. Thus, the letter was *implicitly* confidential, and not accessible to the public.

5. Libraries and Accessibility. In *Jockmus*, Judge Hand compared the trade catalogue to a hypothetical “single copy in a library,” with the implicit suggestion that the library copy would constitute a printed publication. As discussed in *Klopfenstein*, the Federal Circuit decision in *In re Hall* confirms that Judge Hand was correct in assuming a single copy of work in a library can constitute a publication *if it is properly indexed by subject matter*. Another case mentioned in *Klopfenstein*, *In re Cronyn*, 890 F.2d 1158 (Fed. Cir. 1989), shows the other side of the line: If copies of student theses are not indexed “in a meaningful way” or otherwise made accessible to the public, then the theses do not count as publications even though they are publicly available in a college library.

Two other cases help to underscore the need for true public accessibility:

a. In *In re Bayer*, 568 F.2d 1357 (C.C.P.A. 1978), a master's thesis had been submitted to a university library but had not yet been indexed and placed in the public catalogue prior to the critical date. The PTO Board of Appeals held that the thesis constituted a publication because it was available to the public at the library and "the members of the graduate committee [that reviewed the thesis] could have transmitted the information necessary for obtaining the thesis to any number of other people having an interest in its subject matter." *Id.* at 1359. Relying on Judge Hand's reasoning in *Jockmus*, the court reversed the PTO and held that the thesis was not a publication at the relevant time. "[S]ince appellant's thesis could have been located in the university library only by one having been informed of its existence by the faculty committee, and not by means of the customary research aids available in the library, the probability of public knowledge of the contents of the [thesis] was virtually nil." *Id.* at 1361 (citations and quotations omitted).

b. In *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931 (Fed. Cir. 1990), the court held that four reports housed in a private corporate library did not qualify as printed publications:

The reports ... were not under security classification, and were distributed to approximately fifty persons or organizations involved in the [military] project. [One document] contained the legend "Reproduction or further dissemination is not authorized ... not for public release." The district court found that [the other three documents] "may have" contained such notices ... [because] they "were of the class of documents that would have been distributed with such a notice." The documents were housed in a library at the Mitre Corporation, the company having principal responsibility for developing [the military computer system]. Access to the library was restricted to persons authorized by Mitre...

The district court, referring to "the uncertainties of public access to the AESOP-B documents", found that Datapoint had failed to prove by clear and convincing evidence facts requiring a conclusion that these documents were "sufficient as prior publications, descriptive of the [invention]". The district court was unable to find that anyone could have had access to the documents by the exercise of reasonable diligence. We are unpersuaded that the evidence shows otherwise. Accordingly, we affirm that these documents were not printed publications.

Id. at 936–37. Would the reports have qualified as publications if the Mitre Corporation customarily allowed the public access to its library? What about if Mitre had allowed access to any member of the public willing to pay an access fee? *See In re Lister*, 583 F.3d 1307 (2009) (holding fee-for-access Westlaw database to be a publication).

Finally, note that the Federal Circuit has held that the accessibility of a document is judged by "whether interested members of the relevant public could obtain the information if they wanted to. If accessibility is proved, there is no requirement to show that particular members of the public actually received the information." *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1569 (Fed. Cir. 1988).

6. The Internet and Electronic Accessibility. Under the case law about libraries, are all websites publications? Does it matter whether the website has yet been indexed by an internet search engine such as Google or Bing?

Though the internet and other electronic databases are relatively new, the cases so far suggest that older, tried-and-true principles will be used in determining whether and when electronically-available documents qualify as “printed publications.” In *SRI Intern’l, Inc. v. Internet Security Systems, Inc.*, 511 F. 3d 1186, 1197 (Fed. Cir. 2008), for example, a split panel of the Federal Circuit held that an internet posting of a conference paper for seven days in 1997 was not a printed publication where it was “not catalogued or indexed in a meaningful way” and there was no other evidence of public accessibility. Judge Moore, in dissent, argued that the electronic version of the paper should have been viewed as a printed publication because it was stored in a subdirectory known to, and repeatedly cited by, “members of the relevant cyber community ... as a source for [materials about the relevant technical field].” *Id.* at 1201 (Moore, J., dissenting).

In *In re Lister*, 583 F.3d 1307 (2009), the Federal Circuit applied its library precedents to hold that a manuscript available through the Copyright Office’s website was not a printed publication because the Copyright Office supported searching only by the author’s last name and the first word in the title of the manuscript. Materials in the Copyright Office’s database are eventually available in two publicly-accessible commercial databases (Westlaw and Dialog) that do allow keyword searching of titles. The court held that such keyword searching does have a sufficient degree of publicly accessibility, but nonetheless held that the manuscript could still not qualify as a printed publication by the critical date where there was no evidence when the manuscript was available in the commercial databases. *Id.* at 1316-17. For further analysis of electronic and internet publications, see Eric W. Gutttag, *Applying the Printed Publication Bar in the Internet Age: Is it as Simple as Googling for Prior Art?*, 16 Va. J. L. & Tech. 1 (2011).

7. Time of Publication. A publication becomes public when it becomes available to at least one member of “the general public.” Thus a magazine or technical journal is effective as of its date of publication, i.e., when someone first receives it, rather than the date a manuscript was sent to the publisher or the date the journal or magazine was mailed. As was said in *In re Schlittler*, 234 F.2d 882, 887 (C.C.P.A. 1956):

[T]he mere placing of a manuscript in the hands of a publisher does not necessarily make it available to the public within the meaning of [the] authorities [reviewed].

After *Schlittler*, mere reception of a manuscript by a publisher does not constitute “publication” under § 102(a) or (b). Actual publication — i.e., availability to subscribers — is required. See, e.g., *Protein Found., Inc. v. Brenner*, 147 U.S.P.Q. 429 (1965); *Ex parte Hudson*, 18 U.S.P.Q.2d 1322 (Bd. App. & Int. 1990).

8. Grant Proposals. Is a proposal for a government grant a publication under § 102(a)? See *E.I. duPont de Nemours & Co. v. Cetus Corp.*, 19 U.S.P.Q.2d 1174 (N.D. Cal. 1990) (yes, where a list of such proposals was published and the proposal itself was available via the Freedom of Information Act); but see Daniel S. Hodgins & Michael J. Matula, *Government Grant Applications, Despite E.I. duPont de Nemours v. Cetus, Are Not Necessarily Prior Art*, 74 J. PAT. & TRADEMARK OFF. SOC’Y 241 (1992).

9. Defensive Publications. A firm sometimes seeks to publish a development for purely “defensive” purposes: It does not itself want a patent but it wants also to keep others from patenting the development. While any publication will do, some businesses specialize in catering to defensive publications. For example, one web-based firm offering defensive publication services, IP.com, Inc., explains that “[w]hen the cost of patenting outweighs the benefits afforded from patent rights, you should consider publishing technical disclosures with IP.com.” See http://ip.com/wp-content/uploads/2014/06/Technical_DisclosureFINAL.pdf. The firm touts its publications as being “[s]earchable by patent examiners” and capable of “[b]locking a competitor’s patent from issuing.” *Id.*

b. “Patented”

Issued patents often include a lengthy list of prior art patents that the examined considered in deciding whether to allow the patent to issue. From such lists, a reasonable observer of the patent system might conclude that the category of “patented” prior art was a very important category. Appearances, however, are deceptive. In the modern world, almost every patent issued anywhere also qualifies as prior art under *another* category of prior art and—here’s the really important point—qualifies under the other category *sooner*.

Consider, for example, all issued U.S. patents. It is true that issued U.S. patents qualify as “patented” prior art under § 102(a)(1) *as of the time they are issued*. But it is also true that all issued U.S. patents also qualify as prior art under § 102(a)(2) *as of the time the application was first filed*.

Now consider a patent issued solely by a foreign country (not the United States). For decades it has been true that all major foreign countries publish pending patent applications eighteen months after they are filed, and that publication time is almost always before the application could have issued as a patent. Thus, for example, a patent filed at the European Patent Office (EPO) in January of 2014 and issued in January of 2016 would have been published by the EPO in July of 2015. Because foreign patent offices publish applications in ways that are publicly accessible (typically, they are well-indexed and available via the internet), those foreign publications enter the prior art via the “printed publication” category. See, e.g., *Bruckelmyer v. Ground Heaters, Inc.*, 445 F.3d 1374 (Fed. Cir. 2006) (holding that two drawings in a “properly indexed and classified” patent application qualified as printed publications when the application was “laid open for inspection by the general public” 18 months after filing).

The upshot of all this is that, if you are presented with an issued patent and you are asked to determine when the information in the patent entered the prior, the answer is almost never “the date the patent issued because that’s when the document qualified as ‘patented’ prior art.” Almost invariably, the correct answer is some earlier date.

Even if, however, you are presented with the exceedingly rare circumstance in which a patent did not qualify as prior art sooner than its date of issue, it is still the case that the patent would almost always qualify *simultaneously* as a “printed publication,” provided that (as is true pretty much everywhere these days) the country’s issued patents were sufficiently well indexed and publicly accessible. Thus, defining what constitutes “patented” prior art is not too important because almost all patents simultaneously pass the rather liberal “printed publication” standard when they are issued as patents.

There is only one hypothetical situation in which the scope of the “patented” category of prior art matters. A patent would qualify as prior art only as “patented” art if: (i) it is a foreign patent; and (ii) the foreign patent office did not publish the patent, either as an application or as an issued patent, with a sufficient degree of public accessibility to meet the standard for qualifying as a “printed publication.” In that exceedingly rare circumstance, the issued patent would qualify as prior art only under the “patented” category, and the following points would be worthwhile to know:

NOTES ON “PATENTED” PRIOR ART

1. “Patented” Prior Covers Only What Is Protected by Exclusive Rights. The most important limitation on the category of “patented” prior art is that such art, if it does not also qualify also as a printed publication, “is a reference only for what is patented, i.e., for what it claims and not for what is disclosed in its specifications.” *Reeves Bros. v. United States Laminating Corp.*, 282 F. Supp. 118 (E.D.N.Y. 1966), *aff’d*, 417 F.2d 869 (2d Cir. 1969). The *Reeves Bros.* court reasoned that such a limiting interpretation on the category of “patented” prior art was dictated by the language of § 102, which “juxtaposes ‘patented’ ... with the phrase ‘described in a printed publication.’” 282 F. Supp. at 136. The statute does not make everything *described in a patent* into prior art, just what’s “patented.”

A qualification on the rule in *Reeves Bros.* is that the full disclosure of the foreign patent “may be resorted to if necessary to clarify the meaning of the words of the claim — *to determine what it is that the claims ‘patent’ but not to add to what they patent.*” *Bendix Corp. v. Balax, Inc.*, 421 F.2d 809, 813 (7th Cir. 1970). Such limited use of the foreign patent specification is consistent with *Reeves* because the foreign patent is still being used as prior art solely for the matter covered by exclusive rights. *See also Max Daetwyler Corp. v. Input Graphics, Inc.*, 583 F. Supp. 446, 455 (E.D. Pa. 1984) (also holding that “the specifications and drawings in the [foreign patent] can only be considered under [§ 102] to the extent that they help to explain the claims of the [foreign patent]”).

The *Reeves Bros.* decision means that, if you are citing as prior art something disclosed or described in a foreign patent but not at all covered by the patent claims, the justification for counting that material as prior art must be that the foreign patent is a printed publication. Matter disclosed but not claimed (or otherwise protected by exclusive rights) would not be prior art if the patent qualified only as “patented” prior art.

This limitation on the category of “patented” prior is, we shall emphasize again, almost never important today. Indeed, *Reeves Bros.* itself tends to prove the point: The case is a half century old. In 1966 and perhaps continuing for a few decades thereafter, some foreign patents might not have been sufficiently accessible to constitute printed publications, but that era is largely history now.

2. “Petty Patents” Qualify as “Patented” Art. The *Reeves Bros.* case also raises an interesting issue about what, precisely, qualifies as “patented” art. In *Reeves Bros.*, the foreign patent was a German “utility model” form of intellectual property. Utility model protection and other similar “petty patents” bear many similarities to full-fledged patents, with the major differences usually being that they carry a shorter term of protection and that they do not have to be nonobvious over the prior art. Despite the shorter exclusive rights, the case law (limited as it is) uniformly treats such “petty patents” as “patented” prior art.

Another form of patent-like protection—a “design registration”—is more problematic because such a registration provides only a limited legal exclusion: it prevents others from *copying* the registered design but which does not protect against independent creation of a design. Despite that important difference, the Patent Office took the position a half century ago that the rights conferred by such design registrations were sufficient to constitute “patent[ing]” for purposes of § 102. *See In re Weiss*, 159 U.S.P.Q. 122 (Bd. App. 1967). In *Weiss*, Examiner in Chief P. J. Federico (one of the authors of the 1952 Patent Act) ruled that foreign patents and patent-like rights should be recognized as patents for purposes of § 102 provided the foreign right conveys an “exclusive privilege” that is “substantial.” *Id.* at 124. Mere protection against copying satisfies this test because the right is not insubstantial and because even copyrights are generally considered to confer “exclusive rights” in their subject matter. *See id.* (noting that the U.S. Constitution describes copyright as an “exclusive Right”). Federico’s interpretation and his reasoning were adopted wholesale in *In re Talbott*, 443 F.2d 1397 (C.C.P.A. 1971) and again in *In re Carlson*, 983 F.2d 1032, 1036 (Fed. Cir. 1992) (reaffirming that “the rights and privileges attaching to the protection granted by foreign governments need not be coextensive with the exclusive rights granted under U.S. law, so long as the foreign rights granted are both substantial and exclusive in nature”).

3. Secret Patents. “Patented” prior art does not have to meet even the minimal public accessibility requirements demanded of “printed publications.” But can the foreign patent be wholly secret? “No,” said the court in *In re Ekenstam*, 256 F.2d 321, 323 (C.C.P.A. 1958):

There seems to be no logical reason why the granting of a secret patent abroad should be a bar to patenting in this country. Such a foreign patent is of no value to persons in this country unless and until it is made available to the public. It is to be noted that even a widespread prior knowledge of an invention abroad does not alone bar the grant of a patent in this country, and it is not reasonable to suppose that Congress intended to give greater effect to secret patenting abroad than to public knowledge there.

Foreign patent documents must be at least “available to the public,” *id.*, but further accessibility requirements (e.g., indexing, cataloguing, etc.) are not imposed. *See also In re Carlson*, 983 F.2d 1032, 1038 (Fed. Cir. 1992) (reaffirming *Ekenstam*).

c. “In Public Use”

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. [See Figure 5-1.]

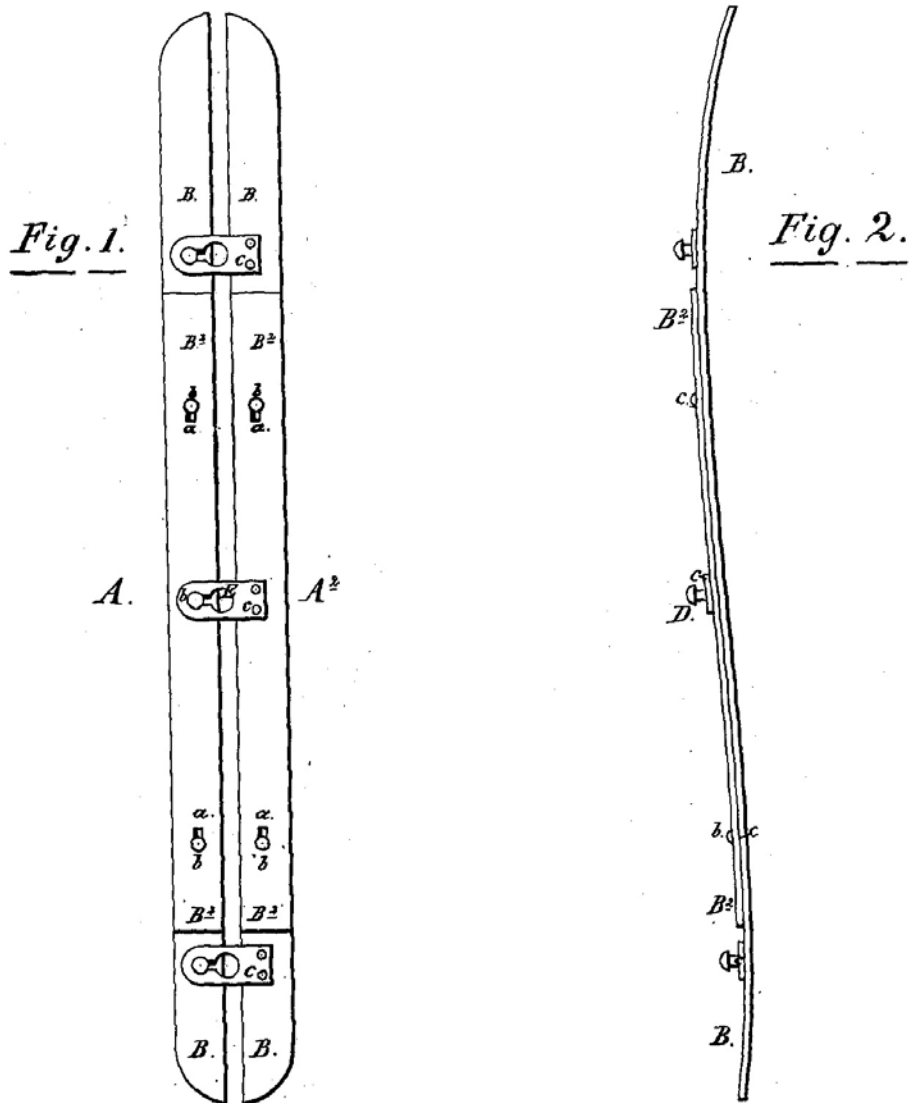
The original letters were issued to Samuel H. Barnes. The reissue was made to the complainant, under her then name, Frances Lee Barnes [Frances Lee Egbert at the time of the litigation], executrix of the original patentee.

No. 5,216.

S. H. BARNES.

Reissued Jan. 7, 1873.

Corset-Springs.



WITNESSES.

Wesley E. Hart
H. E. Cole

James Lee Egbert
Executive of S. H. Barnes
INVENTOR.

Figure 5-1 Corset Steels by Barnes

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 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. Since the passage of the act of 1839 it has been strenuously contended that the public use of an invention for more than two years before such application, even without his consent and allowance, renders the letters-patent therefor void.

It is unnecessary in this case to decide this question, for the alleged use of the invention covered by the letters-patent to Barnes is conceded to have been with his express consent.

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 [the complainant] 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 [Sturgis]. 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.

This is the evidence presented by the record, on which the defendants rely to establish the public use of the invention by the patentee's consent and allowance.

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 printing press, 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 [(1877)].

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. ...

Decree affirmed.

MR. JUSTICE MILLER dissenting.

A private use with consent, which could lead to no copy or reproduction of the machine, which taught the nature of the invention to no one but the party to whom such consent was given, which left the public at large as ignorant of this as it was before the author's discovery, was no abandonment to the public, and did not defeat his claim for a patent. If the little steel spring inserted in a single pair of corsets, and used by only one woman, covered by her outer-clothing, and in a position always withheld from public observation, is a *public* use of that piece of steel, I am at a loss to know the line between a private and a public use.

The opinion argues that the use was public, because, with the consent of the inventor to its use, no limitation was imposed in regard to its use in public. It may be well imagined that a prohibition to the party so permitted against exposing her use of the steel spring to public observation would have been supposed to be a piece of irony. An objection quite the opposite of this suggested by the opinion is, that the invention was incapable of a public use. That is to say, that while the statute says the right to the patent can only be defeated by a use which is public, it is equally fatal to the claim, when it is permitted to be used at all, that the article can never be used in public.

I cannot on such reasoning as this eliminate from the statute the word public, and disregard its obvious importance in connection with the remainder of the act, for the purpose of defeating a patent otherwise meritorious.

NOTES ON EGBERT

1. A Public of One. Was the use by Frances Lee (later Barnes, later Egbert) a use by the "public"? Why does it not matter how many people use the invention for purposes of deciding if the use was public?

2. Hidden Public Use. In *Hall v. MacNeale*, 107 U.S. 90 (1883), the Supreme Court followed its earlier decision in *Egbert*. Hall had received a patent on improvements in the door and walls of burglar-proof safes. The question before the Court was whether the use of certain earlier-model safes before the critical date was sufficient *public* to qualify as a public use. The Court held:

The construction and arrangement and purpose and mode of operation and use of the [hidden feature] in the safes were necessarily known to the workmen who put them in. They were, it is true, hidden from view, after the safes were completed, and it required a destruction of the safe to bring them into view. But this was no concealment of them or use of them in secret. They

had no more concealment than was inseparable from any legitimate use of them.

3. No Confidentiality Agreement? The Court emphasizes that Frances Lee never entered into a confidentiality agreement with the inventor. But the Court also relates that the two later married. Is there a reasonable argument that although no *express* “injunction of secrecy” was made, nonetheless an *implied* requirement of secrecy, or at least an implied agreement that Mr. Barnes’ permission was needed before she disclosed the invention, could be inferred from the surrounding circumstances: i.e., an invention, of an intimate nature, given as a gift by a boyfriend (later husband) and disclosed to few people? Do you agree with Justice Miller that, if Mr. Barnes had warned Frances Lee against showing her corset steels in public, his warning “would have been supposed to be a piece of irony”? Perhaps the embarrassment of asking kept Mr. Barnes from requesting that Frances Lee not show the invention to anyone. Of course, if given the choice between losing his potential future patent rights and jeopardizing his future marriage to Frances Lee, Barnes no doubt made the right choice.

4. Public Use in the Ordinary Course of Business. A corollary of cases such as *Egbert* is that a single, non-confidential use of an invention in the ordinary course of business is a public use. See *Electric Storage Battery Co. v. Shimadzu*, 307 U.S. 5, 20 (1939) (“The ordinary use of a machine or the practise of a process in a factory in the usual course of producing articles for commercial purposes is a public use.”); *W.L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 1548 (Fed. Cir. 1983) (relying on *Electric Storage Battery* to hold that “[t]he nonsecret use of a claimed process in the usual course of producing articles for commercial purposes is a public use.”). As was true for the hidden-from-view parts of the safe in *Hall v. MacNeale*, 107 U.S. 90 (1883), it is irrelevant whether anyone outside the business can observe the use of technology. The technology will still enter the prior art upon business use unless the workers with access to the technology are legally bound by keep the technology confidential.

The strict rule concerning business use is theoretically justifiable because, in almost all cases of business use, the workers inside the business learn about the technology even if no one outside the business does. If those workers are not bound by confidentiality agreements, they are free to quit their jobs and begin working for a competitor (or, for that matter, to start their own firms). Thus, the knowledge of technology can spread through the relevant industry even without any non-employees having access to the technology. See *Electric Battery*, 307 U.S. at 20 (emphasizing that the technology was “well known to the employes in the plant” and that no effects were made “to conceal [the machines of processes] from anyone who had a legitimate interest in understanding them”).

Note that the converse of this rule is not necessarily true. If a business does keep its technology confidential, it is not necessarily true that the technology will remain outside the prior art. The case of *Metallizing Engineering Co. v. Kenyon Bearing & Auto Parts Co.*, 153 F.2d 516 (2d Cir. 1946), set forth below, discusses the law where inventions are kept confidential.

5. Implicit Confidentiality for Employees. To avoid a finding of public use, must inventors have explicit confidentiality agreements with their employees? Two opinions by Judge Learned Hand suggest that an explicit agreement is not always needed. See *A. Schraeder Sons v. Wein Sales Corp.*, 9 F.2d 306, 308 (2d Cir. 1925) (“Considering that the whole work was experimental, and that only ... two [employees] had access to it, we think that it was unnecessary to exact from [one] a formal pledge of secrecy. It was implicit in the situation.”); *Peerless Roll Leaf Co. v. H. Griffin & Sons*, 29 F.2d 646, 649 (2d Cir. 1928) (“When the number of

[employees] is limited to as few as are necessary to practice [the invention] at all, when customers and the public generally are excluded, and adequate precautions are taken to prevent dispersion of the knowledge ..., it seems to us enough, whether a formal pledge of secrecy be exacted or not.”). Nevertheless, any reasonable business is highly unlikely to rely on implicit confidentiality agreements. As in most other matters of contract law, a written agreement is much better. Indeed, because the ubiquity of written confidentiality agreements in the modern business world might undermine older cases recognizing implicit confidentiality because employees in the modern business might reasonably believe that, if an employer wants confidentiality, the employer invariably asks for it in writing.

6. Experimental Uses. One traditional exception to the relatively inclusive rules of public use is that experiments, even if highly visible to the general public, do not qualify as public uses for prior art purposes, provided that the experiments are undertaken in good faith to test whether the invention works. The leading case on the issue (which is cited in *Egbert*) is *City of Elizabeth v. American Nicholson Pavement Co.*, 97 U.S. 126 (1878). The invention there was a new type of wood-block pavement for roads, and as an experiment, the inventor installed about 75 feet of the new pavement near a “toll-house” on “a great thoroughfare out of Boston.” *Id.* at 133-34. The pavement was left there for *years*, but the inventor diligently observed the experiment, visiting the road “almost daily,” examining the condition of the road, asking the toll-house attendant questions about it, and even “striking it with his cane.” *Id.* at 133.

The Court concluded that “such use is not a public use, within the meaning of the statute, so long as the inventor is engaged, in good faith, in testing its operation.” *Id.* at 135. The Court, however, emphasized the inventor’s good faith in conducting the experiment:

Nicholson [the inventor] wished to experiment on his pavement. He believed it to be a good thing, but he was not sure; and the only mode in which he could test it was to place a specimen of it in a public roadway. He did this at his own expense, and with the consent of the owners of the road. Durability was one of the qualities to be attained. He wanted to know whether his pavement would stand, and whether it would resist decay. Its character for durability could not be ascertained without its being subjected to use for a considerable time. He subjected it to such use, in good faith, for the simple purpose of ascertaining whether it was what he claimed it to be. Did he do any thing more than the inventor of the supposed machine might do, in testing his invention? The public had the incidental use of the pavement, it is true; but was the invention in public use, within the meaning of the statute? We think not.

Id. at 136.

For at least four reasons, however, this “experiment use” exception is not a gaping hole in the otherwise inclusive rules of “public use.” First, the Court in *City of Elizabeth* described the experiment there as testing the invention’s “operation.” As discussed in Chapter 3 (on “Utility”), the “operability” concept in patent law is a very low standard. An invention is deemed operable if it works for its intended purpose whether or not it is technologically, economically or commercially *superior* to current options. Thus, testing an invention to see whether it is *better* than current options, or to determine how much consumers will pay for the invention, is very often not considered an experimental use. *See, e.g., In re Smith*, 714 F.2d 1127, 1135 (Fed. Cir. 1983) (holding that the experimental use exception “does not include market testing where the inventor is attempting to gauge consumer demand for his claimed invention”).

Second, the experimenter-inventor in *City of Elizabeth* was very diligent in his observations—coming to the road “almost daily” and systematically collecting observations on the pavement performance. Less diligent experimenters have been viewed as allowing their work to enter the prior art. Thus, in *Lough v. Brunswick Corp.*, 86 F.3d 1113 (Fed. Cir. 1996) (en banc), the invention—a superior watertight seal for boat engines—was held to have entered the prior art after five prototypes of the seal were installed on boats owned by the inventor’s friends and acquaintances but the inventor failed “to maintain some degree of control and feedback over those uses of the prototypes.” *Id.* at 1122. The dissent in that case argued that inventor there—an ordinary motorboat repairman with a high school education—adopted a reasonable experimental approach in the context: he installed the prototypes, “waited to hear from his test cases what problems might emerge,” and concluded the invention was a success when he heard about no problems. *Id.* at 1124 (Plager, J., dissenting). But such an approach was not sufficient for the majority.

Third, *City of Elizabeth*’s requirement of good faith imposes limits on how long experiments can continue. Modern cases recognizing experiments continuing over substantial lengths of time such as months often involve inventions that are designed to survive seasonal environmental conditions. *See, e.g., Seal Flex, Inc. v. Athletic Track & Court Constr.*, 98 F.3d 1318 (Fed. Cir. 1996) (holding that the installation of an outdoor running track at a high school continued to be an experiment for several months where an earlier prototype had failed in winter and the inventor wanted to determine if the new version would survive winter conditions); *Manville Sales Corp. v. Paramount Systems, Inc.*, 917 F. 2d 544, 550 (Fed. Cir. 1990) (holding that an outdoor light assembly installed at a highway rest area continued to be experimental use throughout the winter because, “[p]rior to its testing in the winter environment, there really was no basis for confidence by the inventor that the invention would perform as intended”).

Fourth, while the experimental use exception is well grounded in pre-AIA case law, the PTO has questioned whether the exception should have any application to the AIA version of § 102. In its Examination Guidelines for the AIA, the agency commented:

Under pre-AIA case law, the experimental use exception negates a [public] use that would otherwise defeat patentability. Neither the AIA nor its legislative history expressly addresses whether the experimental use exception applies to a public use under AIA [§] 102(a)(1), or to a use that makes the invention [“otherwise available to the public” under AIA § 102(a)(1)]. Because this doctrine arises infrequently before the Office, and is case-specific when it does arise, the Office will approach this issue when it arises on the facts presented.

Examination Guidelines for Implementing the First Inventor To File Provisions of the Leahy-Smith America Invents Act, 78 Fed. Reg. 11059, 11063 (2013). While the authors of this book believe that the agency is wrong to question the continued viability of the experiment use exception, the agency’s position (or lack thereof) does increase the legal risk associated with relying on the experimental use exception.

For all of these reasons, it is best to view the experimental use exception as narrow and fraught with peril. As is often the case with the AIA’s system of priority, inventors are probably well-advised to file their patent applications early—before they conduct any experiments that are open to the public.

MOLECULON RESEARCH CORP. v. CBS, INC.

793 F.2d 1261 (Fed. Cir. 1986)

BALDWIN, CIRCUIT JUDGE.

This is an appeal from the judgment of the District Court holding claims 3-5 and 9 of Moleculon Research Corporation's U.S. Patent No. 3,655,201 ('201 patent) valid and infringed by certain of the well-known Rubik's Cube puzzles. We affirm in part, vacate in part, and remand.

Background

Moleculon, as assignee of the '201 patent which issued to Larry D. Nichols, sued CBS Inc., as successor to the Ideal Toy Corporation, alleging infringement of claims 3, 4, 5, 6, and 9 of the '201 patent.

A puzzle enthusiast since childhood, Nichols, in the summer of 1957, conceived of a three-dimensional puzzle capable of rotational movement. He envisioned an assembly of eight cubes attached in a $2 \times 2 \times 2$ arrangement, with each of the six faces of the composite cube distinguished by a different color and the individual cubes being capable of rotation in sets of four around one of three mutually perpendicular axes.

During the period 1957-1962, while doing graduate work in organic chemistry, Nichols constructed several paper models of his puzzle, making cubes of heavy file-card type paper and affixing small magnets to the inside of the cubes. Although these models confirmed the feasibility of Nichols' conception, they lacked durability. A few close friends, including two roommates and a colleague in the chemistry department, had occasion to see one of these paper models in Nichols' room and Nichols explained its operation to at least one of them.

In 1962, Nichols accepted employment as a research scientist at Moleculon. In 1968, Nichols constructed a working wood block prototype of his puzzle which he usually kept at home but on occasion brought into his office. In January 1969, Dr. Obermayer, the president of Moleculon, entered Nichols' office and happened to see the model sitting on his desk. Obermayer expressed immediate interest in the puzzle and Nichols explained its workings. Obermayer asked whether Nichols intended to commercialize the puzzle. When Nichols said no, Obermayer suggested that Moleculon try to do so. In March 1969, Nichols assigned all his rights in the puzzle invention to Moleculon in return for a share of any proceeds of commercialization. On March 7, 1969, Moleculon sent Parker Brothers an actual model and a description of the cube puzzle. In the next three years, Moleculon contacted between fifty and sixty toy and game manufacturers, including Ideal. Ideal responded to the effect that it did not currently have an interest in marketing the puzzle. Moleculon itself did not succeed in marketing the Nichols cube.

On March 3, 1970, Nichols filed on behalf of Moleculon a patent application covering his invention. The '201 patent issued on April 11, 1972.

The subject matter of the '201 patent, in its preferred embodiment, is a cube puzzle composed of eight smaller cubelets that may be rotated in groups of four adjacent cubes, and a method by which the sets of cubes may be rotated, first to randomize, and then to restore a predetermined pattern on the six faces of the composite cube... .

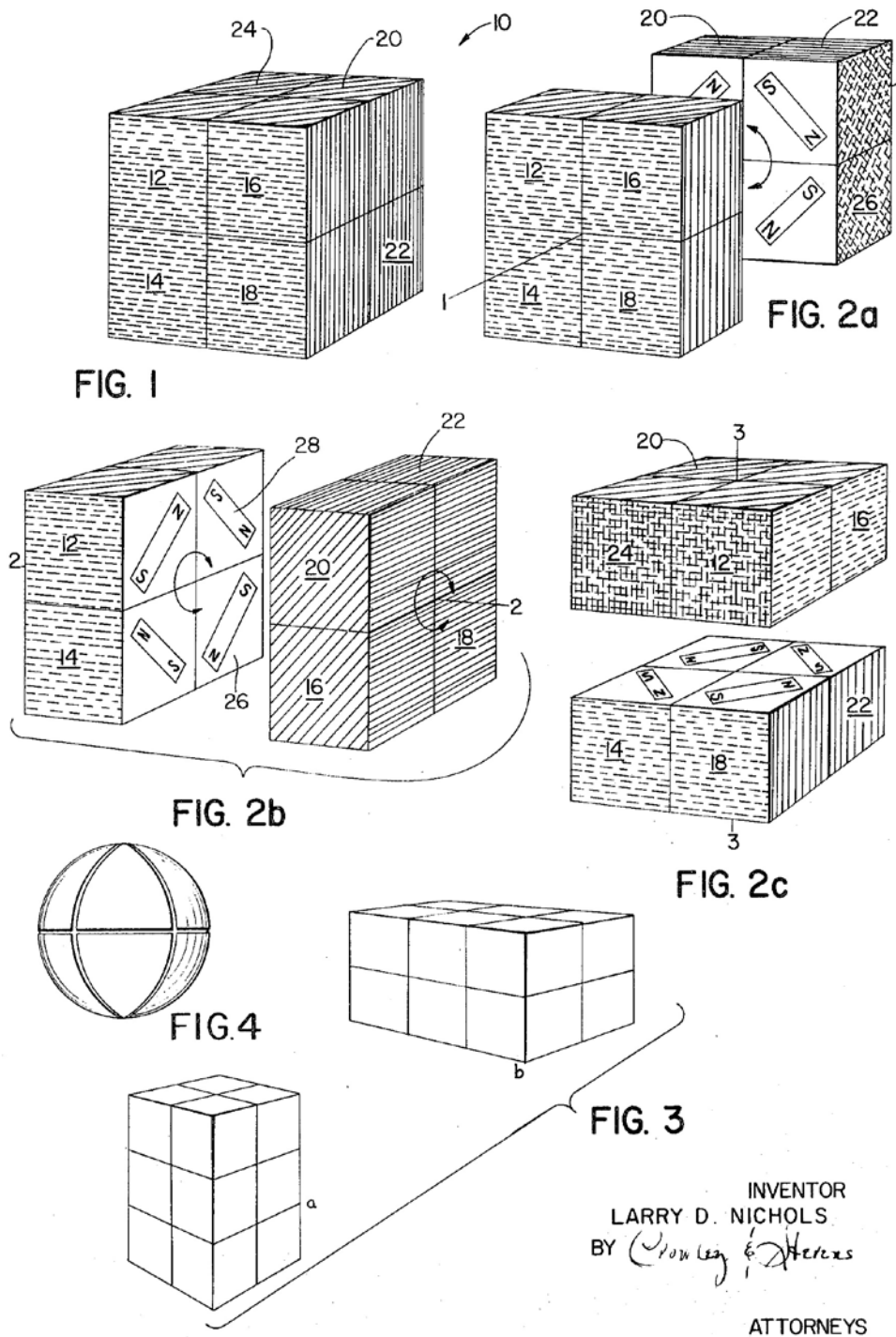


Figure 5-2 Various Embodiments of the Puzzle Patented by Nichols

The Rubik's Cube and Variations

The accused products are the well-known $3 \times 3 \times 3$ Rubik's Cube puzzle, two $2 \times 2 \times 2$ variations and a $4 \times 4 \times 4$ Rubik's Revenge. These puzzles externally appear as composite cubes composed of smaller cubes or cubelets.

Internal inspection reveals that the composite cube is not composed of true six-sided cubelets but rather is composed of an internal mechanism holding together cubelet shells which have one or more external faces and permitting sets of cubelets to be rotated about an axis... .

OPINION

1. [§ 102] on sale and public use [prior art]

CBS argues that the subject matter of the '201 patent was in "public use" and "on sale" by Nichols, prior to the [relevant critical date], thus rendering the patent invalid under [§ 102].

(a) Public Use

CBS labels as public use Nichols' displaying of the models to other persons (such as his colleagues at school) without any mention of secrecy. CBS ascribes only commercial purpose and intent to Obermayer's use of the wood model and argues that a conclusion of [a patent-invalidating] public use under [§ 102] is compelled. We disagree... .

CBS urges that the decision in *Egbert v. Lippmann*, 104 U.S. 333 (1881), compels a conclusion of public use in the present case... . The district court distinguished *Egbert* because here Nichols had not given over the invention for free and unrestricted use by another person. Based on the personal relationships and surrounding circumstances, the court found that Nichols at all times retained control over the puzzle's use and the distribution of information concerning it. The court characterized Nichols' use as private and for his own enjoyment. We see neither legal error in the analysis nor clear error in the findings.

As for Obermayer's brief use of the puzzle, the court found that Nichols retained control even though he and Obermayer had not entered into any express confidentiality agreement. The court held, and we agree, that the presence or absence of such an agreement is not determinative of the public use issue. *See TP Laboratories, Inc. v. Professional Positioners, Inc.*, 724 F.2d 965, 972 (Fed. Cir.), *cert. denied*, 105 S. Ct. 108 (1984). It is one factor to be considered in assessing all the evidence. There can be no question that the court looked at the totality of evidence, and evaluated that evidence in view of time, place, and circumstances.

With regard to the question of control, CBS complains that "[t]he record is devoid of any testimony from the friends, associates and fellow workers who saw Nichols' cube and to whom its operation was explained." The simple answer is that CBS had the burden at trial to prove public use with facts supported by clear and convincing evidence. [The court agreed with the district court that CBS had not sustained its burden.]

(b) On Sale

CBS argues that the claimed invention was on sale within the meaning of [§ 102] because Nichols orally agreed prior to the critical date ... to assign "all his rights in the puzzle invention"

to Moleculon. According to CBS, Nichols not only assigned the right to apply for a patent on the invention but also conveyed title in his single wooden model.

Although the formal written assignment occurred after the critical date, the district court held that even if there were an earlier oral agreement, an assignment or sale of the rights in the invention and potential patent rights is not a sale of “the invention” within the meaning of section [102]. We agree. The few cases we have found on this issue have uniformly held that such a sale of patent rights does not come within [§ 102]. Such a result comports with the policies underlying the on sale bar, and with the business realities ordinarily surrounding a corporation’s prosecution of patent applications for inventors.

As for CBS’ contention that Nichols sold or agreed to sell the wood model of the puzzle, we quote the district court’s relevant findings:

There is no indication in the subsequent written instrument that the parties contemplated the sale or transfer to Moleculon of the single physical embodiment of the puzzle then in existence. Nor is there any other evidence in the record to that effect.

CBS has shown nothing approaching clear error concerning those findings.

Accordingly, we sustain the district court’s determination that the claims are not invalid under [§ 102].

[The court affirmed the district court’s holdings that the Moleculon’s patent claims were valid and infringed by 2x2x2 Rubic’s cubes. The court vacated the district court’s holding that Moleculon’s claims were infringed by 3x3x3 and 4x4x4 Rubic’s cubes and remanded the issue for evaluation under the doctrine of equivalents.]

NOTES ON MOLECULON

1. Scrambling Egbert? The district court distinguished *Egbert* on the ground that there the invention had been given over for “free and unrestricted use by another person.” It then cited the “personal relationships” between Obermayer (the user) and the inventor. Would the *Egbert* Court have accepted these distinctions? Is the employer-employee relationship in this case a more “personal relationship” than that of Barnes and Francis Lee?

2. How Many in Your Party? The Federal Circuit distinguished *Moleculon* in a case where the invention was demonstrated not at work but at a party attended by twenty or thirty friends. In *Beachcombers, Int’l, Inc. v. WildeWood Creative Prods., Inc.*, 31 F.3d 1154 (Fed. Cir. 1994), the court upheld a jury verdict that the invention had been in public use, emphasizing some subtle differences in the facts of the two cases:

[I]n *Moleculon* the court found that the inventor at all times retained control over the use of the device as well as over the distribution of information concerning it... Here, there was evidence upon which the jury could have reasonably concluded that [the inventor, Carolyn] Bennett did not retain control over the use of the device and the future dissemination of information about it — Bennet’s testimony that her purpose in demonstrating

the device at her party was to ... garner feedback, that she never imposed any secrecy or confidentiality obligations, and [one of her guest's] testimony to the effect that she [the guest] did not believe she was subject to any secrecy or confidentiality restrictions — notwithstanding the closeness and ongoing nature of Bennett's relationship with her guests.

Id. at 1160. Would you assume that friends would keep a secret more readily than co-workers? Would it matter whether the secret involved matters related to work or a personal invention project? See *AMP, Inc. v. Fujitsu Microelectronics, Inc.*, 853 F. Supp. 808, 817 (M.D. Pa. 1994) (presentations to potential customers before critical date held not a public use; although plaintiff did not introduce evidence of written confidentiality agreements, the court stated that plaintiff's testimony was sufficient proof of a "confidentiality requirement," and that in addition "the AMP presenters gave those in attendance no samples or written material detailing the concept"; "Here, [the court concluded,] the restrictions were clear and the attempt to disseminate information was considerably limited," and therefore there was no public use as a matter of law).

3. Licensing or Sale of Patent Rights. Though we will address "on sale" issues more fully below, *Moleculon* highlights an important distinction between the *sale* of a product or process made in conformity with a patent, and the *licensing or assignment* of patent rights. In the former case, the subject matter of the sale is something produced *according to* an invention; in the latter, it is the *invention itself* that is the subject of the transaction. Only the former transaction qualifies as "placing the invention on sale" for purposes of § 102. See *In re Kollar*, 286 F.3d 1326, 1333 (Fed. Cir. 2002). Note, however, that the invention is considered "on sale" if the inventor practices the invention in exchange for consideration; it does not matter if the transaction is described as a sale or license. *Id.*

* * *

The category of "in public use" has long taken a special approach to technology that is kept as a trade secret but is nonetheless being commercially exploited. Such commercial exploitation of secret technology can easily be seen as "in public use" because the commercial exploitation is public—open generally to individuals. Furthermore, the public "uses" the technology in the sense that consumers within the general public benefit from the technology.¹ In another sense, however, secret commercial exploitation is not public: members of the public do not have access to information about how the technology works.

The following case is one of the leading cases interpreting the concept of "public use" in the context of public commercial exploitation of technology that is kept secret:

¹ For example, a consumer could rationally say that she "used" a package delivery service such as FedEx even if she has no idea how the service got the package to its destination and even if the delivery service used secret, proprietary methods in routing and delivering the package.

METALLIZING ENGINEERING CO. v. KENYON BEARING & AUTO PARTS CO.

153 F.2d 516 (2nd Cir. 1946)

[The inventor, John Meduna, obtained a patent on an improved method for conditioning metal surfaces so that the surfaces were better prepared for the process known as “metallizing,” which involves applying a metal spray to restore the worn metal surfaces. Meduna’s patent was filed on August 6, 1942, and issued on May 25, 1943. Metallizing Engineering, the assignee of Meduna’s patent, brought an infringement action against the defendants, and the district court held the patent valid and infringed. The defendants appealed.]

L. HAND, CIRCUIT JUDGE.

The only question which we find necessary to decide is as to Meduna’s public use of the patented process more than one year before August 6, 1942. The district judge made findings about this, which are supported by the testimony and which we accept... . The kernel of them is the following: “the inventor’s main purpose in his use of the process prior to August 6, 1941, and especially in respect to all jobs for owners not known to him, was commercial, and * * * an experimental purpose in connection with such use was subordinate only.” Upon this finding he concluded as matter of law that, since the use before the critical date — August 6, 1941 — was not primarily for the purposes of experiment, the use was not excused for that reason. Moreover, he also concluded that the use was not public but secret, and for that reason that its predominantly commercial character did prevent it from invalidating the patent. For the last he relied upon our decisions in *Peerless Roll Leaf Co. v. Griffin & Sons*, 29 F.2d 646, and *Gillman v. Stern*, 114 F.2d 28. We think that his analysis of *Peerless Roll Leaf Co. v. Griffin & Sons*, was altogether correct, and that he had no alternative but to follow that decision; on the other hand, we now think that we were then wrong and that the decision must be overruled for reasons we shall state. *Gillman v. Stern*, *supra*, was, however, rightly decided... .

So far as we can find, the first case which dealt with the effect of prior use by the patentee was *Pennock v. Dialogue*, [27 U.S. 1 (1829)], in which the invention had been completed in 1811, and the patent granted in 1818 for a process of making hose by which the sections were joined together in such a way that the joints resisted pressure as well as the other parts. It did not appear that the joints in any way disclosed the process; but the patentee, between the discovery of the invention and the grant of the patent, had sold 13,000 feet of hose; and as to this the judge charged: “If the public, with the knowledge and tacit consent of the inventor, be permitted to use the invention, without opposition, it is a fraud on the public afterwards to take out a patent.” The Supreme Court affirmed a judgment for the defendant, on the ground that the invention had been “known or used before the application.” “If an inventor should be permitted to hold back from the knowledge of the public the secrets of his invention; if he should * * * make and sell his invention publicly, and thus gather the whole profits, * * * it would materially retard the progress of science and the useful arts” to allow him fourteen years of legal monopoly “when the danger of competition should force him to secure the exclusive right.” ... In *Egbert v. Lippmann*, 104 U.S. 333, 26 L.Ed. 755, although the patent was for the product which was sold, nothing could be learned about it without taking it apart, yet it was a public use within the statute... .

In the lower courts we may begin with the often cited decision in *Macbeth-Evans Glass Co. v. General Electric Co.*, 6 Cir., 246 F. 695, which concerned a process patent for making

illuminating glass. The patentee had kept the process as secret as possible, but for ten years had sold the glass, although this did not, so far as appears, disclose the process. The court held the patent invalid for two reasons, as we understand them: the first was that the delay either indicated an intention to abandon, or was of itself a forfeiture, because of the inconsistency of a practical monopoly by means of secrecy and of a later legal monopoly by means of a patent. So far, it was not an interpretation of “prior use” in the statute; but, beginning on page 702 of 246 F. 695 Judge Warrington seems to have been construing that phrase and to hold that the sales were such a use. In *Allinson Manufacturing Co. v. Ideal Filter Co.*, 8 Cir., 21 F.2d 22, the patent was for a machine for purifying gasoline: the machine was kept secret, but the gasoline had been sold for a period of six years before the application was filed. As in *Macbeth-Evans Glass Co. v. General Electric Co.*, *supra*, 6 Cir., 246 F. 695, the court apparently invalidated the patent on two grounds: one was that the inventor had abandoned the right to a patent, or had forfeited it by his long delay. We are disposed however to read the latter part — pages 27 and 28 of 21 F.2d — as holding that the sale of gasoline was a ‘prior use’ of the machine, notwithstanding its concealment... .

Coming now to our own decisions (the opinions in all of which I wrote), ... in *Peerless Roll Leaf Co. v. Griffin & Sons*, *supra*, 2 Cir., 29 F.2d 646, where the patent was for a machine, which had been kept secret, but whose output had been freely sold on the market, we sustained the patent on the ground that “the sale of the product was irrelevant, since no knowledge could possibly be acquired of the machine in that way. In this respect the machine differs from a process * * * or from any other invention necessarily contained in a product.” So far as we can now find, there is nothing to support this distinction in the authorities, and we shall try to show that we misapprehended the theory on which the prior use by an inventor forfeits his right to a patent... . In *Gillman v. Stern*, *supra*, 2 Cir., 114 F.2d 28, it was not the inventor, but a third person who used the machine secretly and sold the product openly, and there was therefore no question either of abandonment or forfeiture by the inventor. The only issue was whether a prior use which did not disclose the invention to the art was within the statute; and it is well settled that it is not... .

From the foregoing it appears that in *Peerless Roll Leaf Co. v. Griffin & Sons*, *supra*, we confused two separate doctrines: (1) The effect upon his right to a patent of the inventor’s competitive exploitation of his machine or of his process; (2) the contribution which a prior use by another person makes to the art. Both do indeed come within the phrase, “prior use”; but the first is a defence for quite different reasons from the second. It had its origin — at least in this country — in the passage we have quoted from *Pennock v. Dialogue*, *supra*; i.e., that it is a condition upon an inventor’s right to a patent that he shall not exploit his discovery competitively after it is ready for patenting; he must content himself with either secrecy, or legal monopoly. It is true that for the limited period of two years he was allowed to do so, possibly in order to give him time to prepare an application; and even that has been recently cut down by half. But if he goes beyond that period of probation, he forfeits his right regardless of how little the public may have learned about the invention; just as he can forfeit it by too long concealment, even without exploiting the invention at all. *Woodbridge v. United States*, 263 U.S. 50, 44 S.Ct. 45, 68 L.Ed. 159; *Macbeth-Evans Glass Co. v. General Electric Co.*, *supra*, 6 Cir., 246 F. 695. Such a forfeiture has nothing to do with abandonment, which presupposes a deliberate, though not necessarily an express, surrender of any right to a patent. Although the evidence of both may at times overlap, each comes from a quite different legal source: one, from the fact that by renouncing the right the inventor irrevocably surrenders it; the other, from the fiat of Congress that it is part of the consideration for a patent that the public shall as soon as possible begin to enjoy the disclosure.

It is indeed true that an inventor may continue for more than a year to practice his invention for his private purposes of his own enjoyment and later patent it. But that is, properly considered, not an exception to the doctrine, for he is not then making use of his secret to gain a competitive advantage over others; he does not thereby extend the period of his monopoly. Besides, as we have seen, even that privilege has its limits, for he may conceal it so long that he will lose his right to a patent even though he does not use it at all. With that question we have not however any concern here.

Judgment reversed; complaint dismissed.

NOTES ON METALLIZING ENGINEERING

1. Even Homer Nods. Though Judge Hand wrote *Peerless Roll Leaf Co. v. Griffin & Sons*, he acknowledges here that the case was wrongly decided. What mistake did Hand make in the earlier case?

2. A Long Chain of Cases with a Consistent Policy. The essential facts of *Metallizing Engineering* repeat themselves often down through the ages: Inventors exploit their innovations as trade secrets for many years prior to seeking patent protection. Such facts repeat because inventors would very much like to be able first to exploit an invention as a trade secret and then later to patent the invention (perhaps when they fear competitors are catching up). Yet the consistent policy of U.S. case law has been to prevent inventors from following that strategy by denying patent protection in such circumstances.

The rationale for that consistent result has, however, not always been consistent. *Pennock v. Dialogue* reasoned that such a strategy was a “fraud on the public” *Macbeth-Evans Glass* reasoned that commercial exploitation constituted a forfeiture or “abandonment” of the right to a patent. (An “abandonment” of the right to patent was in the past a statutory reason for deny a patent, but the AIA repealed that statutory language.) Learned Hand reaches the same result, but he uses the concept of “public use.”

3. Public Use For One But Not Others. Though disavowing the result in *Peerless Roll Leaf*, Hand reaffirms the decision in *Gillman v. Stern*. Thus, in Hand’s view, an inventor’s secret use of an innovation constitutes a public use as to that inventor, but not to others. Does that seem like a somewhat odd interpretation of “public”? Or does that way of interpreting the concept of “public use” merely reflect the ambiguity in the phrase?

Which of the following is the best way to state the law:

- (1) Commercial uses of secret technology are generally public uses, but the law recognizes an implicit exception if the patent applicant could not have known about the technology because of its secrecy.
- (2) Commercial uses of secret technology are generally not public uses, but the law recognizes an implicit exception if the technology was not a secret to patent applicant.

Are (1) and (2) the same in terms of outcomes in cases?

4. The Effect of the AIA and the PTO’s View on *Metallizing Engineering*. In its post-AIA Examination Guidelines, the PTO opined that *Metallizing Engineering*’s interpretation of “public use” was inapplicable to the AIA version of § 102. In response to public comments arguing that “*Metallizing Engineering* and other pre-AIA case law interpreting ‘public use’ [should] continue to apply under the AIA,” the agency reasoned:

The starting point for construction of a statute is the language of the statute itself. A patent is precluded under AIA 35 U.S.C. 102(a)(1) if “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.” AIA 35 U.S.C. 102(a)(1) contains the additional residual clause “or otherwise available to the public.” Residual clauses such as “or otherwise” or “or other” are generally viewed as modifying the preceding phrase or phrases. Therefore, the Office views the “or otherwise available to the public” residual clause of the AIA’s 35 U.S.C. 102(a)(1) as indicating that secret sale or use activity does not qualify as prior art.

The Office’s interpretation [is also] consistent with the interpretation that was clearly expressed by the bicameral sponsors of the AIA during the congressional deliberations on the measure.

Examination Guidelines for Implementing the First Inventor To File Provisions of the Leahy-Smith America Invents Act, 78 Fed. Reg. 11059, 11062 (2013). Are you persuaded by the agency’s interpretation? The authors of this casebook are not.

Here are several reasons to think the agency is wrong. First and most importantly, the agency’s interpretation would use a “residual clause” and a few passages of legislative history to overturn nearly two centuries of consistent U.S. patent policy, dating back at least to the Supreme Court’s decision in *Pennock v. Dialogue*, 27 U.S. 1 (1829). As noted above, that consistent policy has always been to forbid inventors from adding a period of patent protection onto the end of a lengthy period of exploiting an invention as a trade secret. The change here would be rather dramatic, for if trade secret exploitation by a patent applicant is not consider prior art, a patent applicant could exploit an invention for *years* and then seek a patent. One standard canon of statutory interpretation is that “Congress ... does not alter the fundamental details of a regulatory scheme in vague terms or ancillary provisions—it does not, one might say, hide elephants in mouseholes.” *Whitman v. American Trucking Association*, 531 U.S. 457, 468 (2001) (Scalia, J.). To us, the PTO’s interpretation seems to require Congress to have hidden an awfully big elephant in a tiny mousehole.

Another important canon of statutory construction is canon that, where Congress uses a term of art that has developed as a settled meaning through prior judicial construction, Congress is deemed to have adopted that meaning absent an express statement to the contrary. *See, e.g., Davis v. Mich. Dep’t of Treasury*, 489 U.S. 803, 813 (1989) (“When Congress codifies a judicially defined concept, it is presumed, absent an express statement to the contrary, that Congress intended to adopt the interpretation placed on that concept by the courts.”); *see also Microsoft Corp. v. i4i Ltd.*, 564 U.S. 91, 102-103 (2011) (collecting precedents on the canon and applying it to the Patent Act). The concept of “public use” had a long settled meaning at the time of the enactment of the AIA, so this canon is a heavy weight against a reinterpretation of the concept.

Yet another canon of statutory construction is that one portion of a statute should not be interpreted to render other statutory language superfluous, and the agency’s interpretation of

§ 102(a) would render language in § 102(b) meaningless. The argument on this point is complex and requires some knowledge of § 102(b), which this book has not yet discussed in detail. In a nutshell, however, the problem for the agency’s interpretation is that, in granting exemptions from § 102(a), § 102(b) distinguishes between (i) a “disclosure” under § 102(a) and (ii) matter that is “publicly disclosed.” If the concept of disclosure in § 102 were necessarily a public disclosure, then Congress would have had no reason to specify that some matters must be “publicly” disclosed, while others merely have to be any type of “disclosure.”

Finally, while the agency’s interpretation does have some support in a couple isolated passages in the AIA’s voluminous legislative history, such isolated passages seem insufficient to reach such a dramatic result. Legislative history is not, of course, the same thing as the statute itself, and it is often true that a voluminous legislative history will contain a few passages friendly to almost any statutory interpretation. *See Conroy v. Aniskoff*, 507 US 511, 519 (1993) (Scalia, J., concurring in the judgment) (comparing “the use of legislative history as the equivalent of entering a crowded cocktail party and looking over the heads of the guests for one’s friends.”).

Moreover, in two passages of legislative history cited by the agency, the legislators were discussing a different issue—specifically, the interaction between the prior art categories of § 102(a)(1) and the prior art exceptions or “grace period” provisions of § 102(b). The legislators made clear that the grace period provisions should be interpreted broadly enough to be able to exempt any prior art category recognized in § 102(a), but they gave no indication that they intended to allow parties who have exploited inventions as trade secrets for years to be able nonetheless to patent those inventions. In the third passage of legislative history, a single Senator argued that the statute overturned not only cases such as *Metallizing Engineering*, but even cases such as *Egbert*. *See* 157 Cong. Rec. S1370-71 (2011) (statement of Senator Kyl). Such statements seem to reflect not the legal meaning of the statute, but wishful thinking on the part of one legislator (who, as it happens, unsuccessfully sought to include explicit statutory language that would have disavowed the holding of *Metallizing Engineering*).

In any event, this issue is will be resolved by the courts soon. In *Helsinn Healthcare S.A. v. Reddy’s Labs. Ltd.*, 2016 U.S. Dist. LEXIS 27477 (D.N.J. Mar. 3, 2016), the court wrote a lengthy opinion agreeing with the agency’s interpretation and holding that the residual clause *does* modify the prior categories of prior art so that, under the AIA version of § 102, any use, sale or offer for sale of an invention does *not* constitute prior art unless it was publicly accessible. *See id.* at *141-142. An earlier ruling by the same court is also now on appeal at the Federal Circuit. If the district court’s interpretation stands on appeal, then *Metallizing Engineering* will not be applicable to the AIA’s category of “in public use” art.

d. “On Sale”

The following is the leading case on what constitutes “on sale” matter under § 102 of the Patent Act. The case was decided before enactment of the AIA, and thus it uses some statutory terminology from the pre-AIA version of § 102 defining the date when inventors would be recognized as having completed their inventions for purposes of applying the pre-AIA “first-to-invent” system of priority. In particular, the Court refers to the terms (i) “conception,” which means a *complete* mental plan of an invention (not merely generalities or hopes); and (ii) “reduction to practice,” which means successfully building an invention (or, for a process, successfully performing the invention) in the physical world.

All of that statutory terminology has been removed from the statute because an inventor's date of invention is no longer relevant to the operation of the AIA's version § 102. Despite that change, the Court's holding and reasoning is likely to continue to define the concept of "on sale" under the AIA version of § 102.

PFAFF v. WELLS ELECTRONICS, INC.

525 U.S. 55 (1998)

JUSTICE STEVENS delivered the opinion of the Court.

Section [102] of the Patent Act of 1952 provides that no person is entitled to patent an "invention" that has been "on sale" more than one year before filing a patent application. We granted certiorari to determine whether the commercial marketing of a newly invented product may mark the beginning of the 1-year period even though the invention has not yet been reduced to practice.

I

On April 19, 1982, petitioner, Wayne Pfaff, filed an application for a patent on a computer chip socket. Therefore, April 19, 1981, constitutes the critical date for purposes of the on-sale bar of [§ 102]; if the 1-year period began to run before that date, Pfaff lost his right to patent his invention.

Pfaff commenced work on the socket in November 1980, when representatives of Texas Instruments asked him to develop a new device for mounting and removing semiconductor chip carriers. In response to this request, he prepared detailed engineering drawings that described the design, the dimensions, and the materials to be used in making the socket. Pfaff sent those drawings to a manufacturer in February or March 1981.

Prior to March 17, 1981, Pfaff showed a sketch of his concept to representatives of Texas Instruments. On April 8, 1981, they provided Pfaff with a written confirmation of a previously placed oral purchase order for 30,100 of his new sockets for a total price of \$ 91,155. In accord with his normal practice, Pfaff did not make and test a prototype of the new device before offering to sell it in commercial quantities.³

³ At his deposition, respondent's counsel engaged in the following colloquy with Pfaff:

"Q. Now, at this time [late 1980 or early 1981] did we [*sic*] have any prototypes developed or anything of that nature, working embodiment?

"A. No.

"Q. It was in a drawing. Is that correct?

"A. Strictly in a drawing. Went from the drawing to the hard tooling. That's the way I do my business.

"Q. 'Boom-boom'?

"A. You got it.

"Q. You are satisfied, obviously, when you come up with some drawings that it is going to go — 'it works'?

"A. I know what I'm doing, yes, most of the time."

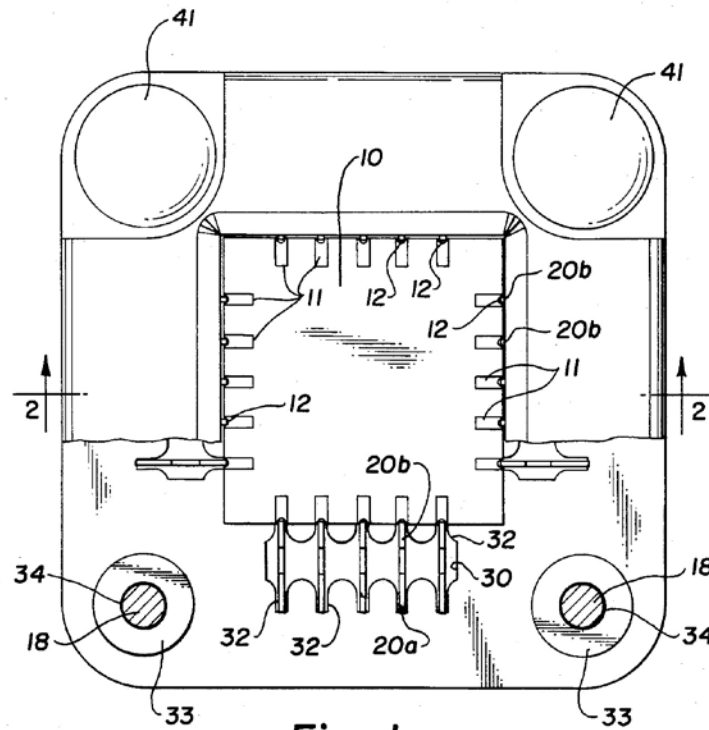


Fig. 1

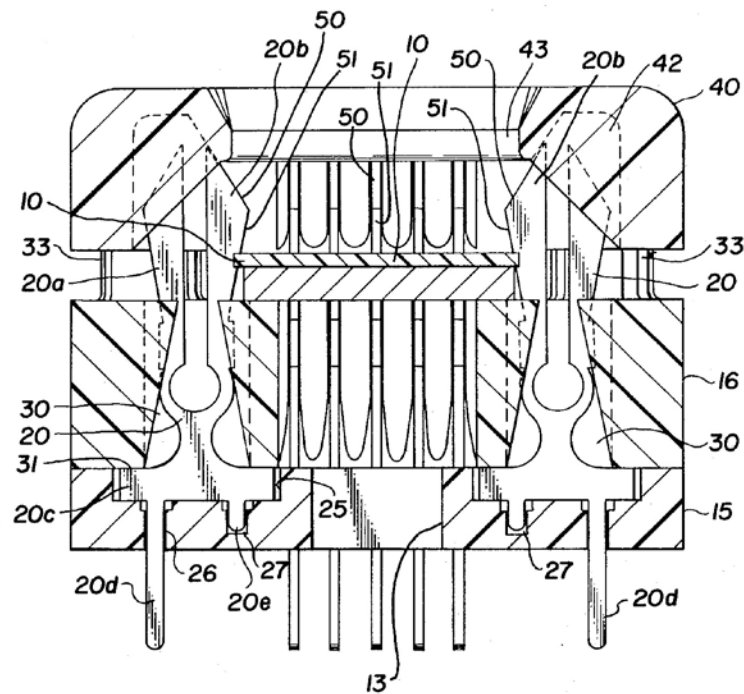


Fig. 2

Figure 5-3 Top (Fig. 1) and Cross-Sectional (Fig. 2) Views From Pfaff's Patent

The manufacturer took several months to develop the customized tooling necessary to produce the device, and Pfaff did not fill the order until July 1981. The evidence therefore indicates that Pfaff first reduced his invention to practice in the summer of 1981. The socket achieved substantial commercial success before Patent No. 4,491,377 (the '377 patent) issued to Pfaff on January 1, 1985.⁴

After the patent issued, petitioner brought an infringement action against respondent, Wells Electronics, Inc., the manufacturer of a competing socket. Wells prevailed on the basis of a finding of no infringement. When respondent began to market a modified device, petitioner brought this suit, alleging that the modifications infringed six of the claims in the '377 patent.

After a full evidentiary hearing before a Special Master, the District Court held that [three of the asserted six claims were valid and] infringed by various models of respondent's sockets. [T]he District Court rejected respondent's [§ 102] defense because Pfaff had filed the application for the '377 patent less than a year after reducing the invention to practice.

The Court of Appeals reversed, finding all six claims invalid. Four of the claims (1, 6, 7, and 10) described the socket that Pfaff had sold to Texas Instruments prior to April 8, 1981. Because that device had been offered for sale on a commercial basis more than one year before the patent application was filed on April 19, 1982, the court concluded that those claims were invalid under [the on-sale bar of § 102]. That conclusion rested on the court's view that as long as the invention was "substantially complete at the time of sale," the 1-year period began to run, even though the invention had not yet been reduced to practice. The other two claims (11 and 19) described a feature that had not been included in Pfaff's initial design, but the Court of Appeals concluded as a matter of law that the additional feature was not itself patentable because it was an obvious addition to the prior art. Given the court's [§ 102] holding, the prior art included Pfaff's first four claims.

Because other courts have held or assumed that an invention cannot be "on sale" within the meaning of [§ 102] unless and until it has been reduced to practice, see, e. g., *Timely Products Corp. v. Arron*, 523 F.2d 288, 299–302 (CA2 1975); *Dart Industries, Inc. v. E. I. Du Pont de Nemours & Co.*, 489 F.2d 1359, 1365, n. 11 (CA7 1973), *cert. denied*, 417 U.S. 933 (1974), and because the text of [§ 102] makes no reference to "substantial completion" of an invention, we granted certiorari. 523 U.S. 1003 (1998).

II

The primary meaning of the word "invention" in the Patent Act unquestionably refers to the inventor's conception rather than to a physical embodiment of that idea. The statute does not contain any express requirement that an invention must be reduced to practice before it can be patented. Neither the statutory definition of the term in § 100⁸ nor the basic conditions for obtaining a patent set forth in § 101 make any mention of "reduction to practice." The statute's

⁴ Initial sales of the patented device were:

1981	\$350,000
1982	\$937,000
1983	\$2,800,000
1984	\$3,430,000

⁸ Title 35 § 100, "Definitions," states,
"When used in this title unless the context otherwise indicates —
"(a) The term 'invention' means invention or discovery"

only specific reference to that term is found in § 102(g) [of the pre-AIA version of § 102], which sets forth the standard for resolving priority contests between two competing claimants to a patent. That subsection provides:

“In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.”

Thus, assuming diligence on the part of the applicant, it is normally the first inventor to conceive, rather than the first to reduce to practice, who establishes the right to the patent.

It is well settled that an invention may be patented before it is reduced to practice. In 1888, this Court upheld a patent issued to Alexander Graham Bell even though he had filed his application before constructing a working telephone. Chief Justice Waite’s reasoning in that case merits quoting at length:

“It is quite true that when Bell applied for his patent he had never actually transmitted telegraphically spoken words so that they could be distinctly heard and understood at the receiving end of his line, but in his specification he did describe accurately and with admirable clearness his process, that is to say, the exact electrical condition that must be created to accomplish his purpose, and he also described, with sufficient precision to enable one of ordinary skill in such matters to make it, a form of apparatus which, if used in the way pointed out, would produce the required effect, receive the words, and carry them to and deliver them at the appointed place. The particular instrument which he had, and which he used in his experiments, did not, under the circumstances in which it was tried, reproduce the words spoken, so that they could be clearly understood, but the proof is abundant and of the most convincing character, that other instruments, carefully constructed and made exactly in accordance with the specification, without any additions whatever, have operated and will operate successfully. A good mechanic of proper skill in matters of the kind can take the patent and, by following the specification strictly, can, without more, construct an apparatus which, when used in the way pointed out, will do all that it is claimed the method or process will do

“The law does not require that a discoverer or inventor, in order to get a patent for a process, must have succeeded in bringing his art to the highest degree of perfection. It is enough if he describes his method with sufficient clearness and precision to enable those skilled in the matter to understand what the process is, and if he points out some practicable way of putting it into operation.” *The Telephone Cases*, 126 U.S. 1, 535–536 (1888).

When we apply the reasoning of *The Telephone Cases* to the facts of the case before us today, it is evident that Pfaff could have obtained a patent on his novel socket when he accepted the purchase order from Texas Instruments for 30,100 units. At that time he provided the

manufacturer with a description and drawings that had “sufficient clearness and precision to enable those skilled in the matter” to produce the device. *Id.*, at 536. The parties agree that the sockets manufactured to fill that order embody Pfaff’s conception as set forth in claims 1, 6, 7, and 10 of the ’377 patent. We can find no basis in the text of [§ 102] or in the facts of this case for concluding that Pfaff’s invention was not “on sale” within the meaning of the statute until after it had been reduced to practice.

III

Pfaff nevertheless argues that longstanding precedent, buttressed by the strong interest in providing inventors with a clear standard identifying the onset of the 1-year period, justifies a special interpretation of the word “invention” as used in [§ 102]. We are persuaded that this nontextual argument should be rejected.

As we have often explained, most recently in *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 151 (1989), the patent system represents a carefully crafted bargain that encourages both the creation and the public disclosure of new and useful advances in technology, in return for an exclusive monopoly for a limited period of time. The balance between the interest in motivating innovation and enlightenment by rewarding invention with patent protection on the one hand, and the interest in avoiding monopolies that unnecessarily stifle competition on the other, has been a feature of the federal patent laws since their inception. As this Court explained in 1871:

“Letters patent are not to be regarded as monopolies ... but as public franchises granted to the inventors of new and useful improvements for the purpose of securing to them, as such inventors, for the limited term therein mentioned, the exclusive right and liberty to make and use and vend to others to be used their own inventions, as tending to promote the progress of science and the useful arts, and as matter of compensation to the inventors for their labor, toil, and expense in making the inventions, and reducing the same to practice for the public benefit, as contemplated by the Constitution and sanctioned by the laws of Congress.” *Seymour v. Osborne*, 11 Wall. 516, 533–534.

Consistent with these ends, § 102 of the Patent Act serves as a limiting provision, both excluding ideas that are in the public domain from patent protection and confining the duration of the monopoly to the statutory term. See, e.g., *Frantz Mfg. Co. v. Phenix Mfg. Co.*, 457 F.2d 314, 320 (CA7 1972).

We originally held that an inventor loses his right to a patent if he puts his invention into public use before filing a patent application. “His voluntary act or acquiescence in the public sale and use is an abandonment of his right” *Pennock v. Dialogue*, 2 Pet. 1, 24 (1829) (Story, J.). A similar reluctance to allow an inventor to remove existing knowledge from public use undergirds the on-sale bar.

Nevertheless, an inventor who seeks to perfect his discovery may conduct extensive testing without losing his right to obtain a patent for his invention — even if such testing occurs in the public eye. The law has long recognized the distinction between inventions put to experimental use and products sold commercially. In 1878, we explained why patentability may turn on an inventor’s use of his product.

“It is sometimes said that an inventor acquires an undue advantage over the public by delaying to take out a patent, inasmuch as he thereby preserves the monopoly to himself for a longer period than is allowed by the policy of the law; but this cannot be said with justice when the delay is occasioned by a *bona fide* effort to bring his invention to perfection, or to ascertain whether it will answer the purpose intended. His monopoly only continues for the allotted period, in any event; and it is the interest of the public, as well as himself, that the invention should be perfect and properly tested, before a patent is granted for it. *Any attempt to use it for a profit, and not by way of experiment, for a longer period than two years before the application, would deprive the inventor of his right to a patent.*” *Elizabeth v. Pavement Co.*, 97 U.S. 126, 137 (emphasis added).

The patent laws therefore seek both to protect the public’s right to retain knowledge already in the public domain and the inventor’s right to control whether and when he may patent his invention. The Patent Act of 1836, 5 Stat. 117, was the first statute that expressly included an on-sale bar to the issuance of a patent. Like the earlier holding in *Pennock*, that provision precluded patentability if the invention had been placed on sale at any time before the patent application was filed. In 1839, Congress ameliorated that requirement by enacting a 2-year grace period in which the inventor could file an application. 5 Stat. 353.

In *Andrews v. Hovey*, 123 U.S. 267, 274 (1887), we noted that the purpose of that amendment was “to fix a period of limitation which should be certain”; it required the inventor to make sure that a patent application was filed “within two years from the completion of his invention,” *ibid.* In 1939, Congress reduced the grace period from two years to one year. 53 Stat. 1212.

Petitioner correctly argues that these provisions identify an interest in providing inventors with a definite standard for determining when a patent application must be filed. A rule that makes the timeliness of an application depend on the date when an invention is “substantially complete” seriously undermines the interest in certainty.¹¹ Moreover, such a rule finds no support in the text of the statute. Thus, petitioner’s argument calls into question the standard applied by the Court of Appeals, but it does not persuade us that it is necessary to engraft a reduction to practice element into the meaning of the term “invention” as used in [§ 102].

The word “invention” must refer to a concept that is complete, rather than merely one that is “substantially complete.” It is true that reduction to practice ordinarily provides the best evidence that an invention is complete. But just because reduction to practice is sufficient evidence of completion, it does not follow that proof of reduction to practice is necessary in every case. Indeed, both the facts of *The Telephone Cases* and the facts of this case demonstrate that one can prove that an invention is complete and ready for patenting before it has actually been reduced to practice.¹²

¹¹ The Federal Circuit has developed a multifactor, “totality of the circumstances” test to determine the trigger for the on-sale bar. [Citing cases.] As the Federal Circuit itself has noted, this test “has been criticized as unnecessarily vague.” *Seal-Flex, Inc. v. Athletic Track & Court Construction*, 98 F.3d 1318, 1323, n. 2 (1996).

¹² Several of this Court’s early decisions stating that an invention is not complete until it has been reduced

We conclude, therefore, that the on-sale bar applies when two conditions are satisfied before the critical date.

First, the product must be the subject of a commercial offer for sale. An inventor can both understand and control the timing of the first commercial marketing of his invention. The experimental use doctrine, for example, has not generated concerns about indefiniteness, and we perceive no reason why unmanageable uncertainty should attend a rule that measures the application of the on-sale bar of [§ 102] against the date when an invention that is ready for patenting is first marketed commercially. In this case the acceptance of the purchase order prior to April 8, 1981, makes it clear that such an offer had been made, and there is no question that the sale was commercial rather than experimental in character.

Second, the invention must be ready for patenting. That condition 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.¹⁴ In this case the second condition of the on-sale bar is satisfied because the drawings Pfaff sent to the manufacturer before the critical date fully disclosed the invention.

The evidence in this case thus fulfills the two essential conditions of the on-sale bar. As succinctly stated by Learned Hand:

“It is a condition upon an inventor’s right to a patent that he shall not exploit his discovery competitively after it is ready for patenting; he must content himself with either secrecy, or legal monopoly.” *Metallizing Engineering Co. v. Kenyon Bearing & Auto Parts Co.*, 153 F.2d 516, 520 (CA2 1946).

to practice are best understood as indicating that the invention’s reduction to practice demonstrated that the concept was no longer in an experimental phase. See, e.g., *Seymour v. Osborne*, 78 U.S. 516, 11 Wall. 516, 552 (1871) (“Crude and imperfect experiments are not sufficient to confer a right to a patent; but in order to constitute an invention, the party must have proceeded so far as to have reduced his idea to practice, and embodied it in some distinct form”); *Clark Thread Co. v. Willimantic Linen Co.*, 140 U.S. 481, 489 (1891) (describing how inventor continued to alter his thread winding machine until July 1858, when “he put it in visible form in the shape of a machine... It is evident that the invention was not completed until the construction of the machine”); *Corona Cord Tire Co. v. Dovan Chemical Corp.*, 276 U.S. at 382–383 (stating that an invention did not need to be subsequently commercialized to constitute prior art after the inventor had finished his experimentation. “It was the fact that it would work with great activity as an accelerator that was the discovery, and that was all, and the necessary reduction to use is shown by instances making clear that it did so work, and was a completed discovery”).

¹⁴ The Solicitor General has argued that the rule governing on-sale bar should be phrased somewhat differently. In his opinion, “if the sale or offer in question embodies the invention for which a patent is later sought, a sale or offer to sell that is primarily for commercial purposes and that occurs more than one year before the application renders the invention unpatentable. *Seal-Flex, Inc. v. Athletic Track and Court Constr.*, 98 F.3d 1318, 1325 (Fed. Cir. 1996) (Bryson, J., concurring in part and concurring in the result).” It is true that evidence satisfying this test might be sufficient to prove that the invention was ready for patenting at the time of the sale if it is clear that no aspect of the invention was developed after the critical date. However, the possibility of additional development after the offer for sale in these circumstances counsels against adoption of the rule proposed by the Solicitor General.

The judgment of the Court of Appeals finds support not only in the text of the statute but also in the basic policies underlying the statutory scheme, including [§ 102]. When Pfaff accepted the purchase order for his new sockets prior to April 8, 1981, his invention was ready for patenting. The fact that the manufacturer was able to produce the socket using his detailed drawings and specifications demonstrates this fact. Furthermore, those sockets contained all the elements of the invention claimed in the '377 patent. Therefore, Pfaff's '377 patent is invalid because the invention had been on sale for more than one year in this country before he filed his patent application. Accordingly, the judgment of the Court of Appeals is affirmed.

It is so ordered.

NOTES ON PFAFF

1. “On Sale” vs. “Public Use.” Compare *Egbert* with *Pfaff*. Note that a public use can occur before the invention is placed on sale (as in *Egbert*), or the invention could be placed on sale before any public use (as in *Pfaff*). Because *either* a public use or an offer for sale can create prior art, the earlier of the two events will control.

2. The Law Prior to *Pfaff*. Prior to *Pfaff*, the Federal Circuit had held that an invention did not have to be reduced to practice for it to be deemed “on sale” within the meaning of [§ 102]. See *UMC Electronics Co. v. United States*, 816 F.2d 647, 656 (Fed. Cir. 1987). *Pfaff* does not change that aspect of the law. But the Supreme Court did reject the Federal Circuit’s multi-factored “totality of the circumstances” test, which had also been established in *UMC Electronics*, for determining whether the on sale bar has been triggered. That test had been criticized both by the Federal Circuit itself (as noted in *Pfaff*) and by commentators. See Thomas K. Landry, *Certainty and Discretion in Patent Law: The On Sale Bar, the Doctrine of Equivalents, and Judicial Power in the Federal Circuit*, 67 S. CAL. L. REV. 1151, 1154 (1994) (arguing that the pre-*Pfaff* Federal Circuit had “succumbed to the temptation of discretion in on-sale doctrine” and that, in pursuing its vision of a just result in individual cases, the Federal Circuit sacrificed far too much certainty and predictability); cf. *C.R. Bard, Inc. v. M3 Systems, Inc.*, 157 F.3d 1340 (Fed. Cir. 1998) (pre-*Pfaff* decision in which all three judges on appellate panel express different opinions concerning the on-sale bar, with the ultimate outcome a 2-1 decision affirming a jury verdict of invalidity). Does the *Pfaff* test accomplish the Court’s goal of providing a more definite standard for on sale cases?

3. The Inventor’s Certainty. Read carefully footnote 3 of the Court’s opinion, which sets forth an excerpt from Pfaff’s deposition. Consider the effect on the case if Pfaff’s answer to the last question in the excerpt had been: “I cannot be certain that a design works as intended until I test the physical product.” Would the result in the case have been different? In *Robotic Vision Systems, Inc. v. View Engineering, Inc.*, 249 F.3d 1307 (Fed. Cir. 2001), the court held an invention ready for patenting under *Pfaff* despite evidence “that one of the inventors expressed skepticism as to whether the invention would work for its intended purpose.” The court reasoned: “It will be a rare case indeed in which an inventor has no uncertainty concerning the workability of his invention before he has reduced it to practice. No such requirement will be applied here.” 249 F.3d at 1312.

In contrast to *Robotic Vision Systems*, the court in *Space Systems/Loral, Inc. v. Lockheed Martin Corp.*, 271 F.3d 1076, 1080 (Fed. Cir. 2001), held that an invention was *not* ready for patenting under *Pfaff* where the invention involved a “complex concept” and “the inventor

himself was uncertain whether it could be made to work.” The court reasoned that complete enablement of the invention was the sine qua non of the *Pfaff* test:

To be “ready for patenting” the inventor must be able to prepare a patent application, that is, to provide an enabling disclosure as required by 35 U.S.C. § 112. *See Robotic Vision Systems, Inc. v. View Engineering, Inc.*, 249 F.3d 1307, 1313 (Fed. Cir. 2001). For a complex concept such as [this] technique, wherein the inventor himself was uncertain whether it could be made to work, a bare conception that has not been enabled is not a completed invention ready for patenting.

Id. at 1080.

4. Four Hypotheticals. *Pfaff*’s two-part test raises some interesting timing questions. To explore these timing issues, consider the following hypotheticals. For each, try to identify the time at which the invention is deemed on sale under *Pfaff*:

a. Invention; Specific Offer; Performance. An inventor conceives of a new “springless” widget at time A. (Assume that a springless widget is a nonobvious advance over the prior art.) At time B, the inventor makes an offer to sell springless widgets. The offer is accepted and, at time C, the inventor delivers the completed springless widgets.

b. Invention; General Offer; Performance. An inventor conceives of a new springless widget at time A. At time B, the inventor makes a general offer to sell widgets; the offer does not specify the precise type of widget. The offer is accepted and, at time C, the inventor delivers springless widgets to satisfy the contract.

c. General Offer; Invention; Performance. At time A, the inventor makes a general offer to sell widgets. The offer is accepted and, in the course of producing the widgets, the inventor at time B discovers a new springless widget that is superior in all respects to prior art widgets. At time C, the inventor delivers springless widgets to satisfy the contract.

d. Specific Offer; Invention; Performance. At time A, the inventor makes a specific offer to sell springless widgets even though the inventor is not yet certain how to construct a springless widget. The offer is accepted and, at time B, the inventor gains sufficient knowledge to construct a springless widget. At time C, the inventor delivers springless widgets to satisfy the contract.

Answers:

a. The invention is on sale at time B. This hypothetical is essentially the same case as *Pfaff*. Note that in *Pfaff*, the Court held that the invention was on sale *no later* than April 8, when *Pfaff* *accepted* the purchase order from Texas Instruments (TI) — i.e., when the contract between *Pfaff* and TI was formed. However, the invention was probably on sale even earlier. In showing his drawings to TI representatives prior to March 17, 1981, *Pfaff* may very well have been offering to sell the invention as of that earlier date.

Two additional points should be noted about this hypothetical. First, an invention may be deemed on sale even if the sale is never consummated. Thus, in *UMC Electronics Co. v. United States*, 816 F.2d 647 (Fed. Cir. 1987), the inventor’s firm submitted a bid on a Navy contract

prior to the critical date. Although it was ultimately rejected, the bid specifically offered to sell the relevant invention to the Navy and thus the bid was held to have placed the invention on sale.

Second, the offer to sell need not contain detailed plans or schematics of the invention. For example, in the pre-*Pfaff* case *King Instrument Corp. v. Otari Corp.*, 767 F.2d 853 (Fed. Cir. 1985), a patent to King Instrument was declared invalid on the basis of an ambiguous offer that occurred five days prior to the critical date. The invention was for a new type of machine for loading magnetic tape onto cassettes. The prior art machine was known as a “swing arm” machine; the invention was called a “shift block” machine. The relevant offer referred to “King Turbo-matic 300-EC” tape loaders, but “the earlier swing arm and later shift block machines were both referred to as a ‘King Turbo-matic 300-EC.’ ” 767 F.2d at 860. Nevertheless, the court construed the offer as referring to the new machine and invalidated the patent:

While a bare, unexplained offer, not explicitly shown to be of the new invention, may be insufficient, the totality of the circumstances must always be considered in order to ascertain whether an offer of the new invention was in fact made. When an executory sales contract is entered into (or offered) before the critical date, the purchaser must know how the invention embodied in the offer will perform. The policies underlying the on sale bar, however, concentrate on the attempt by the inventor to exploit his invention, not whether the potential purchaser was cognizant of the invention. Accordingly, the purchaser need not have actual knowledge of the invention for it to be on sale. In this case, from the descriptions contained in the quotation . . . , the purchaser generally knew how the machine would perform. King’s argument that nothing in the quotation distinguishes the offer from any other offer for a swing arm machine is inaccurate. Comparison of the Morningstar quotation [the relevant pre-critical date offer] to those made to other companies reveals that only the offer to Morningstar included a 40% allowance for old machines. Although this distinction does not establish the existence of an offer to replace old swing arm machines with a “new” type of machine, such a possibility is another factor for the trier to consider.

Id. at 860–61 (citations omitted). While *King Instrument* used the pre-*Pfaff* “totality of the circumstances” language, the case would probably be decided the same way under *Pfaff*, provided that the pre-critical date offer is construed as an offer to sell the invention.

b. The invention is not on sale in this situation until time C, provided that the offer is, in fact, a general offer and is not directed to the invention. For example, in *Tec Air, Inc. v. Denso Mfg. Mich., Inc.*, 192 F.3d 1353 (Fed. Cir. 1999), the inventor’s firm, a fan manufacturer, made pre-critical date offers to two customers. After the critical date, the customers received fans constructed in accordance with the teachings of the patent, but the inventor’s firm argued that “it did not intend to use the patented [version of the fan] when it made the offers.” 192 F.3d at 1358. In sustaining a jury verdict in favor of the patent holder, the Federal Circuit held that “the jury reasonably could have found that Tec Air [the patent holder] did not offer the patented invention for sale . . . prior to the critical date.” *Id.* at 1358–59.

Can *Tec Air* be reconciled with *King Instrument*? Note that both cases turn on a specific

question of fact — whether a pre-critical date offer was directed to the invention. The different conclusions reached by the finders of fact explain the different results in the two cases.

Of course, once the invention has actually been delivered to a customer in performance of the contract — in other words, once the invention is sold — it will be deemed on sale even if the parties did not intend to sell the invention at the time of contract formation, and even if the parties never appreciated what had been sold (see Chapter 5.C.2, *infra*, on “Accidental, Unknown and Inherent Anticipations”).

c. The answer here is probably time C, or at least no earlier than a time after B when the patentee offers to use the invention to fulfill the pre-existing contract. The invention is plainly not “ready for patenting” under *Pfaff* until time B, but even after time B, there must be an offer to sell or a sale of the invention. For example, in *Sparton Corp. v. United States*, 399 F.3d 1321, 1323–24 (Fed. Cir. 2005), the inventor had made an offer specifying an older piece and, prior to the critical date, had invented a better piece. Even though the contract was ultimately fulfilled by delivery of the newer piece, the Federal Circuit held that the newer piece should not be considered to be on sale where, prior to the critical date, the contracting parties had not yet engaged in any discussions about using the newer piece to fulfill the contract.

One pre-*Pfaff* precedent, *Ferag AG v. Quipp, Inc.*, 45 F.3d 1562 (Fed. Cir. 1995), suggests a different answer. The patent holder in the case, Ferag, had entered into a contract to supply a customer, Bergen, with a conveyor belt system, but the contract was “not clear just what conveyor Ferag would supply.” 45 F.3d at 1569. At the time of the initial contract, the patent holder had not begun development of the system that would be patented. Although the contract set forth functional specifications, both a prior art conveyor and the patented conveyor would have met the specifications. Nevertheless, the Federal Circuit held that the on sale bar applied to the transaction because, prior to the critical date, “Ferag had decided to supply the patented conveyor pursuant to its agreements with Bergen.” *Id.* Is that analysis consistent with *Pfaff*? Is a firm exploiting its invention in any economically meaningful way if its contractual obligations could be fully satisfied by delivering prior art devices? Is *Ferag* good law after *Sparton Corp.*?

d. The answer seems to be B. The situation arose in *August Technology Corp. v. Camtek, Ltd.*, 655 F.3d 1278 (Fed. Cir. 2011). There, the inventor signed purchase orders to sell copies of an innovative machine that did not yet exist. Importantly, at the time of contracting, the inventor did not yet possess a sufficient amount of information—a sufficient degree of conception of the machine—for the machine to be ready for patenting under *Pfaff*. The Federal Circuit held that, while the pre-conception contractual offer did not qualify as “on sale” art at the time of the offer, the offer did qualify as “on sale” art once the inventor completed conception and the invention was ready for patenting under *Pfaff*. The Court reasoned that, “if an offer for sale is extended and remains open, a subsequent conception will cause it to become an offer for sale of the invention as of the conception date. In such a case, the seller is offering to sell *the invention* once he has conceived of it.” *Id.* at 1289 (emphasis in original).

The situation in *August Technology* — where parties contracted for an invention not yet in existence — may seem odd, but it is not unusual for a company to know what sort of device it needs, even if the technical knowledge to build the device does not yet exist. Remember in *Pfaff*, TI representatives first approached Pfaff to ask him about developing a new device for mounting and removing semiconductor chip carriers. If Pfaff and TI had entered into a contract at that time, Pfaff may have been contractually obligated to deliver copies of his invention to TI even though the invention was not then ready for patenting.

The result in *August Technology* seems consistent with footnote 14 from the *Pfaff* opinion, in which the Court discussed the possibility that additional development of an invention might occur after the inventor makes an offer covering the hoped-for invention. In rejecting the Solicitor General's proposed test, the Court seemed to be trying to give inventors more time to complete their inventions before the invention was considered on sale (which would then make it necessary to file a patent application within one year). While the Court's opinion is ambiguous as to precisely when the invention will be deemed on sale in such a case, the rule in *August Technology* seems reasonable.

5. "Fine Tuning." As the Federal Circuit has made clear in a number of cases, an invention may be "ready for patenting" under the *Pfaff* test even though the inventor continues to adjust or fine tune commercial embodiments of the invention. For example, in *Weatherchem Corp. v. J.L. Clark, Inc.*, 163 F.3d 1326 (Fed. Cir. 1998), the court held that a purchase order accepted prior to the critical date created a statutory bar even though the patent holder experienced production problems and was unable to fill the order until after the critical date. Because a drawing of the invention had been completed before the critical date and the production problems were solved merely by "fine tun[ing] features not claimed in the patent," the invention was deemed ready for patenting. 163 F.3d at 1334. *See also STX, LLC v. Brine, Inc.*, 211 F.3d 588, 591 (Fed. Cir. 2000) ("any 'fine tuning' the [commercial products] may have required after the [pre-critical date] sale does not undermine the conclusion that the invention was ready for patenting"); *Robotic Vision Sys., Inc. v. View Engineering, Inc.*, 249 F.3d 1307 (Fed. Cir. 2001) (holding the invention ready for patenting even though software to implement the invention had yet to be written).

6. Sham Sale. The unusual facts of *Mahurkar v. Impra, Inc.*, 71 F.3d 1573 (Fed. Cir. 1995), demonstrates the flexibility of the on sale bar, as the Federal Circuit applied it prior to *Pfaff*. Mahurkar invented a improved double lumen catheter and, prior to the critical date, he granted an exclusive license to Quinton Instruments Company. (As explained in the previous note, exclusively licensing an invention does not trigger the on sale bar.) The license included a clause that voided the exclusive rights if Quinton was unable to market the catheters by September 30, 1982, which was one year and three days *prior* to the eventual October 3, 1983, filing date. (Isn't it obvious that someone was not careful about dates?)

Prior to the contractual deadline, Quinton was having difficulty manufacturing the catheters to meet Mahurkar's specifications. To obtain a sale prior to the deadline, the chief executive officer of Quinton asked a friend to purchase some of the catheters. The friend, a director of the Northwest Kidney Center, authorized the purchase on behalf of Northwest, which bought two of the catheters prior to the contractual deadline, and thus prior to the critical date. (Mahurkar would later claim that the sale was a sham and that Quinton had failed to meet the contractual deadline, but Quinton and Mahurkar settled their dispute.) The purchased catheters embodied the invention as it would be claimed in Mahurkar's patent, but the catheters had "a number of serious defects, which would have increased the risk of injury to patients." 71 F.3d at 1575. The catheters also included instructions for sterilizing the devices which, if followed, would melt the catheters and render them unusable.

The district court (Easterbrook, J., sitting by designation) held that, although the catheters provided to Northwest constituted a reduction to practice of Mahurkar's invention and the transaction constituted a valid sale for purposes of contract law, the sale nonetheless did not constitute a sale for purposes of § 102 because "*UMC Electronics* abolished all mechanical tests

and substituted an approach under which triers of fact must consider all facts and circumstances in light of the purposes of the patent laws in general and [the purposes of the on sale bar in § 102] in specific.” *In re Mahurkar Double Lumen Hemodialysis Catheter Patent Litig.*, 831 F. Supp. 1354, 1368 (N.D. Ill. 1993). The Federal Circuit affirmed:

As we have repeatedly said, whether a device has been placed on sale is not subject to a mechanical rule. On the contrary, the on-sale determination depends on the totality of the circumstances, considered in view of the policies underlying [§ 102]. [Citing *UMC Electronics*.]

Our court has stressed that commercialization is the central focus for determining whether the patented invention has been placed on sale... . Because we conclude that Quinton’s sale to Northwest was a sham that did not result in “commercialization” of the invention or place it in the public domain, no [§ 102] sale occurred even though the prototype was a reduction to practice of the invention.

We believe that the relevant facts indicate that no commercialization took place here. Quinton did not advertise the catheters, nor offer them to anyone but [Northwest] prior to the critical date. The Northwest transaction was a special deal made in an attempt to satisfy the requirements of a licensing agreement, not a sale made on ordinary commercial terms... .

No members of the public outside of Northwest were likely aware of the transaction at all. If they had been aware, the circumstances of the transaction indicated that it was a sham transaction designed to satisfy a licensing agreement, rather than an ordinary commercial sale that would indicate that the invention was in the public domain.

That the Northwest transaction was not a [§ 102] sale is also consistent with encouraging the prompt and widespread disclosure of inventions and allowing an inventor a reasonable amount of time following sales activity to determine the potential value of a patent. The Northwest transaction was not “sales activity” that helped the inventor determine the value of a patent. Selling two unmarketable prototypes with instructions that made them unusable could not provide information as to the value of a patent. This suggests that the transaction did not impermissibly extend the one-year period allowed for inventors to evaluate the value of a patent before filing an application.

71 F.3d at 1577-78 (citations omitted). Did the Federal Circuit consider factors that have been rendered irrelevant by *Pfaff*? How should *Mahurkar* be decided under the *Pfaff* standard? Note that, in a post-*Pfaff* case, the Federal Circuit held that “the question of whether an invention is the subject of a commercial offer for sale is a matter of Federal Circuit law, to be analyzed under the law of contracts as generally understood.” *Group One, Ltd. v. Hallmark Cards, Inc.*, 254 F.3d 1041, 1047 (Fed. Cir. 2001).

7. Marketing but No Firm Offers to Sell. Can inventors market their inventions without triggering the “on sale” bar if they refrain from actually selling the invention or making any firm offers to sell? Since *Pfaff*, the Federal Circuit has held that inventors may undertake such activity. Indeed, without triggering the on-sale bar, inventors may even distribute “quote sheets” containing estimated prices of their inventions along with other promotional materials, provided that no “commercial offer of sale” is made under standard principles of contract law. *Gemmy*

Indus. Corp. v. Chrisha Creations, Ltd., 452 F.3d 1353, 1360 (Fed. Cir. 2006). *See also Linear Tech. Corp. v. Micrel, Inc.*, 275 F.3d 1040, 1051–54 (Fed. Cir. 2001) (holding that circulating advertisements for an invention does not trigger the on-sale bar).

In taking that approach, the Federal Circuit has read some of *Pfaff*'s dicta in a very formalistic manner. (Recall that *Pfaff* had entered into a contract, so the Supreme Court did not focus on the level of contractual formality needed to trigger the on-sale bar.) The Federal Circuit's approach has the benefit of establishing a relatively bright-line rule for applying the on-sale bar, but it also gives inventors the substantial power to avoid the on-sale bar while they nevertheless test the market for their inventions. Should an inventor be deemed to trigger the statutory bar if she places copies of her invention on a table at a trade show with the sign "make me an offer"? What if the sign says "make me an offer — I'd like the price to be \$100 per copy"? Note that the statutory language requires merely that the invention be "on sale." *See also In re Kollar*, 286 F.3d 1326, 1333 (Fed. Cir. 2002) (noting that the key issue in applying the on-sale bar is "whether the process has been commercialized").

8. The Separate Entities Requirement. The Federal Circuit has consistently stated that "a sale or offer to sell under [§ 102] must be between two separate entities." *In re Caveney*, 761 F.2d 671, 676 (Fed. Cir. 1985). Thus, shipment of product from one corporate division to another does not constitute a sale because "[s]eparate divisions of a corporation are not separate entities." *Union Carbide Corp. v. Filtrrol Corp.*, 170 U.S.P.Q. 482, 521 (C.D. Cal. 1971), *aff'd*, 179 U.S.P.Q. 209 (9th Cir. 1973). But the Federal Circuit has also refused to expand this rule to exempt sales between related but separate entities. *See, e.g., Ferag AG v. Quipp Inc.*, 45 F.3d 1562 (Fed. Cir. 1995) (holding seller corporation and buyer corporation to be separate entities even though the seller owned 50% of the outstanding stock of the buyer); *Brasseler, U.S.A. I, L.P., v. Stryker Sales*, 182 F.3d 888, 51 U.S.P.Q. 2d 1470 (Fed. Cir. 1999) (holding that a sale between separate corporations constituted a sale for purposes of § 102 even though the buyer and seller were joint developers each employing one or more of the named inventors).

9. Purchase of "Manufacturing Services" Does Not Place an Invention On Sale. As stated in the prior note, one division of a single company can order a supply of an invention from another division of the same company, and the transaction will not constitute a sale of the invention. But what if an inventor has no manufacturing division, but yet it wants to have copies of the invention made? If a manufacturer is hired to make and provide copies of the invention to the inventor, will that transaction constitute a sale of the invention? "No," the Federal Circuit answered in its unanimous *en banc* decision in *The Medicines Company v. Hospira*, ___ F.3d ___ (July 11, 2016).

The patentee in the *en banc* case—The Medicines Company or "MedCo"—invented a new pharmaceutical product prepared by an innovative process. Because MedCo lacked its own manufacturing facilities, it hired a company named Ben Venue Laboratories to manufacture and to provide it with copies of the new product. The Federal Circuit viewed the transaction as the hiring of "manufacturing services," rather than sales of the invention, and "clarif[ied] that the mere sale of manufacturing services by a contract manufacturer to an inventor to create embodiments of a patented product for the inventor does not constitute a 'commercial sale' of the invention." ___ F.3d at ___. The court also stated that the conclusion remains the same even if, in buying the manufacturing services, the inventor was "stockpiling" large quantities of the invention for later commercial sale. The court explained:

There are, broadly speaking, three reasons for our judgment in this case: (1) only manufacturing services were sold to the inventor—the invention was not; (2) the inventor maintained control of the invention, as shown by the retention of title to the embodiments and the absence of any authorization to Ben Venue to sell the product to others; and (3) “stockpiling,” standing alone, does not trigger the on-sale bar.

___ F.3d at ___. Once the inventor starts commercial sales of the stockpiled inventory, of course, *those* sales would constitute sales for purposes of § 102.

Does the result in *The Medicines Company* seem correct to you? Note that the contract manufacturer was paid less than \$350,000 to produce and deliver to MedCo copies of the invention (the patented pharmaceutical) worth more than \$20 million. Does that fact make the transaction seem more like the purchase of manufacturing services?

10. Do Secret Sales Qualify as On-Sale Prior Art? The answer to that question is “no” at least if the secret sales were not made by the patent applicant herself. In *MDS Associates, Ltd. Partnership v. United States*, 37 Fed. Cl. 611 (1997), *aff’d without opin.*, 135 F.3d 778 (Fed. Cir. 1998), the relevant patent covered certain automated systems designed to avoid collisions between ships. Prior to the critical date, a similar system was independently developed by the United States military and secretly sold to Germany. The fact of the sale was public, but the technical details of the system were classified and disclosed only to the purchaser. The court held that such a “secret sale” does not create “on sale” prior art against an inventor who was not a party to the secret transaction. *See* 37 Fed. Cl. at 631–33. *Metallizing Engineering*, however, suggests that secret sales by the applicant herself would be prior art against her.

11. The Relevance of Policy. What is the role of policy analysis after *Pfaff*? Does *Pfaff* restore the type of “mechanical rule” disparaged in *Mahurkar*? Or will courts continue to look to the underlying policies of the on sale bar in applying *Pfaff*’s two part test? *See Weatherchem Corp. v. J.L. Clark, Inc.*, 163 F.3d 1326, 1333 (Fed. Cir. 1998) (stating that “this court follows [*Pfaff*’s] two-part test without balancing various policies according to the totality of the circumstances as may have been done in the past”). For thorough reviews of the policies underlying the on sale bar and the history of the doctrine, *see* William C. Rooklidge & W. Gerald von Hoffman, III, *Reduction to Practice, Experimental Use and the “On Sale” and “Public Use” Bars to Patentability*, 63 ST. JOHN’S L. REV. 1 (1988); Patrick J. Barrett, Note, *New Guidelines for Applying the On Sale Bar to Patentability*, 24 STAN. L. REV. 730 (1972). Consider the role of policy analysis in the following case.

e. “Otherwise Available to the Public”

There are not yet any judicial decisions concerning the scope of the “otherwise available to the public” category of prior art. The one judicial decision interpreting the clause—*Helsinn Healthcare S.A. v. Reddy’s Labs. Ltd.*, 2016 U.S. Dist. LEXIS 27477 (D.N.J. Mar. 3, 2016) (discussed in the notes after *Metallizing Engineering*)—used the clause to *narrow* the scope of the other categories of prior art.

Yet even if *Helsinn* is affirmed on appeal and “otherwise available to the public” is viewed as constricting the other prior art categories in § 102(a)(1), the clause itself also plainly establishes a new category of prior art distinct from the other prior art categories. What might fall into this new category and not into any of the others?

We suspect the answer will be: a few things for sure, but not too much. One example, which we have already mentioned in the notes after *Klopfenstein*, is a purely oral presentation at a conference. Such a presentation might be hard to qualify as a “printed” publication, but if the oral presentation is made to fifty or so persons in the field and is clear enough for them to comprehend, then the new “otherwise available” category would seem to be the natural basis for qualifying the presentation as prior art. See Note, Nathan G. Ingham, *Anticipating New References: Predicting the Contours of the New “Otherwise Available to the Public” Category of Prior Art*, 53 B.C. L. REV. 1533 (2012) (arguing that the PTO and the courts should view the new “otherwise available to the public” category of prior art as including disclosures in non-documentary form, such as a purely oral presentation at a scientific conference); see also Joshua D. Sarnoff, *Derivation and Prior Art Problems with the New Patent Act*, 2011 PATENTLY-O PAT. L.J. 12, 25–28 (2011), available at <http://www.patentlyo.com/files/sarnoff.2011.derivation.pdf> (arguing that the prior art provisions of the AIA should be revised to avoid years of wasteful litigation about the precise scope of the new provisions).

Perhaps another example might be an innovative product that is displayed at a trade show encased in a glass box underneath a sign reading: “This invention is not for sale and no member of the public is permitted to use it!” Still, the invention might be “otherwise available to the public” if members of the public can look through the glass box and perceive sufficient information to be able to make and use the invention.

Can you think of additional hypotheticals? We suspect your professors will be trying to do so—and will include them on exams if they think of any!

2. Two-Time-Period Prior Art in § 102(a)(2): Published U.S. Patent Applications and Issued U.S. Patents

More than any other single statutory provision, § 102(a)(2) exemplifies the new first-to-file policy of the post-AIA Patent Act. If the goal of a country’s patent system is to grant patent rights only to the first inventor to file a patent application, one “simple rule” to accomplish that goal would be to add into the prior art, for use against any new patent applicant, all patent applications filed in the country by other inventors. (The applicant’s own prior patent filings need not be added to the prior art because another doctrine—the double patenting doctrine—prevents the same person from getting multiple patents.) That “simple rule” is pretty much the legal effect of § 102(a)(2), with some important caveats discussed below.

NOTES ON U.S. PATENT APPLICATIONS AS PRIOR ART

1. Applications Become Prior Art Only If Ultimately Published or Issued as Patents.

One of the most important limitations of § 102(a)(1)—and one major deviation from the “simple rule” that all prior applications become prior art against later applications—is that § 102(a)(2) makes prior U.S. applications prior art against subsequent applications *only if those prior applications are ultimately published or are issued as U.S. patents*. That limitation is very important because it means that, even after the PTO receives an application, the agency does not know, and cannot yet know, whether that application is part of the prior art for any subsequent application. A later event—either the application’s publication or maturation into a patent—is necessary to make the earlier filed application into prior art against subsequent applications.

This caveat on the operation of § 102(a)(2) is responsible for our labeling this category of prior art as “two-time-period” prior art. While that label is (as we previously mentioned) a convenient mnemonic to remember that this art is in paragraph (2) of § 102(a), the label also calls attention to a major logical difference between it and all of the prior art categories in § 102(a)(1). For the categories in § 102(a)(1), an attorney with knowledge of his client’s activities and of all publicly accessible information could know, theoretically at least, which things would count as prior art and which things would not at any given point in time. Not so for § 102(a)(2), because the attorney would also need to know the future.

Section 102(a)(2) operates this way in part because of history. The disclosures in U.S. patent applications have been a category of prior art ever since the U.S. Supreme Court’s decision in *Alexander Milburn Co. v. Davis-Bournonville Co.*, 270 U.S. 390 (1926). Justice Oliver Wendell Holmes, writing for the Court in that case, reasoned that the full disclosure present in a U.S. patent should have “the same effect as the publication of the same words in a periodical,” except that “[t]he delays of the patent office ought not to cut down the effect of what has been done.” *Id.* at 400-01. It’s unclear why Justice Holmes embraced that rule because, after all, the delays of a publisher of a printed publication *do* delay the material from entering the prior art. More importantly, however, Justice Holmes also expressly stated that “abandoned patent applications”—those applications never issued as patents (publication of application did not exist in that era)—did not need to be considered part of the prior art. The end result of *Milburn* was to create a category of material that does not become prior art unless it becomes publicly available (originally by issuance as a patent, now by issuance or publication), but that, once it does become publicly available, gets backdated to an earlier time (the application’s filing date).

The rule in *Alexander Milburn* was later codified and thereafter modified from time to time, but the unusual temporal structure of the rule has remained. Given that temporal structure, one obvious question is how long the delay is between the time of application filing and the time when it can be known whether the application has entered the prior art. For most applications under modern law, the answer is that the delay period is only 18 months, because most applications are published 18 months after their earliest effective filing date. If an application is abandoned prior to that 18-month date, it will not be published, but then it will also never enter the prior art under § 102(a)(2). There remain, however, circumstances where inventors can opt-out of the 18-month publication rule (the option requires foregoing the right to seek patents in other countries) and keep the application unpublished for the duration of patent prosecution. For such applications, the delay between filing and the time when it can be known whether the filing has entered the prior art will be equal to the entire time the application is pending, which could be many years.

2. Section 102(a)(2) Applies Only to Applications for Patent Rights in the United States. Patent systems across the world operate on a territorial basis. A U.S. patent gives rights in the United States; a Japanese patent gives right in Japan; etc. Thus, a first-to-file patent system can rationally operate with a rule that places into the prior art only those applications seeking rights in that particular country. That is, in fact, the approach of the U.S. system. Thus, where an inventor files a foreign patent application in, say, in January of 2017 and never seeks U.S. patent rights, that application will not prevent another inventor who independently invents the same technology from filing a U.S. application in February of 2017 and securing a U.S. patent on the technology. The end result will be that one inventor will have patent rights on the technology in the foreign country, and the other will have patent rights in the United States.

If, however, the foreign applicant *does* seek patent rights in the United States and that application is published or issued as patent, § 102(a)(2) will allow that application to enter the

prior art as of its global “effective filing date,” which will be the application’s foreign filing date (assuming that the attorney secured the foreign filing date as the effective filing date by filing the U.S. application within a year of the foreign filing date).

Thus, if an inventor files an application for a patent in a foreign country on, say, January 10, 2017, that application could become part of the prior art for purposes of the U.S. patent system on:

- January 10, 2017—**if** the inventor subsequently files an application in the United States **and** that application is published (as it surely would be if it is still pending 18 months after the effective filing date). It becomes prior art through the operation of § 102(a)(2).

or

- July 10, 2018—**if** the inventor does not file a U.S. application **and** the foreign country publishes its applications 18 months after filing (as almost all foreign countries do). In this scenario, the foreign application becomes prior art only through the operation of the “printed publication” category in § 102(a)(1).

or

- The date of patent issuance—**if** the inventor does not file a U.S. application **and** the foreign country either does not publish pending applications 18 months after filing (rare) or the country issued the patent before the standard 18-month publication period expired (again rare). In this scenario, the issued foreign patent could become part of the prior art through the “printed publication” and “patented” categories in § 102(a)(1).

3. Application Secrecy and Provisional Rejections. Under § 122 of the Patent Act, the PTO is required to keep patent applications secret for at least the first eighteen months after the application’s effective filing date, and if the applicant opts-out of publication, the application must remain secret until it issues as a patent. While an application is subject to this secrecy requirement, the PTO cannot issue a § 102(a)(2) rejection to a later-filed application based on an earlier-filed but still secret application. There are two reasons for this rule. First, an application becomes prior art under § 102(a)(2) only if it eventually becomes nonsecret — i.e., only if it eventually is published or issues as a patent. Thus, a § 102(a)(2) rejection based on a secret application would be premature. The second reason is, of course, that issuing the rejection to the later applicant would compromise the secrecy of the earlier filed application.

Where, however, the two pending applications have a common assignee or at least one common inventor, the PTO will issue a “provisional rejection” for the later-filed application. *See* MPEP § 706.02(f) & (k); *see also In re Bartfeld*, 925 F.2d 1450, 1451 n.5 (Fed. Cir. 1991) (describing the PTO’s provisional rejection policy). Because the applications share at least one inventor or assignee, the PTO does not view the provisional rejection as compromising the general secrecy of the earlier-filed application. However, the rejection is termed “provisional” because the disclosures in the earlier-filed application will not constitute prior art unless that application is eventually published or issues as a patent.

B. “GRACE PERIOD” EXCEPTIONS UNDER § 102(b)

Before discussing the details of § 102(b)’s exceptions, we need to provide an overview of the policy underlying these exceptions. The overarching goal here is to permit inventors to disclose and even to exploit their inventions commercially for one full year before they must file for patent rights. If they wait longer than a year, they lose their rights to seek patent protection. Pursuant to that policy, an inventor can publish an article about an invention or even start selling the invention commercially and, in theory, wait an entire year prior to filing a patent application. In the parlance of patent lawyers, that one year period is known as the “**grace period**.”

The policy of permitting a one-year grace period was also a bedrock component of pre-AIA law, and Congress definitely wanted to continue that policy in the AIA. Under pre-AIA law, the policy was effected merely by never putting into the prior art any of the inventor’s own work unless that work was *more than one year before* the inventor’s application filing date.¹ Under the AIA § 102(a), however, all of the inventor’s own pre-filing disclosures and commercial exploitations are included in the prior art immediately and, unless an exception is made, could be used against the inventor’s own patent application. Thus, to maintain the policy of having a grace period, the statute had to include exceptions excluding some of the references initially included in the prior art by § 102(a). Section 102(b) is the home for those exceptions:

(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.

(2) DISCLOSURES APPEARING IN APPLICATIONS AND PATENTS. — A disclosure shall not be prior art to a claimed invention under subsection (a)(2) if —

(A) the subject matter disclosed was obtained directly or indirectly from the inventor or a joint inventor;

(B) subject matter disclosed had, before such subject matter was effectively filed under subsection (a)(2), 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; or

¹ As previously explained, the “statutory bar” provisions of pre-AIA law have as their “critical date” one year prior to the application filing date.

(C) the subject matter disclosed and the claimed invention, not later than the effective filing date of the claimed invention, were owned by the same person or subject to an obligation of assignment to the same person.

Conveniently, the structure of § 102(b) parallels § 102(a). In both subsections (a) and (b), paragraph (1)² of the statute concerns what we have labeled “one-time-period” prior art—prior art that is patented, described in a printed publication, or in public use, on sale, or otherwise available to the public. Subsection (a)(1) provides the *inclusions* to these categories of prior art and (b)(1) covers the *exclusions* or exceptions.

In both subsections (a) and (b), paragraph (2) of the statute concerns what we have called “two-time-period” prior art—U.S. patent applications that, once published or issued as patents, become prior art as of the global effective filing date. And once again, (a)(2) provides the *inclusions*; (b)(2) covers the *exclusions* or exceptions.

In sum, the structure of § 102(a) & (b) can be represented by a 2 x 2 matrix, with the columns representing different types of art:

	Paragraph (1) (“One-Time-Period” Prior Art)	Paragraph (2) (“Two-Time-Period” Prior Art)
Subsection (a): Rules of Inclusion	<p>§ 102(a)(1)</p> <p>Rules for including prior art that is:</p> <p>“patented,” “disclosed in a printed publication,” “in public use,” “on sale,” or “otherwise available to the public.”</p>	<p>§ 102(a)(2)</p> <p>Rules for including prior art that is:</p> <p>Described in an earlier filed U.S. patent application that was eventually published or issued as a U.S. patent.</p>
Subsection (b): Rules of Exclusion	<p>§ 102(b)(1)</p> <p>Exceptions to (a)(1)</p>	<p>§ 102(b)(2)</p> <p>Exceptions to (a)(2)</p>

The columns are separated by a darker line to emphasize a basic structural feature of the statute: paragraph (1) in each of (a) and (b) deals with one type of prior art; and paragraph (2), a

² In describing the structure of the statute, we will employ the standard terminology used by U.S. lawyers, legislators and judges to describe the hierarchy of various subdivisions within a statutory section such as § 102: “subsections” ((a), (b)); “paragraphs” ((1), (2)), “subparagraphs” ((A), (B), (C)). By convention, subdivisions in a statutory section are referred to by the largest component specified. Thus, § 102(b)(1) could be called either “paragraph (1) in § 102(b)” or “subsection (b)(1) in § 102” (the subsection being the largest component specified in “(b)(1)”). See M. Douglass Bellis, *Statutory Structure and Legislative Drafting Conventions: A Primer for Judges* 8-10 (Fed. Judicial Center 2008) ([http://www.fjc.gov/public/pdf.nsf/lookup/draftcon.pdf/\\$file/draftcon.pdf](http://www.fjc.gov/public/pdf.nsf/lookup/draftcon.pdf/$file/draftcon.pdf)).

different type of prior art. You should never find yourself mixing art included under paragraph (1) with an exception in paragraph (2), or vice-versa.

That basic introduction sets forth the relationship between subsections (a) and (b) and paragraph (1) and (2). Now we turn to the details of the exceptions in § 102(b). Once again, the statute has an elegant structure, which is summarized in the following chart and explained in the paragraphs thereafter. (You might look carefully at the chart as you are reading the next few paragraphs.) Again, we have developed mnemonics (set forth in bold typeface) that hopefully will assist you in understanding and memorizing the structure.

	Paragraph (1) ("One-Time-Period" Prior Art)	Paragraph (2) ("Two-Time-Period" Prior Art)
Subsection (a): Rules of Inclusion	<p>§ 102(a)(1)</p> <p>Rules for including prior art that is:</p> <p style="text-align: center;">"patented," "disclosed in a printed publication," "in public use," "on sale," or "otherwise available to the public."</p>	<p>§ 102(a)(2)</p> <p>Rules for including into the prior art everything disclosed in</p> <p style="text-align: center;">prior U.S. patent applications by other inventors that are eventually published or issued as U.S. patents.</p>
Subsection (b): Rules of Exclusion	<p>§ 102(b)(1) (Exceptions limited to 1 year)</p> <p>(A) Attributable prior art.</p> <p>(B) Belated prior art (any art, even art independently created by another, arising <i>after</i> a public disclosure of the inventor's work)</p>	<p>§ 102(b)(2) (No time restriction)</p> <p>(A) Attributable U.S. patent applications.</p> <p>(B) Belated U.S. patent applications (U.S. patent applications filed by another <i>after</i> a public disclosure of the inventor's work)</p> <p>(C) Common assignee of the applications.</p>

The two subparagraphs (A) both address the situation where the item qualifying as prior art is *attributable* to the inventor herself. The simplest case is where the piece of prior art is *directly* attributable to the inventor. For example, if Mary publishes an article on January 1, 2017, that article qualifies as prior art under paragraph (1) of § 102(a). If she later files a patent application on February 1, 2017, she will need to find an exception in paragraph (1) of § 102(b). The attributable art exception in subparagraph (A) will work, and will exclude the article from the prior art, because the January 1 article is attributable to Mary. Note that this result reflects a core policy of the grace period: Mary's own article should not defeat her patent application provided that she files within a year of her publication. Subparagraph (A) will also work in any situation where the piece of prior art is *indirectly* attributable to Mary—for example, it could remove an article published by a thief who stole and published Mary's research.

The two subparagraphs labeled (B) address the situation where an item qualifies as prior art *belatedly*—i.e., after the inventor’s work was already publicly disclosed. A simple hypothetical would be where two researchers, Fran First and Sally Second, publish separate articles disclosing the same invention on, respectively, January 1 and January 2. If First then files a patent application a month later, she will need to find exceptions in § 102(b)(1) to remove both her article and Second’s from the prior art. Subparagraph (A) will cover her own article, but it won’t work for Second’s article if Second independently discovered the invention. Subparagraph (B), however, will work because Second’s article entered the prior art one day *after* First publicly disclosed the invention in her January 1 article. Thus, Sally Second’s belated disclosure will not hurt First’s opportunity to patent. Again, we can see this result as entirely consistent with the basic policy of having a grace period: After First discloses her invention on January 1, her right to seek a patent should be protected for one year and not be cut down by subsequent events.

Subparagraph (C) of (b)(2) excludes prior patent applications by other inventors that qualify as art under (a)(2) but have a *common assignee*. If you remember this provision as the “common assignee” provision, it will be easy to remember the subparagraph’s label—“(C)” for “common”—as well as the reason that it exists only for paragraph (2) prior art: The concept of an “assignee” has a well-defined legal meaning for patent applications (*see* 35 U.S.C. § 261, which authorizes assignments of patents and patent applications), but it does not necessarily have any meaning for the prior art items in paragraph (1).

Because there is not yet a substantial case law on these various exceptions, we will offer below some simple hypotheticals and discussion of the exceptions in § 102(b).

1. § 102(b)(1): Exceptions for One-Time-Period Art

As previously discussed, paragraph (1) in § 102(a) places into the prior art all basic references other than U.S. patent applications—specifically, prior art that is patented, disclosed in a printed publication, in public use, on sale, or otherwise available to the public. Correspondingly, the exceptions in paragraph (1) of § 102(b) cover the items in those categories that can be excluded from the prior art.

a. Attributable Work Excluded by § 102(b)(1)(A)

The exception in § 102(b)(1)(A) requires consideration of three issues: (i) the *types* of common scenarios in which the exception is likely to be invoked; (ii) the *proof* needed to invoke the exception; and (iii) the *timing* requirements of the exception.

Types of Scenarios: The most straightforward use of the exception will be where it is invoked to remove *the inventor’s own work*—like a journal article written by the inventor or a product that the inventor placed on sale. The exception is broader, however, as it also encompasses any disclosure made “*by another* who obtained the subject matter disclosed *directly or indirectly* from the inventor or a joint inventor.” 35 U.S.C. § 102(b)(1)(A) (emphases added). Thus, it covers the *thief* who steals and sells the inventor’s invention, and the *downstream consumer* who innocently uses the stolen invention. It also covers less nefarious situations as, for example, where an *honest reporter* writes an article praising (but also disclosing) the great research being done by the inventor.

Proof Required: To invoke the section and exclude a disclosure from the prior art, the inventor must show attribution, which demands that the disclosure to be excluded was made either (i) by the inventor herself or a co-inventor; or (ii) by someone else who obtained “the subject matter” directly or indirectly from the inventor or an co-inventor. In general, this seems like a straightforward standard although, as we discuss *infra*, the PTO has created some uncertainty about how it will determine whether the disclosure sought to be excluded from the prior art is the same as “the subject matter” obtained from the inventor. See Chapter 5.B.3, *infra*.

Timing: Disclosure can be excluded from the prior art under § 102(b)(1) only if the disclosure occurred *one year or less before the inventor’s global effective filing date*. That timing rule is consistent with the historical grace period policy for most of the past century. With respect to the inventor’s own disclosures, this timing rule seems fair: When inventors publish articles or otherwise create prior art under § 102(a)(1), they know that a one-year clock has started for filing a patent application. The timing rule may seem a bit harsh where a thief has stolen the inventor’s work and, perhaps without the inventor’s knowledge, disclosed it. Nevertheless, pre-AIA U.S. law holds that, if a stolen invention is disclosed, the inventor has only one year to file application. See *Lorenz v. Colgate-Palmolive-Peet Co.*, 167 F.2d 423 (3d Cir. 1948) (“pirated” invention entered the prior art after it has been used for more than one year in the ordinary course of business); *Evans Cooling Sys. v. General Motors Corp.*, 125 F.3d 1448 (Fed. Cir. 1997) (relying on *Lorenz* to hold that, even if the defendant auto manufacturer had stolen the plaintiff’s invention and incorporated the invention into its cars, plaintiff’s patent was invalid because independent car dealers had placed the cars on sale more than a year before the inventor’s filing date).

b. Belated Art Excluded by § 102(b)(1)(B)

Again, we will analyze this exception by reference to: (i) the *types* of common scenarios for the exception; (ii) the *proof* needed; and (iii) the *timing* requirements of the exception.

Types of Scenarios: This exception will apply where the disclosure qualifying as prior art under § 102(a)(1) occurred *after* the applicant publicly disclosed the matter. It applies whether or not the prior art disclosure was attributable to the applicant and thereby allows removal of prior art *created independently of the applicant’s own work*. Thus, one key scenario covered by this exception involves an *independent creator* who belatedly makes a disclosure. It should be noted, however, that the exception applies generally (without regard to independent creation), and sometime it might be easier for an applicant to rely on this exception rather than to have to prove attribution.

Proof Required: To exclude the other disclosure from the prior art, an applicant must show that (i) “the subject matter disclosed” by the other had (ii) previously been “publicly disclosed” by the applicant or by someone who obtained the matter from the applicant. Let’s address those requirements in reverse order.

The last requirement—a previous “public[]” disclosure—is likely more demanding than a mere “disclosure.” As we saw in Chapter 5.A.3, the “public use” concept has traditionally included some secret commercial uses. Even though such use may constitute a “disclosure” that qualifies as prior art under § 102(a)(1) and can be removed by the attributable work exception (§ 102(b)(1)(A)), the applicant cannot rely on such secret activity to remove prior art generated

by an independent creator. To be fully protected by the grace period under the AIA, the applicants must be able to point to a “public[]” disclosure of their work, for that type of disclosure is necessary to exclude the work of any independent creators.

As previously mention, the PTO has created some uncertainty about how it will interpret the concept of “the subject matter” and how it will determine whether “the subject matter” sought to be excluded from the prior art is the same as “the subject matter” publicly disclosed by the applicant. This point will be discussed more fully in Chapter 5.B.3, *infra*.

Timing: As with subsection (A), the exclusion in subsection (B) of § 102(b)(1) works only if the disclosure to be excluded occurred *one year or less before to the applicant’s global effective filing date*. In fact, the *de facto* period is going to be just a tiny bit shorter as a practical matter. Consider, for example, a hypothetical where Able files a patent application and invokes (b)(1)(B) to exclude from the prior art an article by Baker published *exactly* one year before the application filing date. Can Able get Baker’s article excluded under § 102(b)(1)(B)? Yes, but Able will have to prove that he “publicly disclosed” the invention prior to Baker’s article. Able’s own public disclosure is then going to be prior art under § 102(a)(1), and *that* piece of prior art will not be removable under (b)(1)(A) because, by assumption, it’s more than a year old. Thus, Able will succeed in getting Baker’s article kicked out of the prior art, but his own prior disclosure is then going to sink his chances for a patent.

One interesting aspect of this exception is that a thief could wind up helping an inventor. If a thief steals an inventor’s work and publicly discloses it, that public disclosure can help the inventor disqualify subsequent prior art, even prior art created independently by third parties. Of course, as explained above, the thief’s public disclosure will be excludable from the prior art only for a year, so the inventor better not delay too long in filing.

2. § 102(b)(2): Exceptions for Two-Time-Period Art

As previously discussed, paragraph (2) in § 102(a) is the heart and soul of the new first-to-file system of U.S. law because, with very few exceptions, it places into the prior art, for use against every new applicant, almost all prior U.S. patent filings by other applicants provided those filings are eventually disclosed to the public by publication or issuance as a patent. Correspondingly, the exceptions in paragraph (2) of § 102(b) are significant caveats on the first-to-file system.

a. Attributable U.S. Patent Disclosures Excluded by § 102(b)(1)(A)

Types of Scenarios: Unlike in § 102(b)(1), the attribution exception in (b)(2) is *not* needed to remove the applicant’s own patent applications because the applicant’s own prior applications are not included in the prior art by § 102(a)(2). The primary use of exception (A) in (b)(2) might thus seem to be in excluding applications filed by thieves who pirated an inventor’s work and wrongly sought patent claims to the work. That certainly is *a* use of the exception, and in fact the AIA created a new administrative proceeding to adjudicate such claims of thievery. (See Note on Derivation Proceedings, *infra*.) But there is another use of the exception that might be more common.

Because § 102(a)(2) includes into the prior art all disclosures (not just matters claimed) in patent applications filed by others, § 102(a)(2) can put into the prior art a description of one inventor's work found in an application filed by another who is legitimately and honestly seeking to patent a different invention.

Consider this scenario: Able publishes a journal article disclosing invention A on January 1. Baker reads the Able's article; conducts some research; and invents invention B (which is a complement to invention A). In June of the same year, Baker files a U.S. patent application claiming invention B but describing both inventions A and B (and the description of A might be necessary to enable B). In September, Able files a U.S. application on invention A. Able can use § 102(b)(1)(A) to remove his own journal article from the prior art. But assuming Baker's patent application is eventually published or issued as a patent, it will enter the prior art backdated to June. Able will need to rely on § 102(b)(2)(A).

Proof Required: As with the exception in (1)(A), an inventor invoking the exception in (2)(A) must show attribution—that the subject matter disclosed in the other's application was obtained from the inventor. For this exception too, the PTO has created some uncertainty about how it will determine whether “the subject matter” disclosed is the same as what was obtained from the inventor. See Chapter 5.B.3, *infra*.

Timing: Unlike the exceptions in (b)(1), the exceptions in (b)(2) have no time limit. As a practical matter, however, the exception in (b)(2)(A) is unlikely to help an applicant much if the earlier application has been pending for more than 2 ½ years. After 18 months, the earlier application will be published and will qualify as of that date as a printed publication under § 102(a)(1). For one year, that printed publication can be removed under § 102(b)(1)(A), but afterwards, the printed publication will irrevocably be in the prior art. Technically, § 102(b)(2)(A) can still be used to remove the application as § 102(a)(2) art, but nothing will be able to remove it as § 102(a)(1) art.

NOTE ON DERIVATION PROCEEDINGS

As discussed above, the exception in (b)(2)(A) might be invoked in circumstances where no inventor is trying to claim another's work, but it also definitely covers situations where two or more inventors have conflicting claims and are accusing each other of theft and other skullduggery. To address these situations in a procedurally fair manner, § 135 of the AIA authorizes a new form of administrative proceeding—a “derivation proceeding”—to sort out allegations that an applicant stole or “derived” an invention from another inventor. These new proceedings replace pre-AIA administrative proceedings that were called “interferences” and that, in contests between two rival applicants for the same patent rights, adjudicated which inventor was first to invent. Under the AIA system, the first-to-invent concept is irrelevant, so interferences do not exist under the AIA. As § 102(b)(2)(A) demonstrates, however, one way for a first-to-file applicant to lose priority to a later applicant is for the later applicant to prove theft of the invention. As explained in the House Report on the AIA:

[The AIA] eliminates costly, complex interference proceedings, because priority will be based on the first application. A new administrative proceeding — called a “derivation” proceeding — is created to ensure that the first person to file the application is actually a true inventor. This new proceeding will ensure that a person will not be able to obtain a patent for the invention that he did not actually invent. If a dispute arises as to which of two

applicants is a true inventor ..., it will be resolved through an administrative [derivation] proceeding

House Report No. 112-98 part 1, 112 Cong., 1st Sess. 42 (2011).

Under § 135 of AIA, a derivation proceeding begins when a petitioner alleges that “an inventor named in an 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.” AIA § 135. The challenge must be brought within one year of the disclosure of claim to the invention that the petitioner says was derived (i.e., one year after publication of the alleged deriver’s patent, or one year after patent issuance, whichever is the earlier date). That timing limitation is consistent with the point made above about the timing of the § 102(b)(2)(A) exception: the exception is not going to be much help one year after the earlier-filed patent application becomes prior art under § 102(a)(1) through publication or issuance (typically 2 ½ years after the filing of the earlier-filed patent application).

In general, under the AIA the *only* way to eliminate a patent that was derived from another is to institute a derivation proceeding. If a true inventor does not learn about the derived invention until more than a year after the deriver’s application is published, or more than a year after the deriver receives a patent, then there appears to be no remedy. This is in contrast to the situation under pre-AIA law, which specifically listed derivation as bar to patenting in the older version of § 102(f), and thus allows derivation as a general defense to any patent infringer (who did not have to be the true inventor). The AIA, however, has no provision akin to the pre-AIA § 102(f) — no general ground for invalidity that can be asserted by anyone with standing to challenge a patent (e.g., any accused infringer).

The AIA did, however, add a new definition to § 100 of the Patent Act, which defines “inventor” as the “individual ... who *invented or discovered* the subject matter of the invention.” 35 U.S.C. § 100(f) (emphasis added). That addition may be an indication that Congress wanted to reaffirm the policy that the Patent Act authorizes a patent only for a true “inventor,” and if a patent has been issued to a non-inventor who derived the invention from another, invalidity due to derivation is still a good defense that can be asserted by anyone with standing to challenge the patent.

In any event, theft of inventions seems to be relatively rare. By early 2016, the PTO had still not yet instituted even one derivation proceeding under the new AIA statute. *See* Anthony A. Hartmann, *Derivation in 2015: Still No Instituted Proceedings* (Jan. 13, 2016) (available at <http://www.aiablog.com/aia-did-you-know/derivation-proceedings-aia-did-you-know/derivation-in-2015-still-no-instituted-proceedings/>).

b. Belated U.S. Patent Disclosures Excluded by § 102(b)(2)(B)

The exception in (2)(B) is the most interesting of all the exceptions, for it in effect makes the priority law of the U.S. patent system follow a “first-to-file-or-to-publicly-disclose” principle rather than a true “first-to-file” rule. In other words, because of this exception, the first inventor to file an application may *lose* a patent priority fight to the second filer!

Types of Scenarios: This exception applies only where an applicant is trying to remove a disclosure in another inventor’s earlier-filed application and the applicant publicly disclosed the subject matter sought to be excluded before that earlier filing. As with the exception in (1)(B),

this exception applies even if the disclosure in the earlier-filed application was independently invented.

Proof Required: To exclude the disclosure in the earlier-filed patent application from the prior art, the later-filing patent applicant must show that (i) “the subject matter disclosed” in the earlier application had (ii) previously been “publicly disclosed” by the later-filing applicant. Those two requirements are subject to the same caveats as in § 102(b)(1)(B): The concept of “publicly disclosed” requires true public disclosure of the invention, not merely commercial or public exploitation with the details of the invention itself kept secret. And once again, the correct interpretation of “the subject matter” remains uncertain. See Chapter 5.B.3, *infra*.

Timing: As is generally true for the exceptions in (b)(2), the exclusion in subsection (B) has no time limit. As a practical matter, however, the exception is going to be useful only if the first-filed application was filed *less than one year before* the second-filed application. This is so because exception (2)(B) requires proof of an earlier public disclosure (i.e., a disclosure occurring before the first-filed application). That prior public disclosure will itself qualify as prior art (under subsection (a)(1)), and it will irrevocably enter the prior art against the second-filed application if it occurred more than a year before the second-filed application’s filing date.

The overall implications of exception in (b)(2)(B) are important as a theoretical matter. *If* the statutory grace period were completely reliable (and below we will discuss reasons why it is not), then the U.S. patent system could be described as a “first-to-file-or-first-to-publicly-disclose” system, and inventors could effectively gain *de facto* priority for patenting their inventions merely by making a public disclosure. That result might be highly desirable as a matter of public policy. If an inventor publicly discloses an invention rather than filing a patent application, information about an invention would be publicly disclosed *sooner* (recall that patent applications remains secret for at least 18 months prior to publication). In addition to that public benefit, the inventor would not have to engage a lawyer for another year. During that time, the inventor would have time to decide whether the invention is worth patenting. Such a system would also not suffer from the evidentiary problems associated with the old first-to-invent system (in which inventors often tried to prove dates of invention with oral testimony coupled with non-public, fragmentary and often quite old documents).

Despite those potential benefits, the U.S. grace period is not especially reliable, as we will see in subchapter B.3, *infra*.

c. Common Assignee U.S. Applications Excluded by § 102(b)(2)(B)

Types of Scenarios: This exception straightforwardly applies to one and only one situation: A later-filing applicant is trying to remove the disclosure found in a first-filed application, and both applications were assigned (or subject to a contractual obligation to assign) to the same legal person by the time of the later application’s filing date.

The exception is most useful for large research firms filing many patent applications, some of which may contain information generated by other researchers in the firm. While some such disclosures might also be excludable under the attributable work exception in (2)(A), the common assignee exception might be easier to manage because the proof required will be readily available in relatively clear documentary evidence.

Proof Required: The proof required to engage this exception is probably going to be relatively clear-cut: The second filer will have to produce evidence of an assignment or a contractual obligation to assign. Any patent assignment must be “in writing” (35 U.S.C. § 261), and contractual obligations to assign are almost certainly going to be set forth in writing too.

Timing: The exception has no time limit, but as with the other (b)(2) exceptions, timing constraints will arise through the operation of other parts of § 102. In particular, the common assignee exception is unlikely to be of much use after the earlier application has been pending for more than 18 months. At that point, the earlier application is going to be published (in most cases) and thereby enter the prior art under § 102(a)(1) as well as (a)(2). For a year after that, the later-filing applicant could remove the published application from the category of “printed publication” art via the attributable work exception in (b)(1)(A) *but only if attribution can be proven*. Yet if attribution could be shown, the common assignee exception is unnecessary because the prior-filed application could be removed via the attributable work exception in (b)(2)(A).

Note that the common assignee exception might give a large firm an incentive to pursue a patent application filed by the *later filing* of two research teams. Consider a firm in which the same invention is independently invented by two research teams, both of which had assigned patent rights to the firm. One team files a patent application in January of 2017; the other, more than a year later in March of 2018. The common assignee exception will mean that the earlier application will not be prior art against the later application. If no significant prior art arises between the two filings (a big assumption!), the firm would want to pursue the later of the two filings because a patent based on that application would not expire until 2038 rather than 2037.

3. Problems with the Reliability of the U.S. Grace Period

Theoretically, the U.S. grace period provisions in § 102(b) could provide a reliable one-year period in which inventors could freely publish or commercially exploit their inventions without fear of losing their patent rights. As a practical matter, however, it may be borderline malpractice for lawyers to advise their clients to rely on the U.S. grace period. Two problems are present.

First, even if the U.S. grace period worked perfectly and was itself perfectly reliable, other countries have much weaker grace periods in their laws. Thus, inventors jeopardize their patent rights in many other countries if they disclose their inventions before filing a patent application to secure a global effective filing date.

Second, the U.S. PTO has issued a controversial interpretation of § 102(b) that has created an enormous degree of uncertainty. If the agency’s interpretation is embraced fully or even partially by the courts, the grace period will be highly unreliable and thus largely worthless.

The key phrase in § 102(b)—and the target of the PTO’s interpretation—is “the subject matter.” This phrase is used in all of the prior art exceptions, but its proper interpretation is especially crucial to the proper functioning of the (A) and (B) exceptions because those exceptions require a comparison of (i) the “the subject matter” sought to be excluded from the prior art and (ii) “the subject matter” attributable or publicly disclosed by the applicant. The controversy began in 2012, when the PTO proposed interpreting the statute to require that the two subject matters be exactly the same:

[T]he exception in 35 U.S.C. 102(b)(1)(B) requires that the subject matter in the prior [art] disclosure ... be the same “subject matter” as the subject matter publicly disclosed by the inventor before such prior art disclosure Even if the only differences between the subject matter in the prior art disclosure ... and the subject matter publicly disclosed by the inventor before such prior art disclosure are *mere insubstantial changes, or only trivial or obvious variations*, the exception under 35 U.S.C. 102(b)(1)(B) does not apply.

Examination Guidelines for Implementing the First-Inventor-to-File Provisions of the Leahy-Smith America Invents Act, 77 Fed. Reg. 43759, 43767 (July 26, 2012) (emphasis added).

After a round of public comments containing some significant criticism of its interpretation, the agency walked back a bit—just a little bit—from its prior position. It “clarified” (1) that “the mode of disclosure” did not need to be same (the agency’s example was that a trade show presentation could be relied upon to exclude a later-published journal article); (2) that the two disclosures did not need to be “verbatim” copies; and (3) that the exception would still apply if the later-occurring prior art disclosure “is simply a more general description of the subject matter previously publicly disclosed by the inventor or a joint inventor.” Examination Guidelines for Implementing the First Inventor To File Provisions of the Leahy-Smith America Invents Act, 78 Fed. Reg. 11059, 11067 (2013). Elsewhere the agency stated that the exception could still be used to remove prior art if the inventor publicly disclosed a *species* of an invention, and the later-occurring piece of art disclosed a more generally described *genus*. *See id.* at 11077. But the agency expressly reaffirmed its “identical subject matter interpretation,” *id.* at 11061, stuck to its view that the exceptions in § 102(b) do “not contemplate variation in subject matter,” *id.* at 11066, and even stated explicitly that the exception would *not* apply where the inventor discloses a whole genus (the invention as generally described) and the later-occurring prior art discloses a more specific embodiment of the invention, *see id.* at 11077.

It is hard to overstate just how limiting the agency’s interpretation is, and just how much it undermines the reliability of the grace period. Consider, for example, an inventor who on January 1 publishes an article disclosing an inventive combination of technologies A + B. One month later another researcher in the field publishes an article that describes the inventor’s work and praises it as an important and nonobvious advance in the field. Toward the end of that article, however, the other researcher writes that the invention might work a bit better if it used B’ instead of B in the combination with A. The researcher explicitly states that the substitution of B’ for B is an obvious and trivial change to the inventor’s work. After another month, the inventor files an application seeking to patent the combination of A + B. Has the second article added to the prior art that the PTO may use against that application?

Shockingly, the PTO’s answer seems to be “yes.” While the disclosures in the first part of the article (disclosing and praising the inventor’s work) can be excluded under either (b)(1)(A) or (b)(1)(B), the final part of the article disclosing the combination A + B’ would enter the prior art under the agency’s interpretation because A + B’ is not the exact same thing as A + B. It is true, of course, that the inventor’s patent application on A + B might still be deemed *novel* even if the disclosure of A + B’ is added to the prior art. But A + B might very well be *obvious* given the knowledge of A + B’, and as we will see in Chapter 7, *infra*, obviousness is enough to defeat a patent claim.

It now should be clear just how practically significant the agency’s interpretation is, as well as why, if that interpretation were correct, attorneys would be committing malpractice if they advised clients to rely on the grace period. The very nature of technological progress usually means that, whenever one researcher discloses an invention, other researchers begin to explore

variations on the invention. If any of those other researchers publishes even a trivial variation before the first inventor files a patent application, that publication might very well be fatal to the first inventor's ability to obtain a patent.

The alternative to the agency's interpretation—an interpretation we think far more reasonable in light of text, structure and legislative intent of the statute—is to construe “the subject matter” as referring to the distinct ideas in the relevant disclosures. Thus, in our example above, the second publication includes two ideas: (i) the idea of combining A + B; and (ii) the idea that B' is sometimes a good substitute for B. The first idea was previously disclosed by the inventor and therefore it should be excluded in its entirety from the prior art. The second idea—that B' can sometimes substitute for B—is not excluded from the prior art, but that idea alone will not produce A + B' unless it is combined with the excluded idea of combining A + B.

In any event, the polestar in interpreting the grace period exceptions in § 102(b) should be to make them useful not useless. Unfortunately, the mere existence of the agency's interpretation has made the grace period exceptions much more the latter than the former. Until that interpretation is rejected in the courts, lawyers should not advise clients to rely on the § 102(b) grace period but should nonetheless still learn about it because it might have to be used where unwise prior disclosures have occurred.

C. THE STANDARD FOR ANTICIPATION

Once the set of prior art is known, an attorney, patent examiner or court then needs to figure out whether the invention claimed in the patent application being evaluated is novel in light of that prior art. Another way of stating the inquiry is to say that the decision maker must figure out whether the prior art “anticipates” the claimed invention. The statutory language in § 102 requires a comparison between the applicant's claimed invention and the information contained in each prior art reference. The key question is whether the reference discloses sufficient information so that it may fairly be said to contain the same thing as the applicant's claimed invention. But precisely how much information is sufficient to view the two as the same? Is “close enough” sufficient? The cases below grapple with this question.

1. The Identity Requirement

In general, the cases have held that “the defense of lack of novelty (i.e., ‘anticipation’) can only be established by a single prior art reference which discloses each and every element of the claimed invention.” *Structural Rubber Products Co. v. Park Rubber Co.*, 749 F.2d 707, 715 (Fed. Cir. 1984). In brief, an invention is not anticipated unless a single piece of prior art discloses the *identical* invention.

Two points about this standard are worth emphasis. First, anticipation requires all of the relevant information to be disclosed *in a single reference*. Once the analysis has started to discuss more than one reference (with some elements of the invention disclosed in one, and the rest in another), then that analysis is no longer about anticipation but about *obviousness*, which is a proper doctrine for considering various *combinations* of prior art references. Chapter 7 will discuss obviousness.

The second notable feature of the anticipation standard is the “every element” test. This may seem like an easy test — perhaps one that could be applied merely by completing a checklist. But in the real world, prior art references do not come with neat checklists of their elements. Even where the prior art reference is textual document (as in the following case) rather than a physical object, the description in the reference may seem quite different from the elements of the patent in question. Yet the differences may be merely superficial. In such circumstances, the PTO and the courts strive to transcend mere semantics in determining whether the reference really does disclose the elements of the claimed invention. Such determinations demand some judgment, as we can see in the following case.

IN RE ROBERTSON

169 F.3d 743 (Fed. Cir. 1999)

FRIEDMAN, SENIOR CIRCUIT JUDGE:

This appeal challenges the decision of the Board of Patent Appeals and Interferences (Board) that claim 76 in the appellants’ patent application was anticipated by and obvious over United States Patent No. 4,895,569 (the Wilson patent). We reverse.

I

Both claim 76 and Wilson involve fastening and disposal systems for diapers. In both, the body of the diaper features a small front and a larger rear section. The outer edges of those sections are attached at the wearer’s waist in the hip area. Once the diaper is soiled and then removed, the smaller front section is rolled up into the larger rear section and secured in this rolled-up configuration by fasteners. [See Figures 5-4, 5-5 & 5-6.]

The appellants’ application is for “an improved mechanical fastening system for ... disposable absorbent articles [i.e., diapers] that provides convenient disposal of the absorbent article.” Claim 76 covers:

[A] mechanical fastening system for forming side closures ... comprising

a closure member ... comprising a first mechanical fastening means for forming a closure, said first mechanical fastening means comprising a first fastening element;

a landing member ... comprising a second mechanical fastening means for forming a closure with said first mechanical fastening means, said second mechanical fastening means comprising a second fastening element mechanically engageable with said first element; and

disposal means for allowing the absorbent article to be secured in a disposal configuration after use, said disposal means comprising a third mechanical fastening means for securing the absorbent article in the disposal configuration, said third mechanical fastening means comprising a third fastening element mechanically engageable with said first fastening element

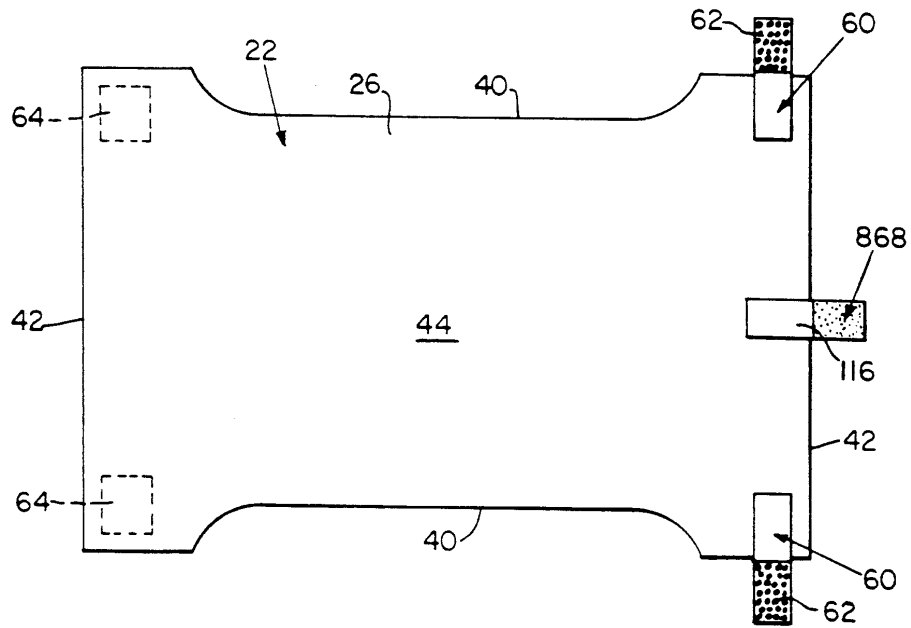


Figure 5-4 One Embodiment of the Robertson Invention: Third Fastening Element (868) Engages First Fastening Elements (62) After Used Diaper Is Rolled Up

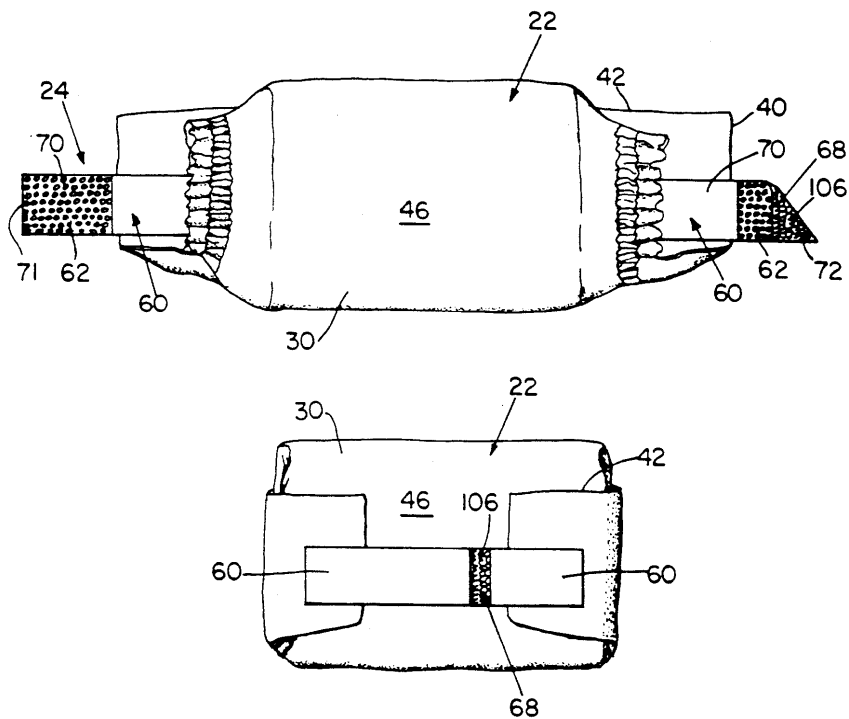


Figure 5-5 Another Embodiment of the Robertson Invention: The Disposal Fastening Means (106) Is Placed on the Back of the Tabs Containing the First Fastening Means (62)

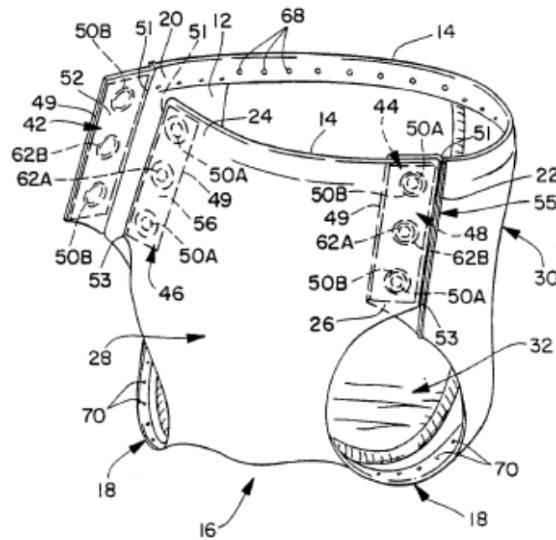


Figure 5-6 The Prior Art Wilson Diaper

Claim 76 thus provides for two mechanical fastening means to attach the diaper to the wearer and a third such means for securing the diaper for disposal.

The Wilson patent [see Figure 5-6] discloses two snap elements on fastening strips attached to the outer edges of the front and rear hip sections of the garment. The fastening strips may also include “secondary load-bearing closure means” — additional fasteners to secure the garment; they may be identical to the snaps.

Wilson also states:

Disposal of the soiled garment upon removal from the body is easily accomplished by folding the front panel ... inwardly and then fastening the rear pair of mating fastener members ... to one another, thus neatly bundling the garment into a closed compact package for disposal.

In other words, Wilson does not provide a separate fastening means to be used in disposing of the diaper. Instead, it suggests that disposal of the used diaper may be “easily accomplished” by rolling it up and employing the same fasteners used to attach the diaper to the wearer to form “a closed compact package for disposal.”

In holding that the invention claim 76 covers was anticipated by Wilson, the Board did not hold that Wilson set forth a third fastening means. Instead, it found that Wilson anticipated claim 76 “under principles of inherency.” Applying the language of claim 76 to the operation of Wilson, it concluded that “an artisan would readily understand the disposable absorbent garment of Wilson ... as being inherently capable of [making the secondary load-bearing closure means] (third fastening element) mechanically engageable with [the other snap fasteners on the fastening strip] (first fastening element)” — i.e., using the secondary closure not with its mate, but with one of the primary snap fasteners. The Board summarily affirmed the examiner’s alternative ruling that claim 76 would have been obvious in light of Wilson because “claim 76 lacks novelty.”

II

Anticipation under [§ 102] requires that “each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987).

A. The Wilson patent does not expressly include a third fastening means for disposal of the diaper, as claim 76 requires. That means is separate from and in addition to the other mechanical fastening means and performs a different function than they do. Indeed, Wilson merely suggests that the diaper may be closed for disposal by using the same fastening means that are used for initially attaching the diaper to the body.

B. If the prior art reference does not expressly set forth a particular element of the claim, that reference still may anticipate if that element is “inherent” in its disclosure. To establish inherency, the extrinsic evidence “must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.” *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991). “Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *Id.* at 1269 (quoting *In re Oelrich*, 666 F.2d 578, 581 (C.C.P.A. 1981).

In finding anticipation by inherency, the Board ignored the foregoing critical principles. The Board made no attempt to show that the fastening mechanisms of Wilson that were used to attach the diaper to the wearer also “necessarily” disclosed the third separate fastening mechanism of claim 76 used to close the diaper for disposal, or that an artisan of ordinary skill would so recognize. It cited no extrinsic evidence so indicating.

Instead, the Board ruled that one of the fastening means for attaching the diaper to the wearer also could operate as a third fastening means to close the diaper for disposal and that Wilson therefore inherently contained all the elements of claim 76. In doing so, the Board failed to recognize that the third mechanical fastening means in claim 76, used to secure the diaper for disposal, was separate from and independent of the two other mechanical means used to attach the diaper to the person. The Board’s theory that these two fastening devices in Wilson were capable of being intermingled to perform the same function as the third and first fastening elements in claim 76 is insufficient to show that the latter device was inherent in Wilson. Indeed, the Board’s analysis rests upon the very kind of probability or possibility — the odd use of fasteners with other than their mates — that this court has pointed out is insufficient to establish inherency.

[The court also overturned the Board’s determination that claim 76 was obvious under § 103.]

Reversed.

RADER, CIRCUIT JUDGE, concurring.

Robertson asserts that the prior art Wilson patent does not teach three elements of claim 76: a “third mechanical fastening means,” a disposal means on the “outside surface” of the body portion, and end regions that are “in an overlapping configuration when worn.” In reversing the Board, this court relies solely on the purported failure of Wilson to teach the third fastening

means. Because I believe Wilson teaches such a means, but does not teach the other two limitations at issue, I concur.

In its analysis, this court assumes without discussion that the claimed “third mechanical fastening means” covers a separate third mechanical fastening means. This issue is key, for if the claim does not require a separate third fastening means, but instead allows the first fastening means to also serve as the third, then the prior art Wilson patent clearly teaches that element of the claim. For two reasons, this claim does not, to my eyes, require a separate third fastening means. First, the claim does not specifically recite a separate third fastening means. Second, because the claim is in means-plus-function form, this court consults the specification to identify structure. The specification explicitly teaches that the first and third fastening elements can be the same so long as they are complementary, as they are in Wilson. Accordingly, I agree with the Board that Wilson teaches the claimed “third fastening element.”

[Judge Rader determined that the other two elements Robertson identified did distinguish claim 76 from the Wilson patent, and thus he concurred in reversing the Board decision]

NOTES ON ROBERTSON

1. It’s a messy business, but ... The earliest patent on a “disposable diaper” was issued in 1936 to George King and assigned to the Johnson & Johnson Company. *See* U.S. Pat. No. 2,062,978 (Dec. 1, 1936). Since then, the disposable diaper field has remained quite patent-intensive, with especially intense competition between Proctor & Gamble and Kimberly-Clark, the two leading firms that now dominate the multi-billion dollar industry. The intensity of patenting can be seen even in the history of the Robertson application, which was separated out from (in technical parlance, is a divisional application from) an application originally filed on December 17, 1987. That application previously generated two patents, *see* U.S. Pat. No. 4,963,140 (Oct. 16, 1990), and U.S. Pat. No. 5,279,604 (Jan. 18, 1994). The claim at issue in this case issued as U.S. Pat. No. 6,736,804 (May 18, 2004).

2. Every Element in a Single Reference. A good first step in applying the “every element” test is to construct the kind of “comparison chart” described in Chapter 1:

	Robertson's Claim 76	Wilson's Prior Art Diaper
Elements		
1. Closure member with first fastening element	X	X
2. Landing member with second fastening element engageable with first fastening element	X	X
3. Disposal means with . . .	X	X
3a. Third fastening element engageable with first fastening element	X	—
Other Elements		
*	*	*
*	*	*
*	*	*

The first point to notice is that the list of elements in the chart is drawn from the claim in Robertson's application. (The particular way that the elements are divided into boxes is somewhat arbitrary; for example, the element listed as 1 could be subdivided into its various features.) In determining whether the Wilson patent contains all of these elements, the court considers *all the information* disclosed in the Wilson patent — including all statements in the specification. The analysis is not limited to the *claims* in the Wilson patent because anything “described in” a prior-filed U.S. patent application is part of the prior art if that application is ultimately published or, as in the case of the Wilson patent, issued as a patent.

The heart of the novelty analysis is then comparing the claim elements to the information contained in the prior art reference. This is also the difficult part because it requires some judgment about whether the features in the prior art reference (which could be a patent, a journal article, or even physical product) contain all the elements of the claim.

3. The Anticipation-Infringement Symmetry. Courts have frequently noted that anticipation analysis is largely the same as infringement analysis (the subject of Chapter 8, *infra*). The only difference is that anticipation compares the claims to what came *before* the inventor's work, while infringement compares claims to what came *after*. Thus, the traditional rule is: “That which infringes, if later, would anticipate if earlier.” *Peters v. Active Mfg. Co.*, 129 U.S. 530, 537 (1889) (internal quotations omitted).

This analogy has been embraced by the Federal Circuit, with a slight refinement: “That which would *literally* infringe if later in time anticipates if earlier than the date of invention.” *Lewmar Marine, Inc. v. Barient, Inc.*, 827 F.2d 744, 747 (Fed. Cir. 1987) (emphasis in original); *see also* Roy H. Wepner, *The Patent Invalidity/Infringement Parallel: Symmetry or Semantics?*, 93 DICK. L. REV. 67 (1988). The limitation to *literal* infringement (as opposed to infringement under the so-called “doctrine of equivalents”) is intended to make clear that the modern anticipation analysis does not consider issues of equivalency — it requires strict *identity*. As discussed in the next note, however, anticipation analysis is only the first hurdle; inventors must also demonstrate the nonobviousness of their inventions.

4. Section 103 and the Bifurcated Invalidity Inquiry. The court in *Robertson* divides its analysis into two parts, the first addressing anticipation and the second, obviousness. This is the standard approach to determining whether a claimed invention is invalid in light of the prior art. It is also the standard approach to apply a strict identity test in judging anticipation and then to apply a broader test for obviousness — i.e., one that bars the patenting of something that, while not identically disclosed in the prior art, is an obvious variation of the prior art. Why take this bifurcated approach? In other words, why do courts apply such a rigorous test for anticipation given that a broader obviousness test follows? Wouldn’t it be easier to apply a single test that bars patents on anything *substantially identical* to the prior art?

Many courts have justified the strict identity test on the grounds that it is required by statute. The relevant language is found not in § 102 but in § 103, which mandates that the obviousness test applies where “the claimed invention is not identically disclosed as set forth in section 102.” 35 U.S.C. § 103 (emphasis added). Courts have interpreted this language as demonstrating Congress’s assumption that anticipation under § 102 requires precise identity. *See, e.g., Structural Rubber Products Co. v. Park Rubber Co.*, 749 F.2d 707, 715–16 (Fed. Cir. 1984). (This interpretation relies on an old and venerable canon of statutory construction — that “statutes in *pari materia* [relating to the same subject] must be construed together.” *See Bloomer v. McQuewan*, 55 U.S. 539, 548 (1852) (construing the patent laws).)

This argument leads immediately to the question: Why does the statute split the invalidity analysis in this way? Wouldn’t it be perfectly rational to say an invention isn’t new if it differs from the prior art only “in minor matters”?

The honest answer is: “Yes, that is a rational approach.” Indeed, in Japan, novelty is tested by a “substantial identity” rule that is more “relaxed” than the strict identity standard currently prevailing under United States law. *See* Toshiko Takenaka, *The Substantial Identity Rule Under the Japanese Novelty Standard*, 9 UCLA PAC. BASIN L.J. 220, 222 (1991). Moreover, even in the United States, some older cases tended to collapse what today we would recognize as distinct novelty and nonobviousness inquiries. *See American Seating Co. v. National Seating Co.*, 586 F.2d 611, 618 (6th Cir. 1978) (“This Court has repeatedly defined the proper standard with respect to anticipation as requiring that all elements of a patented device *or their equivalent* be found in a single pre-existing structure or description”); *Inglett & Co. v. Everglades Fertilizer Co.*, 255 F.2d 342, 345 (5th Cir. 1958) (similar). These older precedents often trace back to the law that existed prior to 1952, when the nonobviousness doctrine was first codified in § 103. *See, e.g., id.* at 345 n.4 (citing precedents dating back to the 1940’s).

It is also quite rational, however, to divide the invalidity analysis into two parts as current

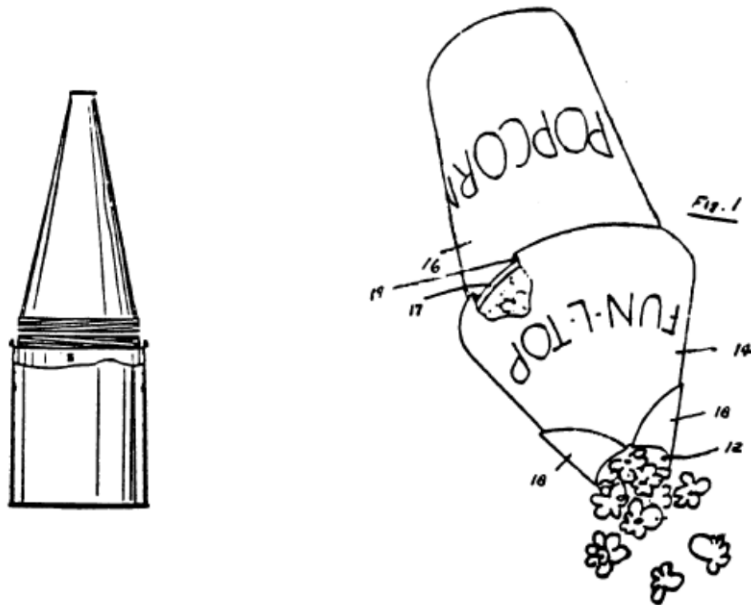
U.S. law does. One rationale for this approach is that the two separate inquiries foster precision and rigor by (1) forcing courts to identify the differences between the prior art and the invention and (2) demanding that the differences be evaluated under § 103, which, as we will see, requires a very specific perspective to be used in evaluating those differences. The overarching goal of this approach is to prevent decisionmakers (the courts and the PTO) from minimizing the importance of differences that, while in hindsight may seem minor, were in fact difficult to develop.

5. Inherently Uncertain? Although *Robertson* adheres to the rule that, to defeat the novelty of an invention, a single reference must disclose every element of the claimed invention, the court notes that disclosure could be made “either expressly or inherently.” Does this “inherency” doctrine invite uncertainty? Does the doctrine defeat the purpose of bifurcating the analysis of the prior art into novelty and nonobviousness inquiries?

What is the disagreement between the majority and Judge Rader in *Robertson*? Does the disagreement concern the inherent “teaching” of the prior art reference (*i.e.*, what the reference discloses), or the proper construction of the claims in Robertson’s patent application?

6. Judgment Calls. While there is broad agreement on the basic standard of anticipation, the application of the standard to particular cases does not always generate unanimity.

Consider, for example, *In re Schreiber*, 128 F.3d 1473 (Fed. Cir. 1997). Schreiber, the patent applicant, invented a new conical dispensing top for popcorn containers (*see* Figure 5-7, below). The larger end was designed to fit over a popcorn container of the sort normally sold in movie theaters; the smaller opening was sized to dispense “only a few kernels at a shake of the package.” The PTO Board of Patent Appeals and Interferences rejected the application as anticipated by a Swiss patent on a conical dispensing top which the Swiss patent described as useful for purposes such as dispensing oil from a can.



**Figure 5-7 Left: Prior Art Swiss Patent on a Conical Dispensing Top
Right: The Applicant’s Popcorn Top**

The central issue in the case was whether the Swiss patent inherently contained the functional limitation found in Schreiber's claims — i.e., the ability to dispense a few popped kernels of popcorn with a shake of the package. Per Judge Bryson, the majority affirmed the PTO's finding of inherent anticipation:

[T]he examiner was justified in concluding that the opening of a conically shaped top as disclosed by [the Swiss patent] is inherently of a size sufficient to "allow[] several kernels of popped popcorn to pass through at the same time" and that the taper of [the Swiss patent's] conically shaped top is inherently of such a shape "as to by itself jam up the popped popcorn before the end of the cone and permit the dispensing of only a few kernels at a shake of a package when the top is mounted on the container." The examiner therefore correctly found that Harz established a *prima facie* case of anticipation...

[C]ontrary to Schreiber's suggestion, the structure disclosed in [the Swiss patent] is not limited to use as an oil can dispenser. While that use is given as the principal example of the uses to which the invention could be put, nothing in the [Swiss] patent suggests that the invention is in any way limited to that use. In sum, Schreiber's declaration fails to show that [the Swiss patent] inherently lacks the functionally defined limitations recited in claim 1 of the application.

128 F.3d at 1478-79.

The majority's decision brought a sharp dissent from Judge Newman:

The [PTO] Board, using Mr. Schreiber's invention as a template, rescaled the prior art [reference] and filled the oil can with popcorn. This exercise of hindsight is not "anticipation." The law of anticipation requires that the same invention, with all the limitations of the claims, existed in the prior art. A prior art device can not be altered by the Board and then found to anticipate a different invention in whose image it was recreated.

Id. at 1480–81. Did the simplicity of the invention influence the majority's decision to find anticipation? Even if his dispenser top is not new, could the patent applicant be entitled to a patent on a *method* of dispensing popcorn?

Despite this decision, Schreiber obtained his patent. All he had to do was to limit the top opening of his funnel to be "of a diameter greater than one inch." U.S. Pat. No. 6,431,415 (Aug. 13, 2002) (claim 1). Does this result show that the PTO was not "rescaling" the prior art, as Judge Newman feared?

2. Accidental, Unknown and Inherent Anticipations

IN RE SEABORG

328 F.2d 996 (C.C.P.A. 1964)

SMITH, JUDGE.

The application¹ and the claims in issue relate to a new transuranic element having atomic number 95, now known as Americium (Am), to isotopes thereof, and to methods of producing and purifying said element and compositions thereof. Two isotopes of Americium are disclosed, Americium 241 and 242. Two general methods of synthesizing element 95 are set forth, namely (1) bombardment of plutonium with deuterons or neutrons; and (2) in a neutronic reactor operated at a relatively high power level (about 200 kw) for an extended period of time (approximately 100 days). A suitable reactor is said to be that described in Fermi et al. application Serial No. 568,904, filed December 19, 1944, which is now U.S. Patent No. 2,708,656.

The claims in issue read simply:

1. Element 95.
2. The isotope of element 95 having the mass number 241.

There is but a single ground of rejection involving the above claims, i.e., unpatentability over the Fermi et al. patent, for the reason that element 95 must be inherently produced in the operation of the reactor disclosed therein.

The Fermi et al. patent discloses several nuclear reactors. The patent does not mention elements 95 and 96. The claims in issue were first rejected on the Fermi patent. The specific basis for the examiner's rejection on Fermi was the exemplary statement of reactor operation contained in the [Fermi] patent, namely:

After operation of the reactor for a sufficient length of time for an amount of 94^{239} to be created sufficient for chemical separation, such as, for example, 100 days at 500 kilowatts, the reactor is shut down by inserting the control rod fully into the reactor. After about one-half hour's wait, during which all delayed neutron emission will have ceased and the more highly radioactive materials decayed sufficiently, the reactor may be unloaded... .

Appellant, however, asserts in his brief:

The statements are exemplary only. [T]he maximum amount of americium 241 that could have been produced in the reactor operated for 100 days at 500 kilowatts power can be calculated to be 6.15×10^{-9} gram. Thus the reactor could have produced no

¹ Appellant's application involved in this appeal is Serial No. 692,730, filed August 23, 1946, entitled "Composition of Matter and Preparation Thereof." Several process claims were allowed by the Patent Office.

more than one billionth [sic]³ of a gram of americium-241, and this one billionth of a gram would have been distributed throughout forty tons of intensely radioactive uranium reactor fuel. This amount of an unknown, unconcentrated isotope, if present, would have been undetectable.

The position of the Patent Office is stated in the solicitor's brief as follows:

Since the products produced in a neutronic reactor depend upon the manner of operation, and appellant does not and cannot really challenge the findings of similarity between appellant's process and Fermi's process, the inference that the claimed product is inherently produced is reasonable and logical.

The issue here arises by application of what both the appellant and the solicitor term the "inherency doctrine", which, as we understand it, is a Patent Office doctrine which infers a lack of novelty in a product under 35 U.S.C. § 101 if a comparable process for making the product is found to exist in the art. When so stated and applied to the facts here this doctrine establishes a broader basis for refusing a patent than is required by the courts in finding anticipation of an issued patent. It goes beyond the rule as stated by Judge Learned Hand in *Dewey & Almy Chemical Co. v. Mimex Co.*, 124 F.2d 986, 989 (2d Cir. 1942):

No doctrine of the patent law is better established than that a prior patent or other publication to be an anticipation must bear within its four corners adequate directions for the practice of the patent invalidated. If the earlier disclosure offers no more than a starting point for further experiments, if its teaching will sometimes succeed and sometimes fail, if it does not inform the art without more how to practice the new invention, it has not correspondingly enriched the store of common knowledge, and it is not an anticipation... .

The record before us is replete with showings that the claimed product, if it was produced in the Fermi process, was produced in such minuscule amounts and under such conditions that its presence was undetectable... . We also agree with the summary statement in appellant's brief that:

There is no positive evidence that americium was produced inherently in the natural uranium fuel by the operation of the reactor for the times and at the intensity mentioned in the exemplary statement relied upon by the Patent Office. The calculations, however, that the maximum amount of americium-241 which could have been produced by the operation of the reactor disclosed in the Fermi Patent for 100 days at 500 kilowatts would have been one billionth of one gram (1/1,000,000,000 gram), show that the element, if produced was produced in the most minute quantities. If the one billionth of a gram were produced, it would have been completely

³ It would appear that appellant meant "one one-hundred millionth" rather than "one billionth," since 6.15×10^{-9} gram amounts to more than *six* billionths of a gram.

undetectable, since it would have been diluted with the 40 tons of intensely radioactive uranium fuel which made up the reactor. The possibility that although a minute amount of americium may have been produced in the Fermi reactor, it was not identified (nor could it have been identified) would preclude the application of the Fermi patent as a reference to anticipate the present invention.

Since we reject the position of the board in affirming the rejection on the Fermi patent, there is no reason to here consider the sufficiency of the Rule 131 affidavits as establishing for appellant a date of invention prior to the date of the Fermi reference.

For the foregoing reasons, the decision of the board is reversed.

NOTES ON ACCIDENTAL ANTICIPATION

1. *Tilghman v. Proctor*: Anticipation by Accident. *Seaborg*'s limitation on the "inherency" doctrine can be traced back to the famous Supreme Court case of *Tilghman v. Proctor*, 102 U.S. 707 (1880). The patentee in that case, Richard Tilghman, discovered a new process for breaking down animal fat into glycerine and free fat acids, both of which are useful in manufacturing products such as soap and candles. Tilghman's process required merely for the fat to be mixed with water and then subjected to high temperature and pressure. One of the prior art references cited against Tilghman was a steam engine invented by a Mr. Perkins that had been lubricated with animal fat. In 1823, thirty years prior to Tilghman's invention, a scientific journal published an article entitled "Change of Fat in Perkins's Engine by Water, Heat, and Pressure" which made the following observation:

Mr. Perkins used in his steam-cylinder a mixture of about equal parts of Russia tallow and olive oil to lubricate the piston and diminish friction; that the mixture was consequently exposed to the action of steam at considerable pressure and temperature; and, being carried on by steam, it was found in the water, giving rise to peculiar appearances.

Mitchell v. Tilghman, 86 U.S. 287, 314–15 (1873). The Supreme Court held that Tilghman's invention was not anticipated by the Perkins engine:

We do not regard the accidental formation of fat acid in Perkins's steam cylinder from the tallow introduced to lubricate the piston (if the scum which rose on the water issuing from the ejection pipe was fat acid) as of any consequence in this inquiry. What the process was by which it was generated or formed was never fully understood. Those engaged in the art of making candles, or in any other art in which fat acids are desirable, certainly never derived the least hint from this accidental phenomenon in regard to any practicable process for manufacturing such acids... If the acids were accidentally and unwittingly produced, whilst the operators were in pursuit of other and different results, without exciting attention and without its even being known what was done or how it had been done, it would be absurd to say that this was an anticipation of Tilghman's discovery.

Tilghman v. Proctor, 102 U.S. at 711–12. This holding has come to be known as the doctrine of “accidental” anticipation. *See, e.g., In re Marshall*, 578 F.2d 301, 304 (C.C.P.A. 1978).

2. Undetectable or Unknown? *Seaborg* states that although the Fermi reactor probably produced element 95, “its presence was undetectable.” How does this differ from the separation of fat acids and glycerine produced accidentally by the prior art processes in the *Tilghman* case? Should the concept of accidental prior use be predicated on (1) lack of knowledge regarding what is produced; (2) undetectability of what is produced; or (3) something else? *See Schering Corp. v. Geneva Pharmaceuticals*, Chapter 5.C.2, *infra*.

3. It Gives Nothing to the World. The rationale for the accidental anticipation rule was succinctly articulated in *Edison Elec. Light Co. v. Novelty Incandescent Lamp Co.*, 167 F. 977 (3d Cir. 1909). The case involved a patent on an improvement to the electric wires leading into light bulbs. Prior art bulbs used platinum for the lead wires, and those wires were joined to less expensive copper wires *outside* of the glass bulb. Edison’s improvement was to join the copper and platinum wires *inside* the glass. An “accidental anticipation” of Edison’s design had, in fact, been occurring during the manufacture of the prior art bulbs, but the court found that irrelevant:

[In the prior art lamps,] it sometimes happened that the glass, by mistake, ran down on to and over the point of union [between the copper and] the platinum, thus realizing, as it is said, the construction of the patent. But no such accidental and fugitive occurrence is of account. Not only was it not understood or appreciated, but it was actually made the ground of rejection [on the assembly line], the lamp, when it happened, being regarded as imperfect and thrown out. It thus gave nothing to the world, standing in the way of discovery, indeed, instead of promoting it and is thus entitled to no consideration.

Edison Elec. Light Co. v. Novelty Incandescent Lamp Co., 167 F. 977, 980 (3d Cir. 1909). Note that the defendant in the case, Novelty, was defeated when Edison’s novelty was not defeated(!).

The case was one of many in which Edison’s companies vigorously enforced their patent rights in the early light bulb industry. *See* ARTHUR A. BRIGHT, JR. THE ELECTRIC-LAMP INDUSTRY: TECHNOLOGICAL CHANGE AND ECONOMIC DEVELOPMENT FROM 1800 TO 1947, at 89 (1949). Yet the enforcement of Edison’s patents could not prevent other firms from entering the market in 1894 (when Edison’s pioneering patents expired) and from developing their own improvements to Edison’s technology. Indeed, shortly after Edison’s basic patents expired in 1894, General Electric (formerly Edison General Electric) needed to catch up to other firms that were surpassing its technology. *See* THOMAS P. HUGHES, AMERICAN GENESIS: A CENTURY OF INVENTION AND TECHNOLOGICAL ENTHUSIASM, 1870-1970, at 166–67 (1989).

4. The Anticipation-Infringement Symmetry Revisited. Could Glenn Seaborg, after the issuance of his patent on element 95, enjoin the operation of a Fermi reactor? Note that a product patent confers the right to prevent any making the product, *see* 35 U.S.C. § 271(a), and Fermi reactors *do* create element 95 (albeit in minute quantities and in an unusable form).

Are there harder hypotheticals along this line? For example, imagine that, after *Tilghman v. Proctor*, an owner of a Perkins engine realizes that the “scum” produced by the breakdown of the fat used in lubricating the engine is actually fat acid, which is commercially valuable. Can the engine owner begin harvesting the fat acid and selling it without violating *Tilghman*’s patent?

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In contrast to *Seaborg*, the Federal Circuit has taken a somewhat different approach to the problem of inherent anticipation:

SCHERING CORP. v. GENEVA PHARMACEUTICALS, INC.

339 F.3d 1373 (Fed. Cir. 2003)

RADER, CIRCUIT JUDGE.

On summary judgment, the [district court] determined that claims 1 and 3 of U.S. Patent No. 4,659,716 (the '716 patent) are invalid. Because the district court correctly found that U.S. Patent No. 4,282,233 (the '233 patent) inherently anticipates claims 1 and 3 of the '716 patent, this court affirms.

I.

Schering Corporation (Schering) owns the '233 and '716 patents on antihistamines. Antihistamines inhibit the histamines that cause allergic symptoms.

The prior art '233 patent covers the antihistamine loratadine, the active component of a pharmaceutical that Schering markets as Claritin™. Unlike conventional antihistamines when Claritin™ was launched, loratadine does not cause drowsiness.

The more recent '716 patent at issue in this case covers a metabolite of loratadine called descarboethoxyloratadine (DCL). A metabolite is the compound formed in the patient's body upon ingestion of a pharmaceutical. The ingested pharmaceutical undergoes a chemical conversion in the digestion process to form a new metabolite compound. The metabolite DCL is also a non-drowsy antihistamine. The '716 patent issued in April 1987 and will expire in April 2004 (the '233 patent issued in 1981 and has since expired)...

The '233 patent [is] prior art to the '716 patent. The '233 patent discloses a class of compounds including loratadine The '233 patent does not expressly disclose DCL and does not refer to metabolites of loratadine.

The numerous defendants-appellees sought to market generic versions of loratadine once the '233 patent expired. [The appellee generic drug companies submitted applications for regulatory approval from the Food and Drug Administration (FDA) to market loratadine. By statute, the filing such an FDA application constitutes an act of infringement if the application covers "a drug claimed in a patent or the use of which is claimed in a patent." 35 U.S.C. § 271(e)(2)(A). Schering filed suit alleging that marketing generic forms of loratadine would infringe claims 1 and 3 of the '716 patent, which cover different forms of DCL.]

The district court construed claims 1 and 3 of the '716 patent to cover DCL in all its forms, including "metabolized within the human body" and "synthetically produced in a purified and isolated form." The parties agreed to that construction. Applying that claim construction, the district court found that the '233 patent did not expressly disclose DCL. Nonetheless, the district court also found that DCL was necessarily formed as a metabolite by carrying out the process

disclosed in the '233 patent. The district court concluded that the '233 patent anticipated claims 1 and 3 of the '716 patent under [§ 102]. The district court therefore granted the appellees' motions for summary judgment of invalidity. Schering timely appealed ...

II.

A.

A patent is invalid for anticipation if a single prior art reference discloses each and every limitation of the claimed invention. Moreover, a prior art reference may anticipate without disclosing a feature of the claimed invention if that missing characteristic is necessarily present, or inherent, in the single anticipating reference.

At the outset, this court rejects the contention that inherent anticipation requires recognition in the prior art. [This court has] held that inherent anticipation does not require that a person of ordinary skill in the art at the time would have recognized the inherent disclosure. *E.g.*, *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1351 (Fed. Cir. 2002); *MEHL/Biophile Int'l Corp. v. Milgraum*, 192 F.3d 1362, 1366 (Fed. Cir. 1999) ("Where ... the result is a necessary consequence of what was deliberately intended, it is of no import that the article's authors did not appreciate the results."). Thus, recognition by a person of ordinary skill in the art before the critical date of the '716 patent is not required to show anticipation by inherency. The district court therefore did not err in allowing for later recognition of the inherent characteristics of the prior art '233 patent....

Cases dealing with "accidental, unwitting, and unappreciated" anticipation also do not show that inherency requires recognition. *See Eibel Process Co. v. Minn. & Ontario Paper Co.*, 261 U.S. 45 523 (1923); *Tilghman v. Proctor*, 102 U.S. 707 (1880). In contrast to the present case, the record in *Eibel* and *Tilghman* did not show that the prior art produced the claimed subject matter. The patent at issue in *Tilghman* claimed a method of forming free fatty acids and glycerine by heating fats with water at high pressure. In *Tilghman*, the record did not show conclusively that the claimed process occurred in the prior art. In reviewing the prior art, the Court referred hypothetically to possible disclosure of the claimed process. For example, the Court stated "[w]e do not regard the accidental formation of fat acid in Perkins's steam cylinder ... (if the scum which rose on the water issuing from the ejection pipe was fat acid) as of any consequence in this inquiry." *Tilghman*, 102 U.S. at 711. In *Eibel*, the Court found no evidence of the claimed subject matter in the prior art. *Eibel*, 261 U.S. at 66 ("[W]e find no evidence that any pitch of the wire ... had brought about such a result ... and ... if it had done so under unusual conditions, accidental results, not intended and not appreciated, do not constitute anticipation.").

Applying an inherency principle in the context of [the on sale category of prior art], this court has distinguished *Eibel* and *Tilghman*. *See Abbott Labs. v. Geneva Pharms., Inc.*, 182 F.3d 1315, 1319 (Fed. Cir. 1999) ("If a product that is offered for sale inherently possesses each of the limitations of the claims, then the invention is on sale, whether or not the parties to the transaction recognize that the product possesses the claimed characteristics."); *Scaltech, Inc. v. Retec/Tetra, LLC*, 269 F.3d 1321, 1330 (Fed. Cir. 2001) ("[A]ppreciation of the invention is not a requirement [to qualify as on sale prior art]"). In those cases, the product sold or offered for sale had an inherent, but unrecognized, feature that was a limitation of the asserted claims. *Id.* Thus, this court has distinguished *Eibel* and *Tilghman*, which therefore do not bind this court to find no anticipation because skilled artisans did not recognize that the prior art '233 patent inherently produced the claimed invention, DCL.

In the context of accidental anticipation, DCL is not formed accidentally or under unusual conditions when loratadine is ingested. The record shows that DCL necessarily and inevitably

forms from loratadine under normal conditions. DCL is a necessary consequence of administering loratadine to patients. The record also shows that DCL provides a useful result, because it serves as an active non-drowsy antihistamine. In sum, this court's precedent does not require a skilled artisan to recognize the inherent characteristic in the prior art that anticipates the claimed invention.

B.

This court recognizes that this may be a case of first impression, because the prior art supplies no express description of any part of the claimed subject matter. The prior art '233 patent does not disclose any compound that is identifiable as DCL. In this court's prior inherency cases, a single prior art reference generally contained an incomplete description of the anticipatory subject matter, i.e., a partial description missing certain aspects. Inherency supplied the missing aspect of the description. Upon proof that the missing description is inherent in the prior art, that single prior art reference placed the claimed subject matter in the public domain. This case does not present the issue of a missing feature of the claimed invention. Rather, the new structure in this case, DCL, is not described by the prior '233 patent. ...

Because inherency places subject matter in the public domain as well as an express disclosure, the inherent disclosure of the entire claimed subject matter anticipates as well as inherent disclosure of a single feature of the claimed subject matter. The extent of the inherent disclosure does not limit its anticipatory effect. In general, a limitation or the entire invention is inherent and in the public domain if it is the "natural result flowing from" the explicit disclosure of the prior art. See *Eli Lilly & Co. v. Barr Labs., Inc.*, 251 F.3d 955, 970 (Fed. Cir. 2001).

In reaching this conclusion, this court is aware of *In re Seaborg*, 328 F.2d 996, 51 C.C.P.A. 1109 (CCPA 1964). In that case, this court's predecessor considered claims drawn to an isotope of americium made by nuclear reaction in light of a prior art patent disclosing a similar nuclear reaction process but with no disclosure of the claimed isotope. The court reversed a United States Patent and Trademark Office rejection of the claims for lack of novelty. This court's predecessor found that the prior art process did not anticipate the claims because the process would have produced at most one billionth of a gram of the isotope in forty tons of radioactive material, i.e., the isotope would have been undetectable. *Id.* at 998–99 ("[T]he claimed product, if it was produced in the Fermi process, was produced in such minuscule amounts and under such conditions that its presence was undetectable."). In this case, DCL forms in readily detectable amounts as shown by the extensive record evidence of testing done on humans to verify the formation of DCL upon ingestion of loratadine.

This court sees no reason to modify the general rule for inherent anticipation in a case where inherency supplies the entire anticipatory subject matter. The patent law principle "that which would literally infringe if later in time anticipates if earlier," *Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc.*, 246 F.3d 1368, 1378 (Fed. Cir. 2001), bolsters this conclusion. Similarly, "if granting patent protection on the disputed claim would allow the patentee to exclude the public from practicing the prior art, then that claim is anticipated." *Atlas Powder [Co. v. IRECO Inc.]*, 190 F.3d 1342, 1346 (Fed. Cir. 1999).] "The public remains free to make, use, or sell prior art compositions or processes, regardless of whether or not they understand their complete makeup or the underlying scientific principles which allow them to operate. The doctrine of anticipation by inherency, among other doctrines, enforces that basic principle." *Id.* at 1348. Thus, inherency operates to anticipate entire inventions as well as single limitations within an invention.

Turning to this case, the use of loratadine would infringe claims 1 and 3 of the '716 patent covering the metabolite DCL. This court has recognized that a person may infringe a claim to a metabolite if the person ingests a compound that metabolizes to form the metabolite. *See Hoechst-Roussel Pharms., Inc. v. Lehman*, 109 F.3d 756, 759 (Fed. Cir. 1997) (“[T]he right to exclude may arise from the fact that when administered, [the accused product] metabolizes into another product ... which Hoechst has claimed.”); see also *Zenith Labs., Inc. v. Bristol-Myers Squibb Co.*, 19 F.3d 1418, 1421–22 (Fed. Cir. 1994) (stating that a compound claim could cover a compound formed upon ingestion). An identical metabolite must then anticipate if earlier in time than the claimed compound... .

C.

[Schering asserts that, prior to the critical date, it had tested loratadine only in secret.] Schering thus argues that DCL did not “exist” in the public domain such that DCL could be prior art against the '716 patent.

Anticipation does not require the actual creation or reduction to practice of the prior art subject matter; anticipation requires only an enabling disclosure. Thus, actual administration of loratadine to patients before the critical date of the '716 patent is irrelevant. The '233 patent suffices as an anticipatory prior art reference if it discloses in an enabling manner the administration of loratadine to patients... .

An anticipatory reference need only enable subject matter that falls within the scope of the claims at issue, nothing more. To qualify as an enabled reference, the '233 patent need not describe how to make DCL in its isolated form. The '233 patent need only describe how to make DCL in any form encompassed by a compound claim covering DCL, e.g., DCL as a metabolite in a patient's body. The '233 patent discloses administering loratadine to a patient. A person of ordinary skill in the art could practice the '233 patent without undue experimentation. The inherent result of administering loratadine to a patient is the formation of DCL. The '233 patent thus provides an enabling disclosure for making DCL.

D.

Finally, this court's conclusion on inherent anticipation in this case does not preclude patent protection for metabolites of known drugs. With proper claiming, patent protection is available for metabolites of known drugs. Cf. *In re Kratz*, 592 F.2d 1169, 1174 (CCPA 1979) (stating that a naturally occurring strawberry constituent compound does not anticipate claims to the substantially pure compound); *In re Bergstrom*, 427 F.2d 1394, 1401–02 (CCPA 1970) (stating that a material occurring in nature in less pure form does not anticipate claims to the pure material).

But those metabolites may not receive protection via compound claims. In this case, for instance, claims 1 and 3 broadly encompass compounds defined by structure only. Such bare compound claims include within their scope the recited compounds as chemical species in any surroundings, including within the human body as metabolites of a drug. As this case holds, these broad compound claims are inherently anticipated by a prior art disclosure of a drug that metabolizes into the claimed compound.

A skilled patent drafter, however, might fashion a claim to cover the metabolite in a way that avoids anticipation. For example, the metabolite may be claimed in its pure and isolated form, as in *Kratz* and *Bergstrom*, or as a pharmaceutical composition (e.g., with a pharmaceutically acceptable carrier). The patent drafter could also claim a method of administering the metabolite or the corresponding pharmaceutical composition. The '233 patent

would not provide an enabling disclosure to anticipate such claims because, for instance, the '233 patent does not disclose isolation of DCL.

The '716 patent contains claims 5-13 covering pharmaceutical compositions and claims 14-16 covering methods of treating allergic reactions by administering compounds that include DCL. These claims were not found anticipated by the '233 patent ...

Affirmed.

NOTES ON INHERENT ANTICIPATION AND THE PUBLIC DOMAIN

1. An Anti-Backsliding Principle. Judge Rader's reasoning in *Schering* is best summarized in the quotation from the earlier *Atlas Powder* case: "[I]f granting patent protection on the disputed claim would allow the patentee to exclude the public from practicing the prior art, then that claim is anticipated." This rule could be described as an "anti-backsliding" principle: Parties cannot obtain patent rights encompassing practices that already exist in the public domain (or that would enter the public domain prior to the expiration of the patent at issue). This principle cuts through the legalistic distinctions and provides a commercially coherent and practical test.

2. Seaborg and Infringement. Does the court convincingly distinguish *Seaborg*? Note that, in *Seaborg*, there was no indication that the patentee was going to seek to use the new patent to assert rights over pre-existing practices but that was precisely what Schering sought to do. The *Seaborg* court probably assumed that, if Seaborg had tried to assert rights against a nuclear reactor, an infringement court would have construed the claim not to encompass the "making" of element 95 in undetectable and commercially insignificant amounts. Thus, even in *Seaborg*, the anticipation-infringement symmetry remains valid.

3. Alternative Claims. The *Schering* court suggests that Schering might be able to obtain patent rights over DCL if it claimed DCL "in its pure and isolated form" or, alternatively "as a pharmaceutical composition (e.g., with a pharmaceutically acceptable carrier)." *Schering* was, however, decided before the Supreme Court's decision in *Myriad* (see Chapter 2), which held that § 101 barred claims to a naturally occurring substance in isolated and purified form. Would *Myriad* foreclose a claim to isolated and purified DCL? Or is *Myriad* inapplicable if DCL does not naturally occur? Should all metabolites be viewed as naturally occurring even if the metabolite will not occur with a person ingesting a non-natural substance?

The *Schering* court also mentions that Schering could have claimed a "method of administering" DCL. That form of claim seems to be still valid even after *Myriad*. Of course, Schering is less interested in that claim because it will not allow the firm to enjoin sales of loratadine.

4. Judge Newman's View. Judge Newman thought the *Schering* decision should have been reviewed en banc. In her view, "[a] newly discovered attribute or property of something that was already known is patentable only as a method-of-use, but does not impart patentability to the known product. However, a previously unknown product does not become unpatentable simply because it existed before it was discovered." *Schering Corp. v. Geneva Pharms., Inc.*, 348 F.3d 992, 994 (Fed. Cir. 2003) (Newman, J., dissenting from denial of motion for rehearing en banc).

5. Inherency at the Supreme Court. In *SmithKline Beecham Corp. v. Apotex Corp.*, 403 F.3d 1331 (Fed. Cir. 2005), Judge Rader applied the holding in *Schering* to rule once again that a

composition of matter is anticipated if it was inherently produced by the prior art. This case was appealed to the Supreme Court, and the Court requested the Solicitor General's views as to whether certiorari was warranted. In recommending that the Court deny certiorari (which the Court later did), the Solicitor General offered a ringing endorsement of Judge Rader's reasoning in *Schering*:

As the *Schering* court also recognized, a failure to apply ordinary principles of inherent anticipation in this context would enable patent applicants to withdraw prior art compounds from the public domain whenever those compounds (or their production or use) inevitably produce a newly discovered compound. 339 F.3d at 1379. The law simply does not permit that result. It is a bedrock principle of patent law that "if granting patent protection on the disputed claim would allow the patentee to exclude the public from practicing the prior art, then that claim is anticipated, regardless of whether it also covers subject matter not in the prior art." *Atlas Powder*, 190 F.3d at 1346.

Brief for the United States as Amicus Curiae in *SmithKline Beecham v. Apotex*, No. 05-489 (available at <http://www.usdoj.gov/osg/briefs/2005/2pet/6invit/2005-0489.pet.ami.inv.pdf>).

6. Inherency, "On Sale" Prior Art and *Pfaff*'s "Ready for Patenting" Test. *Schering* held that then-unknown things could be inherently disclosed by a piece of *documentary* prior art—a previously issued U.S. patent that qualified as prior art both because it was "patented" art and because it was sufficiently public and well-indexed to be a "printed publication." Could things unknown at the time but inherently present also qualify as "on sale" prior art?

Superficially, one might think that, because patent applicants cannot patent inventions that they don't know about, the "ready for patenting" test from *Pfaff v. Wells* (Chapter 5.A.1.d, *supra*) might require that parties to a sale understand what they have sold in order for the thing to qualify as "on sale" prior art. That very argument was, however, rejected in a case cited in *Schering, Abbott Labs. v. Geneva Pharms., Inc.*, 182 F.3d 1315, 1319 (Fed. Cir. 1999).

In that case, Abbott discovered that a previously known pharmaceutical, terazosin hydrochloride, could exist in four anhydrous crystalline forms. Abbott patented what it thought was a new crystalline form—"Form IV." After the patent issued, it was discovered that several batches of the pharmaceutical sold before the critical date were in fact the Form IV crystalline structure, though the parties to the sales did not understand that they were buying and selling that particular crystalline structure. The court held "the parties' ignorance that they were dealing with Form IV is irrelevant." *Id.* at 1318. The court reasoned:

[Under *Pfaff*], [a]n invention may be shown to be "ready for patenting," *inter alia*, by "proof of reduction to practice before the critical date." [Citing *Pfaff*.]

The invention at issue in this case clearly meets the *Pfaff* test. Even though the parties did not know it at the time, it is undisputed that Form IV was the subject matter of at least three commercial sales in the United States before the critical date. It is also clear that the invention was "ready for patenting" because at least two foreign manufacturers had already reduced it to practice. ...

Abbott cites cases holding that the accidental, unintended, and unappreciated production of the product or process in question does not constitute anticipation. *See, e.g., Tilghman v. Proctor*, 102 U.S. 707, 711–12 (1881) (an accidental and incidental production of fatty acids by means not understood or appreciated did not anticipate a patented process for separating fatty bodies into fatty acids and glycerin). Those cases are all off the point because they involved the issue whether the claimed inventions were anticipated by earlier work that produced no useful or appreciated result. In contrast, the material here, having been sold, was decidedly useful and appreciated.

Abbott argues that the invention was not on sale because those who sold the claimed product did not know all of its characteristics. We disagree. It is well settled in the law that there is no requirement that a sales offer specifically identify all the characteristics of an invention offered for sale or that the parties recognize the significance of all of these characteristics at the time of the offer. *See Scaltech Inc. v. Retec/Tetra, L.L.C.*, 178 F.3d 1378, 1384 (Fed. Cir. 1999). If a product that is offered for sale inherently possesses each of the limitations of the claims, then the invention is on sale, whether or not the parties to the transaction recognize that the product possesses the claimed characteristics. *See id.*; *J.A. LaPorte, Inc. v. Norfolk Dredging Co.*, 787 F.2d 1577, 1582–83 (Fed. Cir. 1986) (“The question is not whether the sale, even a third party sale, ‘discloses’ the invention at the time of the sale, but whether the sale relates to a device that *embodies* the invention.”) (emphasis in original). In this case, it is undisputed that Form IV falls within the scope of claim 4. The fact that the parties to the sales transactions did not know they were dealing in Form IV at the time of the sales is therefore irrelevant to the question whether it was “on sale” before the critical date.

One of the primary purposes of the on-sale bar is to prohibit the withdrawal of inventions that have been placed into the public domain through commercialization. *See, e.g., King Instrument Corp. v. Otari Corp.*, 767 F.2d 853, 860 (Fed. Cir. 1985). In this case, significant quantities of Form IV terazosin anhydrate were publicly sold in the United States in 1989–90 and in 1991 and were thus in the public domain when Abbott filed its application in October 1994. If Abbott’s position were adopted, a person could buy or sell a compound whose exact nature had not been determined and then, years after those sales, file a patent application claiming the compound by characteristics newly discovered. The on-sale bar does not permit such a withdrawal of subject matter already available to the public. *Cf. In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990) (the discovery of a new property of an old compound does not make claims to that compound patentable).

182 F.3d at 1318–19.

In light of *Abbott*, does *Pfaff*’s “ready for patenting” test have a misleading label? One commentator relies on *Abbott* in arguing that “‘reduction to practice’ should be considered an alternative to the ‘ready for patenting’ prong [of the *Pfaff* test], rather than a sub-test for meeting it.” Nicole M. Fortune, Note, *Scaltech Inc. v. Retec/Tetra L.L.C. & Abbott Laboratories v. Geneva Pharmaceuticals, Inc.*, 15 BERKELEY TECH. L.J. 185, 204 (2000). The author reasons that treating “reduction to practice” and “ready for patenting” as alternatives “capture[s] the central idea that commercialization of that which inherently embodies or depicts the invention should trigger the [on sale] bar.” *Id.* at 205.

7. Timing of *Abbott's On Sale Holding*. At what time was the crystalline Form IV on sale in *Abbott*? Was it (A) when the foreign suppliers offered the pharmaceutical for sale, (B) when the purchasers ordered the substance, or (C) when the purchasers received the Form IV? Remember that none of the parties knew that the transactions involved crystalline Form IV.

8. A Swiftian Comment. Jonathan Swift, in a letter to Mr. Delany (1718), wrote (at p. 1, line 25): “ ‘Tis never by invention got; Men have it when they know it not.” He was speaking of humor, but the problem of accidental anticipations was inherent in what he said.

3. The “Enablement Standard” for Anticipation

The law has long been settled that a prior art reference cannot anticipate an invention unless the reference is enabling. As the Supreme Court explained in *Seymour v. Osborne*, 78 U.S. (11 Wall.) 516, 555 (1870):

Patented inventions cannot be superseded [i.e., anticipated] ... unless the description and drawings [of the reference] contain and exhibit a substantial representation of the patented improvement in such full, clear and exact terms as to enable any person skilled in the art or science to which it appertains to make, construct and practice the invention to the same practical extent as they would be enabled to do if the information was derived from a prior patent. Mere vague and general representations will not support such a defense.

This rule is not considered controversial, as Judge Learned Hand noted:

No doctrine of the patent law is better established than that a prior patent or other publication to be an anticipation must bear within its four corners adequate directions for the practice of the patent invalidated. If the earlier disclosure offers no more than a starting point for further experiments, if its teaching will sometimes succeed and sometimes fail, if it does not inform the art without more how to practice the new invention, it has not correspondingly enriched the store of common knowledge, and it is not an anticipation.

Dewey & Almy Chem. Co. v. Mimex Co., 124 F.2d 986 (2d Cir. 1942); *see also Paperless Accounting, Inc. v. Bay Area Rapid Transit Sys.*, 804 F.2d 659, 665 (Fed. Cir. 1986) (stating rule).

The articulations of this standard might suggest a symmetry between the enablement standard for anticipation and the enablement requirement in Chapter 4, *supra*. But the case law suggests that the symmetry between the two enablement standards is not complete. Consider, for example, the following case:

IN RE HAFNER

410 F.2d 1403 (C.C.P.A. 1969)

[The appellant, Klaus Hafner, invented some new chemical compositions. He filed two German patent applications on his inventions in 1959 and a U.S. patent application in August of 1960. In 1961, at least one of the German patent applications was published. In due course, the U.S. Patent Office rejected Hafner’s application under 35 U.S.C. § 112 because his application

failed to disclose any use for his compositions. In July of 1964, Hafner filed a new U.S. application that contained additional disclosures concerning how to use his compositions. The Patent Office did not dispute that the new disclosure met the requirements of § 112, but Hafner now had a new problem.

Sections 119 and 120 of the Patent Act allow a patent applicant to claim an effective filing date for a U.S. application based on the filing date of an earlier foreign or U.S. filing patent application, *provided that the disclosure in the earlier application satisfies § 112*. Because Hafner's 1960 U.S. application, which was based on the disclosure in the German applications, had been held not to satisfy § 112, Hafner was unable to claim any date earlier than July of 1964 for his new U.S. application. The later filing date meant more references qualified as prior art, including Hafner's own published German application.

In rejecting Hafner's 1964 application, the Patent Office held (1) that, for purposes of § 102, the critical date for testing novelty was Hafner's 1964 filing date and (2) that, as of 1964, Hafner's invention was barred under § 102 by two pieces of prior art: an article by Arnold published in May of 1960, and one of Hafner's German patent applications, which was published in 1961. While both prior art references disclosed how to create Hafner's compositions, neither reference disclosed any use for the compositions. Hafner appealed.]

RICH, JUDGE, delivered the opinion of the court:

All the appealed claims stand rejected as being “fully met (35 USC 102)” by both [Hafner's published German patent application] and an article published in May 1960 by one Arnold... . Appellant urges that these references do not qualify as “enabling” disclosures because they allegedly do not “teach the public ‘how to use’ the invention” Appellant also maintains that

the Patent Office is at once inconsistent and unfair in holding that the Arnold disclosure and the Hafner disclosure ... “fully meet” the appealed claims, and that the disclosure in the parent application which is even better than that in the Hafner reference fails to support the claims on appeal.

In essence, appellant is contending that a double standard should not be applied in determining the adequacy of a disclosure to anticipate under § 102, on the one hand, and to support the patentability of a claim under § 112 on the other. He feels that a disclosure adequate for the one purpose is necessarily adequate for the other but, unhappily for him, this is not so. As we will develop, a disclosure lacking a teaching of how to use a fully disclosed compound for a specific, substantial utility or of how to use for such purpose a compound produced by a fully disclosed process is, under the present state of the law, entirely adequate to anticipate a claim to either the product or the process and, at the same time, entirely inadequate to support the allowance of such a claim. This is so because of the requirements of law engrafted on sections 101 and 112 by the decision of the Supreme Court in *Brenner v. Manson*, 383 U.S. 519 (1966), with respect to the meaning to be given to the words “useful” and “use” in those sections. In construing them, we must of course, give them the meaning demanded by the Supreme Court.

Standing alone, appellant's argument against a double standard is a plausible proposition. However, when considered in light of the specific provisions of § 102, and § 112 as it has been interpreted, it is seen to be untenable — § 112 provides that the specification must enable one skilled in the art to “use” the invention whereas § 102 makes no such requirement as to an

anticipatory disclosure. The disclosure of how to use must relate to a use of the kind considered by the Supreme Court in *Brenner v. Manson* to be a sufficient utility... . Thus, the double standard which appellant criticizes is now, implicitly if not explicitly, required by law, at least in situations such as we have here, although the “invention” per se claimed is fully disclosed and though the manner of “making,” as distinguished from “using,” the invention is also fully disclosed or is obvious.

[The court then affirmed the Patent Office’s decision that Hafner was not entitled to rely on the filing date of either his German applications or his 1960 U.S. application for purposes of § 102.]

Affirmed.

NOTES ON ANTICIPATORY ENABLEMENT

1. The Watered-Down Standard of Enablement: The Incomplete Symmetry Between Patent Enablement and Anticipatory Enablement. As the Federal Circuit has recently noted, *Hafner* demonstrates that “[t]he standard for what constitutes proper enablement of a prior art reference for purposes of anticipation ... differs from the enablement standard under section 112.” *Rasmusson v. Smithkline Beecham Corp.*, 413 F.3d 1318, 1325 (Fed. Cir. 2005). Under *Hafner*, is Judge Learned Hand correct in stating that a prior art reference must disclose “adequate directions for the practice of the patent” in order to anticipate?

2. New Use for an Old Product. The result in *Hafner* can be attributed in part to the venerable rule that inventors cannot obtain patents on old products merely because they have discovered new uses for them. *See, e.g., General Elec. Co. v. Jewel Incandescent Lamp Co.*, 326 U.S. 242, 247 (1945) (“If A without mentioning the element of strength patented a bulb which was extra strong, B could not obtain a patent on the bulb because of its strength, though he was the first to recognize that feature of it.”). *Hafner* extends that rule so that discovery of a new use does not make an old compound patentable *even though the prior art did not teach any use for the compound*.

Hafner thus demonstrates that, when an inventor claims a structure, novelty doctrine ignores the properties or characteristics associated with the structure. The logic here is simple: A claim to a structure entitles the patentee to exclusive rights to all properties of the structure, including later discovered properties. While discoverers of new properties may obtain process patent protection for the new use of an old product, those process patents will be subservient to the patent on the structure. Thus the *scope* of a product patent is quite broad, covering as it does even unforeseen uses. The doctrine that any identical structure disclosed in the prior art ought to bar such a product patent represents the *quid pro quo* for such broad protection. Broad protection, in other words, implies broad anticipation.

This symmetry is one of many examples of the way patent law attempts to tailor the magnitude of the reward to the inventor (here measured in terms of patent scope) to the social value of the inventor’s technical contribution. For additional discussion see “Discussion: New Use Patents,” *infra*.

3. New Uses for a Known Alloy. *Titanium Metals Corp v. Banner*, 778 F.2d 775 (Fed. Cir. 1985), is another well-known case showing the reach of the rule articulated in *Hafner*. Titanium Metals sought a patent covering a class of alloys discovered to have good resistance to

corrosion. Unfortunately, a Russian publication disclosed that a prior researcher had run tests of basic metallurgical properties (e.g., strength and ductility) for several of the alloys falling within the patent applicant's claims. The Russian article did not disclose any use for the alloys or any method for making the alloys. Indeed, the only indications that the researcher had made the alloys were a few data points on graphs set forth in the article.

Nevertheless, the court held that the data points on the Russian graphs anticipated the claimed alloys. The Russian article did *not* need to disclose a use to be anticipatory. Knowledge sufficient to enable the making of the alloy *was* required, but even the expert for Titanium Metals had to concede that, given the data points in the Russian article, "he would know how to prepare the alloys 'by at least three techniques.'" *Id.* at 781. Thus, the court concluded, "[e]nablement is not a problem in this case." *Id.*

4. The Broccoli Sprout Patent. The asymmetry between patent enablement and anticipatory enablement was also important in invalidating some interesting patents owned by the Johns Hopkins School of Medicine. Researchers at Hopkins discovered that cruciferous sprouts (e.g., broccoli and cauliflower sprouts) are rich in glucosinolates, which can aid the body's natural cancer-fighting mechanisms. Even though cruciferous sprouts have long been used as food, the PTO granted the researchers two broad patents, which included the following as their first claims:

1. A method of preparing a food product rich in glucosinolates, comprising germinating cruciferous seeds [e.g., broccoli and cauliflower seeds], and harvesting sprouts prior to the 2-leaf stage, to form a food product comprising a plurality of sprouts.
1. A method of increasing the chemoprotective amount of Phase 2 enzymes in a mammal, comprising the steps of:
 - (a) identifying seeds which produce cruciferous sprouts ... ;
 - (b) germinating said seeds;
 - (c) harvesting said sprouts between the onset of germination up to and including the 2-leaf stage to form a food product comprising a plurality of sprouts; and
 - (d) administering said food product, or a non-toxic extract of said food product, to said mammal.

U.S. Pat. Nos. 5,725,895 (March 10, 1998) & 5,968,505 (Oct. 19, 1999).

In the ensuing infringement litigation against sprout farmers, the patents were invalidated. As the Federal Circuit explained:

[Johns Hopkins] does not claim to have invented a new kind of sprout, or a new way of growing or harvesting sprouts. Rather, [Johns Hopkins' researchers] recognized that some sprouts are rich in glucosinolates and high in Phase 2 enzyme-inducing activity while other sprouts are not. But the glucosinolate content and Phase 2 enzyme-inducing potential of sprouts necessarily have existed as long as sprouts themselves, which is certainly more than one year before the date of application at issue here. See, e.g., Karen Cross Whyte, *The Complete Sprouting*

Cookbook 4 (1973) (noting that in “2939 B.C., the Emperor of China recorded the use of health giving sprouts”). Stated differently, a sprout’s glucosinolate content and Phase 2 enzyme-inducing potential are inherent characteristics of the sprout. It matters not that those of ordinary skill heretofore may not have recognized these inherent characteristics of the sprouts.

In re Cruciferous Sprouts Litigation, 301 F.3d 1343, 1350 (Fed. Cir. 2002). The result in *Cruciferous Sprouts* reinforces the basic rule that a patentee should never gain rights over something previously existing in the prior art. Broccoli sprout farmers should not suddenly wake up one morning to find that a new patent bars them from doing what they have long been doing. While the decision also may diminish the incentives to discover valuable new information about existing products and processes, this problem might be ameliorated in two ways. First, even with no patent protection, the researchers may be able to reap rewards by investing in assets that will rise in value with the release of their new information (e.g., broccoli sprout futures). See Jack Hirshleifer, *The Private and Social Value of Information and the Reward to Inventive Activity*, 61 AM. ECON. REV. 561 (1971) (suggesting that Eli Whitney would have received greater returns on his cotton gin if he had speculated in cotton-producing lands). One obvious limitation on this technique is that the inventor may not be able to identify any assets that the discovery will increase in value (e.g., there may not be a market in broccoli sprout futures).

Alternatively, the researchers may be able to win more narrow patent rights. For example, the researchers might be able to patent the business method comprising (1) harvesting broccoli sprouts at precisely the right time to maximize their cancer-fighting properties and (2) marketing them as the best cancer-fighting sprouts available. Other firms could then still grow sprouts as food, and consumers desiring only food could purchase those sprouts. But consumers interested in using sprouts to fight cancer might be willing to pay a premium for sprouts with optimal cancer-fighting properties. Indeed, the licensee of Johns Hopkins is following this business strategy, although apparently without the protection of a business method patent. See www.broccosprouts.com (noting that BroccoSprouts®, the trade name for licensed sprouts, “are the only product that guarantees a consistent level of [the cancer-fighting chemical]”).

5. Minimum Disclosure for Prior Art Products: Noninforming Products. In *Hafner* and *Titanium Metals*, the anticipatory references were printed publications. In contrast, where the anticipatory reference is a product actually in public use, some case law suggests that no enablement standard applies: The product constitutes prior art even if the knowledge needed to produce the product is not publicly available. The issue generally arises in cases of so-called “noninforming” products — products or systems that are publicly available but that do not inform the public (i.e., do not reveal information) about how the product was created or how it works.

For example, in *Lockwood v. American Airlines*, 107 F.3d 1565 (Fed. Cir. 1997), an airline reservation system — known as the SABRE system — had been in use for decades prior to the filing of the relevant patent application. American Airlines, the accused infringer in the case, cited the SABRE system as prior art even though the company conceded that “the essential algorithms of the SABRE software were proprietary and confidential and that those aspects of the system that were readily apparent to the public would not have been sufficient to enable one skilled in the art to duplicate the system.” 107 F.3d at 1570. In holding that the SABRE system did constitute prior art, the Federal Circuit seemed to hold that enablement is not required:

If a device was “known or used by others” in this country before the date of invention or if it was “in public use” in this country

more than one year before the date of application, it qualifies as prior art [under the pre-AIA version of § 102]. Lockwood [the patent holder] attempts to preclude summary judgment by pointing to record testimony that one skilled in the art would not be able to build and practice the claimed invention without access to the secret aspects of SABRE. However, it is the claims that define a patented invention. As we have concluded earlier in this opinion, American's public use of the high-level aspects of the SABRE system was enough to place the claimed features of [Lockwood's] patent in the public's possession. *See In re Epstein*, 32 F.3d 1559, 1567–68 (Fed. Cir. 1994) (“Beyond this ‘in public use or on sale’ finding, there is no requirement for an enablement-type inquiry.”). Lockwood cannot negate this by evidence showing that other, unclaimed aspects of the SABRE system were not publicly available. Moreover, [Lockwood's] patent itself does not disclose the level of detail that Lockwood would have us require of the prior art.

Id. Should publicly available devices and systems constitute prior art even though the knowledge to construct the devices remains protected as a trade secret? Given the final sentence in the excerpt from *Lockwood*, why didn't the court simply hold that the available public knowledge of the SABRE system was sufficiently enabling? Note that *Lockwood's* reasoning seems broadly consistent with *Schering v. Geneva*, *supra*.

6. Genus vs. Species. In *Titanium Metals*, the patent applicant sought broad claims covering a large number of alloys, and the Russian article disclosed only a few of those alloys. Nevertheless, the court ruled that when “a claim covers several compositions, the claim is ‘anticipated’ if *one* of them is in the prior art.” 778 F.2d at 782 (emphasis in original). Patent lawyers often speak of “genus” and “species” to describe the relationship that existed between the alloys claimed in *Titanium Metal* and the alloys disclosed in the Russian article: The claims covered a *class* of compositions of which the article's disclosed compositions were members. An example of a genus would be “clothing”; species would include “shirts,” “shorts,” and “socks.”

In these terms, one lesson of the *Titanium Metals* case is that a prior art reference disclosing “socks” anticipates a claim in a subsequent patent application to “clothing.” Stated technically, a prior art reference that discloses a species anticipates a later claim to a genus containing that species.

Would the opposite be true — would a prior *genus* anticipate a later *species*? At first blush, it might seem that this should be true. But it is not. The law of anticipation requires not only the disclosure of the genus, but also a specific direction to the particular species. *See Merck & Co. v. Biocraft Laboratories, Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (“The description of ‘specific preferences in connection with a generic formula’ is determinative in an analysis of anticipation under 35 U.S.C. 102.”); *Corning Glass Works v. Sumitomo Electric U.S.A., Inc.*, 868 F.2d 1251, 1262 (Fed. Cir. 1989) (rejecting as “wholly meritless” the argument that “a claim to a genus would inherently disclose all species”). *See also Atofina v. Great Lakes Chem. Corp.*, 441 F.3d 991, 999 (Fed. Cir. 2006) (claim to synthesis of difluoromethane at a temperature between 330–450 degrees Centigrade was not anticipated by earlier reference disclosing general synthesis of this compound at temperatures between 100 and 500 degrees Centigrade; patentee identified specific narrow range in claimed invention as “critical” to success of claimed synthesis). *But see ClearValue, Inc. v. Pearl River Polymers, Inc.*, 668 F.3d 1340 (Fed. Cir. 2012) (claim to “process

for clarification of water of raw alkalinity less than or equal to 50 ppm” was anticipated by prior art reference describing similar clarification technique for alkalinity levels less than 150 parts per million (ppm); patent did not describe narrower range as critical).

Thus, the law treats the identification of a new species within an old genus in a manner similar to the identification of a new improvement on an old technology. Like the new improvement, the new species will be patentable if it is a nonobvious development over the prior art. Note, however, that just as an improvement patent may be subservient to a pioneering patent on the general technology (*i.e.*, the improvement cannot be practiced without permission from the pioneer patent holder), so too a patent on the species may be subservient to a patent on the genus.

7. Genus vs. Species in Europe. European courts treat genus/species issues in much the same way as their U.S. counterparts. *See, e.g., Vivian, Novelty and Selection Inventions*, 20 INT’L REV. IND. PROP. & COPYRIGHT L. 303 (1989):

[The House of Lords has made several pronouncements on inventions where a limited number of members of a class have been “selected” for their useful properties and made the subject of claims in a new patent.]

First, [the Lords] confirmed the view ... that the discovery that a previously disclosed or known substance has some advantage or useful quality not previously recognized does not give the right to a patent.

Second, for there to be a selection invention it does not matter whether the class disclosed in the earlier document is described by a general formula or ... if the compounds are specifically enumerated.

Third, the size of the initial group or class is not in itself decisive as to the question of [anticipation by] prior publication. The selection may be one from a class of ten million or one from a class of two. The House of Lords did however observe that the size of the class might be relevant to obviousness and that question may in turn depend in part upon whether the later invention relates to the same field as that occupied by the prior invention. In other words, would a skilled man look for the advantages he desires to produce in the area occupied by the prior invention?

8. Markush Expressions. A special form of genus claim, termed a “Markush expression,” is often encountered in patent law. Such claims take the form of an expression such as “An X selected from the group consisting of A, B, and C,” where X describes the functional class to which A, B, and C belong. These claims are often, but certainly not always, used in patents to chemical compositions. For an example, see the famous patent claiming a cigarette filter made of cheese, claim 2 of which reads: “A cigarette filter according to claim 1, in which the cheese comprises grated particles of cheese selected from the group consisting of Parmesan, Romano, Swiss and cheddar cheeses.” U.S. Pat. No. 3,234,948 (Feb. 15, 1966).

DISCUSSION: NEW USE PATENTS

The doctrine barring patents on “new uses” of old inventions has a long history, dating back to Thomas Jefferson. *See* SILVIO A. BEDINI, THOMAS JEFFERSON, MAN OF SCIENCE 208 (1990) (describing Jefferson’s opposition to patents that claimed a new use of an old structure). By 1875, the doctrine was settled that “it is no new invention to use an old machine for a new purpose.” *Roberts v. Ryer*, 91 U.S. 150, 157 (1875).

By the end of the nineteenth century, however, the doctrine was articulated with more care, so that patents on new uses were not always forbidden. Thus the Supreme Court in 1895, while invalidating the patent in the case, stated that patents on new uses were not always barred: “[I]f an old device or process be put to a new use which is not analogous to the old one, and the adaptation of such process to the new use is of such a character as to require the exercise of inventive skill to produce it, such new use will not be denied the merit of patentability.” *Ansonia Brass & Co. v. Electric Supply Co.*, 144 U.S. 11, 17 (1892). Any remaining restriction on new use patents was removed by the enactment of § 100(b) the 1952 Patent Act, which defines “process” to “include[] a new use of a known process, machine, manufacture, composition of matter, or material.” 35 U.S.C. § 100(b) (2002).¹ *See Rohm & Haas Co. v. Roberts Chem. Co.*, 245 F.2d 693 (4th Cir. 1957) (upholding defendant’s patent on the use of a well-known product as a fungicide). (Of course, the process itself must be new and, as in the *Cruciferous Sprout Patent Litigation*, this requirement can pose difficulties.)

Under § 100(b), new use patents are *process* patents. The discoverer of a new use or a new property cannot obtain a patent on the old substance, only on the use. The *structure* of the composition being previously known, the new use cannot justify a patent on the composition itself.

Yet even though discoverers of new uses can obtain process patents, they face two practical problems: (1) Where a patent on the composition remains in force, it will block the practice of the new use unless a license can be obtained from the holder of the composition patent. (2) The process patent may be difficult to enforce. We address these issues in turn.

Blocking Patents

If a patent on the composition is still in effect, then the process patent will be subservient to the earlier patent. The situation is the standard one of “blocking patents”: Each patentee may block the other from using the process without a license.

The fundamental reason why such blocking patents arise in this example is the rule that a product patent covers *all* uses. That rule has been subject to the criticism that it does not necessarily produce the optimal level of either (1) research into new compounds, or (2) research into new uses for old compounds. *See, e.g.,* Harold L. Marquis, *An Economic Analysis of the*

¹ Other jurisdictions also permit such claims. For the European approach, see European Patent Office, Enlarged Board of Appeal, Decision No. G05/83, “Eisai,” 1985 J. EURO. PAT. OFF. 64 (holding new use of therapeutic drug patentable in process form); Gerald D. Patterson, *The Patentability of Further Uses of Known Product Under the EPC*, 13 EURO. INTELL. PROP. REV. 16 (1991) (noting cases extending the “Eisai” case beyond therapeutic uses). For the Canadian approach, see *Canadian Patent Office Record*, Vol. 117, No. 19, 9 May 1989 (authorizing claims in the form of Compound Z (composition W) for the (new) use of ...”).

Patentability of Chemical Compounds, 63 J. PAT. OFF. SOC'Y 3, 42 (1981). The incentives may be too great for the former category of research, and not enough for the latter. Nevertheless, the analysis here is complicated. For example, while *other* researchers may not have good incentives to seek new uses for a patented composition, the holder of the composition patent may.

The apparent mismatch between the invention of a new product having one use and the scope of a product claim covering all uses has produced some calls for change. One possibility is to eliminate patents on compounds altogether, rewarding inventors only with *process* patents on the applications they have discovered. See, e.g., Comment, *Uses, New Uses and Chemical Patents — A Proposal*, 1968 WIS. L. REV. 901, 915 (1968); see also *Monsanto Co. v. Rohm & Haas Co.*, 312 F. Supp. 778, 790–91 (E.D. Pa. 1970), *aff'd on other grounds*, 456 F.2d 592 (3d Cir. 1972) (proposing the elimination of product patents on compositions where the composition is structurally obvious in light of the prior art).

Limiting product patents based on their uses would bring the scope of the property right into line with the economic achievement of the discovery, and thus the proposal may seem to make some sense. But this is not necessarily an optimal system of property rights. The effect here is identical to the situation where one inventor receives a pioneering patent and another later inventor patents an improvement on the first inventor's technology. Such improvement patents are granted even though they create situations of blocking patents. In general, a complete solution has yet to be found to the problem of how to give optimal incentives to both pioneering and improvement inventors.

Another problem with the proposal to grant only use patents is that such patents present formidable enforcement problems, and this leads to the second issue identified above.

Enforcement Problems

One reason why patent grants have not been limited to mere uses of compositions — and a reason why inventors usually prefer to have product rather than process patents — is that process/use patents often pose vexing enforcement problems. The disadvantages of process patents include the following: (1) the difficulty of detecting infringement; (2) the defects in infringement doctrines, leading to (3) the need to file an inefficiently large number of infringement suits; and (4) (until recently) better treatment for product patents when the accused infringer imports products from a foreign country. Any proposal to strengthen the role of process patents in the protection of newly discovered uses for old products must address these issues.

Detecting infringement is difficult because a use patent prohibits only one use of a product; thus the mere sale of the product by a competitor is not *per se* infringement since it might be in connection with an unrelated (and hence infringement-free) use. Because the patentee may be unable to obtain firm evidence regarding the ultimate use of the product, it may be difficult to establish that the protected right — use of the product for a particular end — has been infringed by end-users.

To some extent, contributory infringement doctrines assist the use-patentee here, but the problems with these doctrines pose the second obstacle to the widespread embrace of a process patent solution to the problem of new uses. For example, courts have held that any aid or encouragement given to end-users to assist them or guide them toward using the purchased product for an infringing use is actionable by the patentee. See *Dawson Chemical v. Rohm & Haas Co.*, 448 U.S. 176, 188 (1980) (noting that contributory infringement doctrines are designed to “protect patent rights from subversion by those who, without directly infringing the patent

themselves, engage in acts designed to facilitate infringement by others”); *see also* Chapter 8.F, *infra* (discussing contributory infringement doctrines). But unfortunately the competitors of use-patentees are often aware of the detailed contours of contributory infringement doctrine. Hence they can insulate themselves from infringement liability by scrupulously refraining from any of the activities that have been found to constitute contributory infringement — even if they know full well that the product largely if not exclusively is being employed by end-users for the patented use.

This then leads to the third problem with use patents: enforcement costs. In the normal case, it will be too expensive for a use-patentee to detect infringement by end-users and then bring individual cases against them. The only economically feasible enforcement option — suits against manufacturers and distributors of the product employed for the infringing end use — is foreclosed by the problems with contributory infringement doctrine just outlined. The net result in many cases is that process patents for new uses are left unenforced — a situation not much different in practice from never granting such patents at all.

This problem is especially acute in the important field of pharmaceuticals. Because of the traditional deference given to doctors, FDA approval for a particular use (or “medical indication,” as it is known) does not restrict a doctor from prescribing a drug for any purpose she sees fit. Pharmacists therefore do not police doctors’ prescriptions. The result is that a doctor can easily prescribe a drug for a patented use, so long as the drug has also been approved by the FDA for some other, non-patented use. *See, e.g.,* James J. Wheaton, *Generic Competition and Pharmaceutical Innovation: The Drug Price Competition and Patent Term Restoration Act of 1984*, 35 CATH. U. L. REV. 433 (1986).²

Despite these problems, some firms have made progress in enforcing use patents successfully. The most striking example is the Upjohn Corporation’s use patent on the compound minoxidil, sold under the tradename “Rogaine” as a partial treatment for baldness. *See* Fred Gebhart, *Upjohn Surprises Industry by Enforcing Minoxidil Patent*, DRUG TOPICS, April 3, 1989, at 50 (noting that Upjohn is suing “physicians, pharmacists, and clinics” for infringing its process patents); *Upjohn Co. v. Medtron Lab.*, 894 F. Supp. 126 (S.D.N.Y. 1995) (granting a contempt sanction against defendant previously enjoined from violating Upjohn’s patents on using minoxidil to treat baldness). Rogaine is a classic “new use” story — it was a blood pressure drug which produced surprising hair growth in some patients during clinical trials. Retin-A is another product that has been the subject of substantial new use patents. *See, e.g.,* U.S. Pat. No. 4,877,805 (Oct. 31, 1989) (“Methods for treating sundamaged human skin with retinoids”).

Shunning Process Patents in Favor of Product Patents

Because of the enforcement problems with process patents, inventors usually try to obtain product patents, and both the Patent Office and the courts have been accommodating.

² Traditionally, there was a fourth problem with process patents: they were not as effective when asserted against foreign infringers. Prior to 1988, U.S. patentees could exclude from the domestic market products that infringed a product patent, but not products made abroad using patented processes. The theory was that the only infringing act — the use of the process — took place outside the reach of U.S. patent laws. This problem was largely abrogated in 1988 with the enactment of 35 U.S.C. § 271(g), which makes it an act of infringement to sell, use or import into the United States any “product which is made by a process patented in the United States.”

For example, inventors discovering a new use will often try to combine the old compound with other compounds and obtain a product patent on the new combination. Such product claims have been allowed where the old compound is combined with a second active ingredient, or with an ingredient that enhances the effect of the old compound.³

Also, inventors often find subtle but important ways in which a composition made for a new use differs from similar compositions in the prior art. For example, consider the classic case of *In re Thuau*, 135 F.2d 344 (C.C.P.A. 1943), which involved a patent application claiming a compound of metacresolsulfonic acid and an aldehyde that Urbain Thuau discovered to be useful in the treatment of certain cervical diseases. Because the very same compound had long been used in the leather tanning industry, the Patent Office initially rejected Thuau's product claims. On appeal to the Court of Customs and Patent Appeals, the court predictably held that the discovery of the new use did not entitle Thuau to claim the old product:

That appellant has made a valuable discovery in the new use of the composition here involved we have no doubt, and it is unfortunate for him if he cannot make claims adequate to protect such discovery, but to hold that every new use of an old composition may be the subject of a patent upon the composition would lead to endless confusion and go far to destroy the benefits of our patent laws.

135 F.2d at 347. The court was especially concerned with the confusion that might result if, for example, a compound traditionally sold by a chemical supplier for the old use were purchased by pharmacies for the newly discovered therapeutic use; a tannery supplier then might be liable for patent infringement even though it had been selling the same compound for years.

However, Thuau eventually succeeded in obtaining a patent that included some of the very product claims that had been at issue in the appeal to the court. *Compare id.* at 345 (affirming rejection of claim 14, “[t]he reaction product of substantially pure metacresolsulfonic acid and an aldehyde.”), to U.S. Pat. No. 2,326,578 (Aug. 10, 1943), at p. 2, col. 2, ln. 55–56 (claiming “7. The reaction product of substantially pure metacresolsulfonic acid and an aldehyde.”). The reason that Thuau ultimately was able to succeed in claiming the product was that his composition was not identical to the prior art — it was “substantially pure.” The import of that limitation was apparent from the patent specification: Thuau claimed to be the “first to manufacture a product from which [certain impurities] are eliminated either wholly or for the greater part in order that the product may be employed for therapeutic purposes.” *Id.* at 1.

Inventors and their attorneys have traditionally expended much effort in order to get product patent protection. In some cases, however, the product patent protection is not available because prior art compositions cannot be distinguished. In such cases, inventors must be content with process protection. One question for patent policy is whether the law can provide more suitable protection in those circumstances. There are, however, those who defend robust rights for the first to patent a structure; they argue that it reduces the costs of specifying property rights to

³ See Gaumont, *Patentability and Patent Scope of Pharmaceutical Inventions*, 13 INT'L REV. INDUSTRIAL PROP. & COPYRIGHT L. 431, 450 (1982). *Cf. In re Tuominen*, 671 F.2d 1359 (C.C.P.A. 1982) (upholding rejection of claims for sunscreen compound since prior art taught other therapeutic uses for the compound and the patentee had not distinguished sunscreen “carrier” ingredients from carriers used in other therapeutic applications).

permit the first inventor of the structure to claim all uses of it. *See* Henry E. Smith, *Intellectual Property as Property: Delineating Entitlements in Information*, 116 YALE L.J. 1742, 1796 (2007) (making just this argument with respect to both chemical patents and process patents).

Some Slight Changes to Make Use Patents Useful

Providing realistic protection for new uses may require only modest changes on the following points: (1) some modification in the text or interpretation of § 271 on contributory infringement; (2) increased reliance on class actions against *defendant* classes of infringers; and (3) a bit of courage and imagination on the part of counsel in enforcing new use/process patents.

As to the first, the problems with contributory infringement doctrine are referred to above. These boil down to one issue: manufacturers — the only efficient class of defendants from the point of view of plaintiff/patentees — can insulate themselves from liability despite having knowledge, or having information that ought to charge them with knowledge, that many of their sales are in the market for the patented use. The simple way to address this problem is to change the presumption regarding infringement in such a situation. Where a seller/accused infringer is selling enough of the product to know or have reason to know that it is being applied to the patented use, there ought to be a presumption that the defendant has infringed. Thus no amount of insulation from contributory infringement ought to be effective if the *volume of sales* of the product is suspiciously high in light of the known demand for the product as applied to non-infringing uses. The sales volume, in other words, should act as a *prima facie* indication that the seller has infringed where it would be clear to the reasonable seller in this industry that at least a substantial proportion of its sales must be being applied to the patented end use.

The second change would involve only a slight extension of existing law. In at least one patent infringement suit, the district court certified a class action against 80 defendants. *See Technograph Printed Circuits, Ltd. v. Methode Electronics, Inc.*, 285 F. Supp. 714 (N.D. Ill. 1968). *See generally* Note, *Defendant Class Actions*, 91 HARV. L. REV. 630 (1978) (commenting on notice problems: “In patent litigation, notice — perhaps combined with a form requesting specific information — may reveal whether many of the other class members [aside from the named, representative defendant] will face significantly greater liability than will the personal representative if the patent is held valid.”). This precedent must be applied and extended if plaintiff/patentees are to be able to effectively enforce use patents. The reason is simple: the class action reduces the transaction costs of filing individual suits. Where many individual end-users are involved, as described above, the defendant class action would reduce the number of separate suits necessary to seek relief against the class of end-users. Such a procedural device might have come in handy, for example, when Upjohn was enforcing its minoxidil process-of-use patent, as described earlier.

The third proposal outlined above involves no change in the law, yet it may be the hardest to achieve. The tools for enforcing use patents are in most cases ready at hand; what is needed most critically is the courage to apply them in a forceful and novel way. Until they are tried and tested by someone with the creativity to employ them, the conventional wisdom — that use patents are ineffective — will continue to be true by dint of inertia. Until this thinking is challenged, new use patents will continue to fulfill the bar’s prophecy that they are useless. There is no enforcement, and hence no effective property right, without first the will to enforce. And until new use patents are enforced, we will continue to dance around the fundamental rift between uses invented in the lab and structures protected in the courts.