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Real-World Prior Art

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The most fundamental requirement of patent law is that a patented invention must be *new*. Given the longstanding, foundational nature of this novelty requirement, one might expect its contours to be well settled. And yet some of its most basic aspects remain unresolved. At the center of these unresolved issues lie what we term "real-world prior art." In patent law, prior art is something that predates an invention and may render it *not new*. "Real-world" prior art activities involve using or selling real-world embodiments of the invention. Consider a few examples. Suppose Aleida demonstrates her invention to members of the public but does not allow them to touch it. Has she put the invention into "public use," thus preventing others from obtaining a patent? Does it matter whether someone viewing her demonstration could learn how to make and use the invention? Suppose Aleida keeps her invention secret but uses it to provide a commercial service. Has she put the invention into public use, or placed it "on sale"? Or suppose Aleida offers her invention for sale to Charlise, who declines to purchase it. It is black-letter patent law that after one year passes, Aleida cannot patent this invention. But imagine that Bruno independently develops the same invention—can he obtain a patent?

These questions are not outlandish law school hypotheticals—they are central issues surrounding whether an invention is or is not novel. Yet litigation over these issues has resulted in conflicting outcomes and contradictory explanations, leaving lower courts and the Patent Office to flounder in applying these doctrines. In this article, we sort through this conceptual confusion. We suggest both doctrinal and institutional changes that would elucidate an area of law that is likely to grow in importance. And we argue that the value of resolving these questions runs much deeper than determining the answer to particular cases. The answers to these questions depend upon—and reveal—the conceptual superstructure of patent law. They implicate patent law's most central questions: What does it mean for an invention to be new and thus patentable? What policy interests is patent law attempting to achieve, and whose interests does it aim to protect? And what are the conditions under which a party has forfeited the opportunity to obtain a patent? By addressing these issues, we endeavor to place the entire jurisprudence of patent novelty on more solid footing.

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Introduction

Patent law exists to provide incentives for inventors to create new and useful inventions.[3] Accordingly, the most foundational requirement for securing a patent is that the patented invention must be *new*.[4] The policy behind this novelty requirement is longstanding and compelling: if an invention already exists, why should society bear the costs of a patent, which would lead to higher prices by design?[5] Given the fundamental nature of novelty doctrine, one might expect its contours to be well settled. And yet some of its most basic aspects remain unresolved, particularly regarding earlier activities involving what we call "real-world" embodiments of the invention. Section 102 of the Patent Act specifies that patents may not be granted on inventions that were previously "in public use" or "on sale,"[6] and these real-world categories of prior art[7] are important in patent litigation: one recent study found that public uses and sales were the basis for nearly half of district court decisions holding patents invalid for lack of novelty.[8] But many straightforward questions of what constitutes invalidating real-world prior art have no ready answer.

For example, suppose Aleida invents something and demonstrates it to members of the public but does not allow them to touch it. Has she put the invention into public use? Does it matter whether her demonstration would

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[3] *See* U.S. CONST. art. I, § 8, cl. 8 (granting Congress the power "[t]o promote the Progress of Science and useful Arts, by securing for limited Times to . . . Inventors the exclusive Right to their . . . Discoveries").

[4] *See generally* JONATHAN S. MASUR & LISA LARRIMORE OUELLETTE, PATENT LAW: CASES, PROBLEMS, AND MATERIALS 47 (2d ed. 2022). Our focus here is on utility patent law, but the underlying normative considerations apply just as strongly to design and plant patents.

[5] *See* I WILLIAM C. ROBINSON, THE LAW OF PATENTS FOR USEFUL INVENTIONS 305 (1890) (noting that if the invention "has been already made accessible to" the public, then "no benefit results to them from [the] inventive act" so granting a patent would not be worthwhile).

[6] 35 U.S.C. § 102 [hereinafter Post-AIA § 102]; 35 U.S.C. § 102 (2010) [hereinafter Pre-AIA § 102].

[7] "Prior art" is simply the patent term for *something*—a patent, a printed publication, an offer of the invention for sale, a public use of the invention, or some other activity that makes the patented technology available to the public—that precedes the filing of a patent application and might render the invention not novel (and thus not patentable). MASUR & OUELLETTE, *supra* note 4, at 47–52; *see also* Post-AIA § 102(a). We refer to public uses of the invention and offers of the invention for sale as "real-world prior art" to emphasize that they are instances of prior art that arise because of the invention itself existing in the real world, not merely on paper (as in printed publications and patents). To the best of our knowledge this is the second use of "real-world prior art" in the literature, the first being Margo A. Bagley, *Internet Business Model Patents: Obvious by Analogy*, 7 MICH. TELECOMM. & TECH. L. REV. 253, 258 (2001).

[8] Stephen Yelderman, *Prior Art in the District Court*, 95 NOTRE DAME L. REV. 837, 860 fig.2, 869 (2019).

teach someone of skill in the art how to make and use the invention, or whether there was an actual person of skill in the art who was in fact so taught? What if Aleida gives the public access to her invention, but there is no evidence that any member of the public actually used it? Or suppose that Aleida keeps her invention secret but uses it to provide a service, which she sells to customers. This activity will bar Aleida from obtaining a patent if she does not file within the appropriate time frame, but under what provision of law? Is the invention in public use? Is it on sale?

Or, instead, suppose that Aleida develops a new invention and offers it for sale to Charlise. Charlise has no interest in the invention and declines to purchase it. Aleida takes no further action and never discloses the invention to the public. It is black-letter patent law that after one year passes, Aleida cannot obtain a patent on this invention. The law provides her with a one-year grace period during which she can file for a patent; once that year is over, Aleida's offer for sale bars her from ever obtaining patent rights, irrespective of the facts that her offer was not accepted and that the public never learned about the invention.[9] Suppose further, however, that Bruno independently develops the same invention and files for a patent on it. Can Bruno obtain a patent on the invention? Or is he similarly barred by Aleida's offer for sale?

These are deceptively simple questions—the type of questions to which one might imagine patent law would provide ready answers. And indeed, as we will show, these are the types of questions that arise not infrequently in the federal district courts. Yet neither the Supreme Court nor the Court of Appeals for the Federal Circuit have offered definitive answers to these questions, and the messages one can glean from the tea leaves are mixed and convoluted. District courts, for their part, have arrived at blatantly contradictory outcomes without yielding any resolution. This lack of doctrinal clarity is the type of problem that a unitary court of appeals—all patent cases are appealed to the Federal Circuit, not to the regional circuits—was meant to solve.[10] And yet it has festered for the entire 200+ year history of U.S. patent law. Congress substantially amended certain timing aspects of the patent novelty statute with the 2011 America Invents Act (AIA), moving the United States from a "first to invent" to a "first to file" system, but these foundational questions about the meaning of "public use" and "on sale" were left unresolved.[11]

These questions are often critical for case outcomes, including for the many cases in which the party seeking a patent is not the party that previously offered the good for sale or placed it in public use. Those cases are likely to increase in number as internet sales consume an ever-greater proportion of the marketplace and offer additional opportunities for the relevant types of offers

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[9] Post-AIA § 102(a)(1) & (b)(1).

[10] *See generally* Rochelle Cooper Dreyfuss, *The Federal Circuit: A Case Study in Specialized Courts*, 64 N.Y.U. L. REV. 1, 6–20 (1989).

[11] Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 3(b), 125 Stat. 284, 285–87 (2011) (codified at 35 U.S.C. § 102); *see infra* note 17.

and sales to occur.[12] But the importance of the doctrines involving real-world prior art runs much deeper than that. The answers to these questions depend upon—and reveal—the conceptual superstructure of patent law. They implicate the law's most central questions: What does it mean for an invention to be new and thus patentable? What policy interests is patent law attempting to achieve, and whose interests does it aim to protect? And what are the conditions under which a party has forfeited the opportunity to obtain a patent?

This article explores those questions. In doing so, it argues that patent law should embrace a crisp distinction that has thus far eluded it: between sales (and offers for sale) of an invention, on the one hand, and uses of an invention or information about an invention on the other. When members of the public make use of an invention, or gain knowledge of an invention, the possibility of a patent implicates them directly. It threatens to cut off their access to that invention or to the benefits from knowing how it operates. But when an invention is sold or offered for sale without generating other prior art, the public's reliance interests are not the key interests at stake. Rather, the principal policy interest is in preventing the inventor from commercially exploiting her invention for longer than the patent term. This distinction has escaped the courts charged with crafting patent doctrine in part because sales and use so frequently accompany one another. The sale of a product is precisely what allows the public to make use of that product. But the distinction is critical in cases where sales (or offers for sale) are not accompanied by widespread use, which in fact describes a wide swath of economic activity. This conceptual approach should prompt a systematic re-thinking of the existing caselaw on public uses and sales, a body of law that has heretofore been characterized by ambiguity and unanswered questions.

More generally, the theory of real-world prior art that we propose and defend has ramifications for a variety of doctrines outside of the law of uses and sales. In particular, we believe it can illuminate asymmetries and incongruities in doctrines ranging from inherency to double patenting to the first-to-invent rules, pointing the way to legal changes that would harmonize many of the disparate pieces of patent law. The real-world prior art doctrines thus present a powerful window into the deep structure of patent law.

This article proceeds in four parts. We begin in Part I with the key principle underlying "public use" prior art: if the public is already able to benefit from the invention, then the costs of granting a patent are less likely to be worthwhile. Traditionally, public use has required use by any "member of the public"—someone *other than the inventor* who is under *no confidentiality obligation* to the inventor.[13] And the use has counted as prior art even if it does

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[12] From 2015 to 2021, e-commerce's share of global retail sales more than doubled—from about seven percent to nearly nineteen percent—and it is expected to continue growing for the foreseeable future. *See* Daniela Coppola, *E-commerce as Percentage of Total Retail Sales Worldwide from 2015 to 2021, with Forecasts from 2022 to 2026*, STATISTA (Nov. 25, 2022), https://www.statista.com/statistics/534123/e-commerce-share-of-retail-sales-worldwide.

[13] *See infra* note 18 and accompanying text.

not teach anyone how to reproduce the invention—or in patent jargon, public use need not "enable" the invention.[14] We then explore and evaluate two expansions of "public use" beyond its traditional bounds, which we argue are in line with its underlying principle: (1) situations in which an *inventor* rather than a member of a public uses the invention, but only if the use is non-secret and enabling; and (2) situations of *constructive use* in which the public could use the invention, even where there is no evidence of actual use.

Part II addresses the divergent rationale underlying "on sale" prior art. An offer for sale alone (without a resulting purchase and public use) does not necessarily give the public any benefits; rather, the on-sale bar exists to prevent an inventor from commercially exploiting her invention for longer than the twenty-year patent term. We explain why we think cases of secret commercial use are best understood as implicating the on-sale bar, not the public-use bar, notwithstanding courts' waffling on this question. We also argue that the on-sale bar should be understood as *party-specific*: sales by Aleida can only bar Aleida from patenting, not independent inventor Bruno. (Of course, if Aleida's sale places the invention into public use, that use will bar Bruno as well as Aleida.) This approach aligns the on-sale and public-use doctrines with their underlying policies, and it would eliminate the need for a special exception for secret commercial use.[15] It also reduces the incentive for Aleida to over-zealously impose secrecy restrictions on her consumers, lest she bar herself but not Bruno from patenting.[16]

Part III considers how applying the underlying policies of different categories of prior art can help make sense of five other challenging patent doctrines. We examine the post-AIA safe harbor for public disclosures, the dispute over how publicly accessible prior art should be, the rules for when a prior art reference that does not explicitly disclose an invention can still "inherently" anticipate it, the "double patenting" doctrine that provides the original inventor with a preference over third-party inventors in claiming obvious improvements on an invention, and the pre-AIA "first-to-invent" rules. We consider where these doctrines have already incorporated the principles described in Part II, and where the law should be further clarified based on our analysis.

Finally, in Part IV we suggest reforms to improve the use of real-world prior art during patent examination. In particular, we propose improvements to USPTO training and guidance for patent examiners, and we suggest three ways that the agency could increase examiners' access to relevant prior art: (1) asking inventors to certify whether they are aware of uses or sales of the invention at the time of filing, (2) improving prior art databases available to

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[14] *See infra* note 24 and accompanying text.

[15] *See* Mark A. Lemley, *Does "Public Use" Mean the Same Thing It Did Last Year?*, 93 TEX. L. REV. 1119, 1122 (2015) (describing "a special rule for secret commercial uses: a secret commercial use is not prior art that bars a third party from later obtaining a patent, but it does start the one-year clock running for the user").

[16] *See generally* Deepa Varadarajan, *The Uses of IP Misuse*, 68 EMORY L.J. 739, 779–89 (2019) (describing problematic uses of non-disclosure agreements).

examiners, and (3) engaging with counterpart agencies such as the Food and Drug Administration (FDA) on pharmaceutical patents. We also argue that Congress should amend the inter partes review procedures for challenging improperly granted patents at the USPTO to remove the existing exclusion of real-world prior art.

Real-world prior art is foundational to the operation of patent law, and essential to the outcome of vast numbers of cases, yet its contours have never been firmly delineated—nor its intricacies properly understood—by the courts. This article aims to correct those deficiencies.

I. Public Use

The statute governing patent novelty, 35 U.S.C. § 102, bars an inventor from patenting an invention that was previously "in public use."[17] In its simplest formulation, an invention is in public use when it is used "by a person other than the inventor who is under no limitation, restriction or obligation of secrecy to the inventor."[18] Yet, as this Part will explore, this simple exposition masks a world of complexity regarding what it means to "use" an invention, what form that use must take, and a series of other overlapping issues.

This Part explores those complexities through the lenses of principle, policy, and doctrine. In Part I.A we explain the principles underlying the "public use" category of prior art. In Part I.B we uncover and analyze an expansion of "public use" beyond its traditional bounds. This expansion has already taken place, but it has gone almost unrecognized by courts and is still shrouded in confusion, a state we endeavor to remedy. Finally, in Part I.C we explore the possibility of an even further expansion of the doctrine and assess

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[17] Post-AIA § 102(a)(1); Pre-AIA § 102(b); *see also* Pre-AIA § 102(a) (barring a patent if the invention was "used by others," which has the same meaning as "in public use"). Section 102 was substantially amended by the 2011 America Invents Act (AIA), which generally moved the United States from a "first-to-invent" to a "first-to-file" patent system. *See* Robert P. Merges, *Priority and Novelty Under the AIA*, 27 BERKELEY TECH. L.J. 1023 (2012). These amendments changed the *timing* of whether a public use counts as prior art; for example, use stemming from a third-party inventor less than one year before filing generally is not prior art pre-AIA but is post-AIA—unless the inventor publicly disclosed the invention first. Post-AIA § 102(b)(1); Pre-AIA § 102(b). But these amendments are tangential to our focus here, which is on whether certain activities constitute "public use" at all, even if they are allowed under the relevant timing provisions. Our discussion thus applies equally to activities that place an invention "in public use" under post-AIA § 102(a)(1) or pre-AIA § 102(b), or "used by others" under pre-AIA § 102(a).

[18] Netscape Commc'ns Corp. v. Konrad, 295 F.3d 1315, 1320 (Fed. Cir. 2002) (quoting Petrolite Corp. v. Baker Hughes Inc., 96 F.3d 1423, 1425 (Fed. Cir. 1996) (quoting *In re* Smith, 714 F.2d 1127, 1134 (Fed. Cir. 1983) (citing Egbert v. Lippmann, 104 U.S. 333, 336 (1881)))); *see also Egbert*, 104 U.S. at 336 ("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.").

whether this evolution would accord with the public use principles we have elucidated.

A. Public Use Principles

To evaluate public use doctrine, it is helpful to return to the core policy goal underlying this doctrine: If the public is already able to benefit from an invention, then the costs of granting a patent are less likely to be worthwhile.[19] For example, imagine that Aleida creates an invention and puts it into public use, so that some member of the public—say, Charlise—is using an embodiment of the invention without restriction. Bruno later independently creates the same invention and files for a patent. It should be apparent why Charlise's public use should bar Bruno from patenting. It is Aleida, not Bruno, who first enriched the public by making this new invention available to Charlise. Granting Bruno a patent would disserve Aleida, who has already put the invention into public use but would then be barred from using it further. More importantly, it would disserve Charlise and other members of the public by depriving them of access to Aleida's product.

The public-use bar thus rests in substantial part on a theory of reliance interests.[20] At least one member of the public, Charlise, has come to rely on the availability of Aleida's invention free from any patent-based restriction. Granting Bruno a patent would mean depriving Charlise of her unfettered access to the invention, upsetting her reliance interests.[21] Charlise may have planned to further distribute the invention, or to create and sell a related invention building on Aleida's, or even merely to continue using the invention—all activities that would now require a patent license from Bruno, along with the associated administrative and transaction costs.

And these costs would come with little apparent benefit. To be sure, Bruno might have undertaken his research and development of the invention under the belief that he would be rewarded with a patent. If Bruno had known from the beginning that he would not be able to patent, he might never have invested the necessary resources in creating the invention. Under normal circumstances, denying Bruno a patent would defeat the very purpose of

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[19] *See supra* note 5 and accompanying text.

[20] *See* Cont'l Plastic Containers v. Owens Brockway Plastic Prods., Inc., 141 F.3d 1073, 1079 (Fed. Cir. 1998) ("The primary policy underlying the 'public use' case is that of detrimental public reliance . . . ."); *see also* Delano Farms Co. v. Cal. Table Grape Comm'n, 778 F.3d 1243, 1247 (Fed. Cir. 2015) ("The principal policy underlying the [public use] bar is to prevent 'the removal, from the public domain, of inventions that the public reasonably has come to believe are freely available.'" (quoting Tone Bros. v. Sysco Corp., 28 F.3d 1192, 1198 (Fed. Cir. 1994)).

[21] *See, e.g.*, Patrick J. Barrett, Note, *New Guidelines for Applying the On Sale Bar to Patentability*, 24 STAN. L. REV. 730, 730 n. 1 (1972); 2A DONALD S. CHISUM, CHISUM ON PATENTS § 6.02 (2022).

having patents.[22] But here, Bruno is not the only player. The whole point is that Aleida has created the invention as well, and has done so without the promise of obtaining a patent. Apparently, then, patents were not necessary to create the incentives for developing this particular invention. Rather, if Bruno thinks he can obtain a patent, it merely incentivizes *duplicative* R&D, which—if truly duplicative—is socially wasteful rather than valuable. There seems to be little lost—and quite a lot gained—from denying a patent to Bruno under these circumstances.

Note that nothing about this rationale for rejecting Bruno's patent application depends on whether any member of the public who used Aleida's invention can understand the technical details of the invention, including how to make it. It is enough that the public can use (and thus benefit from) the invention, and that removing it from the public domain would harm the public. This is an important distinction from paper prior art. If Aleida published information about her invention rather than placing it into public use, the public would benefit from this publication only to the extent that the publication teaches relevant researchers how to make the invention so that someone can actually use it. This principle is captured by the "enablement" requirement for paper prior art: a printed publication is only prior art to the extent it enables a researcher of ordinary skill to make and use the invention.[23] In contrast, courts have generally held that there is no enablement requirement for a prior art public use[24]—subject to an exception we discuss in Part I.B.

Of course, one might still argue about whether a particular use was really sufficiently *public* to implicate the public costs and benefits described above. Is use by Charlise alone enough to create meaningful reliance interests? Does it matter how often Charlise used the invention, whether she plans to continue using it, or whether she gave it to anyone else? Courts currently make this determination based on balancing factors such as the extent of use and the

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[22] *See* MASUR & OUELLETTE, *supra* note 4, at 33–34 (describing the standard justification for patents in terms of creating incentives to innovate).

[23] *See In re* Donohue, 766 F.2d 531, 533 (Fed. Cir. 1985) ("[E]ven if the claimed invention is disclosed in a printed publication, that disclosure will not suffice as prior art if it was not enabling.").

[24] *See* Egbert v. Lippmann, 104 U.S. 333, 336 (1881) (observing that a use is public if the invention can "be used without restriction of any kind" even if the details "cannot be seen or observed by the public eye," as in "a lever or spring, hidden in the running gear of a watch"); Lockwood v. Am. Airlines, Inc., 107 F.3d 1565, 1570 (Fed. Cir. 1997) (agreeing that "the public need not have access to the 'inner workings' of a device for it to be considered 'in public use'"); *In re* Epstein, 32 F.3d 1559, 1568 (Fed. Cir. 1994) ("Beyond this 'in public use or on sale' finding, there is no requirement for an enablement-type inquiry."); Dunlop Holdings Ltd. v. Ram Golf Corp., 524 F.2d 33, 36 (7th Cir. 1975) (holding that a new golf ball cover was in public use once the golf balls were being used by members of the public even though they were "noninforming" about how to reproduce the invention).

existence of confidentiality obligations,[25] analogous to the multi-factor test used to determine whether an obscure document is sufficiently publicly accessible to be "printed publication" prior art.[26] In both cases, caselaw currently requires very little public accessibility: prior art includes use by even a single member of the public not under a duty of confidentiality,[27] as well as highly inaccessible printed publications like a single thesis in a German library.[28] As in many areas of law, cases on the margins of this accessibility line can be difficult to distinguish.[29]

There are good arguments in favor of requiring a greater degree of public accessibility: if Aleida's invention barely benefitted the public (perhaps because only one person used it), then the analysis of whether to grant Bruno's patent looks different. Society has more to gain from inducing Bruno to develop the invention (and hopefully disseminate it more widely), and less to lose from depriving Aleida's few users of continued access to her invention. The costs of the current standard may be particularly high in the pharmaceutical context, where potentially valuable drugs are regularly dropped from development pipelines based on old prior art that led to little public benefit.[30] On the other hand, the existence of Aleida's independent invention (as demonstrated by the resulting public use) may indicate that a patent is less necessary to induce

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[25] *See, e.g.*, Netscape Commc'ns Corp. v. Konrad, 295 F.3d 1315, 1320 (Fed. Cir. 2002).

[26] *See* MASUR & OUELLETTE, *supra* note 4, at 61.

[27] *See Egbert*, 104 U.S. at 336 ("If an inventor, having made his device, gives or sells it to another . . . 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."); UCB, Inc. v. Watson Lab'ys Inc., 927 F.3d 1272, 1289 (Fed. Cir. 2019) ("[U]se by a single person is sufficient." (quoting Coffin v. Ogden, 85 U.S. (18 Wall.) 120, 124 (1873)); Nat'l Rsch. Dev. Corp. v. Varian Assocs., Inc., 30 U.S.P.Q.2d 1537, 1539 (Fed. Cir. 1994) ("[U]se by only one member of the public, without that use informing other members of the public as to the true nature of the invention, is sufficient . . . for prior public use.").

[28] *In re* Hall, 781 F.2d 897 (Fed. Cir. 1986).

[29] *Compare* Moleculon Rsch. Corp. v. CBS, Inc., 793 F.2d 1261, 1266 (Fed. Cir. 1986) (affirming a district court's bench trial finding that sharing a wooden puzzle with the inventor's boss and some acquaintances was not public use because the inventor "retained control" over the puzzle) *with* Beachcombers v. WildeWood Creative Prods., Inc., 31 F.3d 1154, 1160 (Fed. Cir. 1994) (affirming a district court's refusal to overturn a jury finding that sharing a toy at a party with twenty to thirty friends was public use because the "jury could have reasonably concluded that [the inventor] did not retain control"). In both cases, the Federal Circuit deferred to the fact-finder on these fact-intensive decisions—which doesn't mean that decisions coming out the other way on either set of facts would not also have been affirmed. *See* Jonathan S. Masur & Lisa Larrimore Ouellette, *Deference Mistakes*, 82 U. CHI. L. REV. 643 (2015).

[30] *See* Benjamin N. Roin, *Unpatentable Drugs and the Standards of Patentability*, 87 TEX. L. REV. 503, 545–47 (2009); Sean B. Seymore, *Rethinking Novelty in Patent Law*, 60 DUKE L.J. 919, 946–57 (2011).

development.[31] Additionally, the costs of moving from the current rule-like approach (use by one member of the public not under confidentiality is sufficient) to a more flexible standard (is use by 10 people enough? 100?) may outweigh the resulting benefit.[32]

Whether the law should require greater public accessibility is an important policy question—and one to which we will return in Part III.B—but this is not our primary focus. Rather, we think litigation and debate over this public accessibility question has obscured even more fundamental questions about what kinds of activities should count as public use, which we turn to in the following Sections.

B. Inventor Use: Public Use Without the Public Using

As explained in the prior section, standard public-use doctrine requires use by at least one member of the public—that is, someone *other than the inventor* who is under no obligation of confidentiality to the inventor.[33] And the invention can be in public use even if the use is not enabling.[34] For example, in *Lockwood v. American Airlines*, the invention was an automated interactive sales terminal, such as for airline reservations.[35] A third-party inventor from American Airlines had placed an embodiment of the invention into public use such that "the public had been using [the American system] to make travel reservations from independent travel agencies prior to Lockwood's date of invention."[36] It thus did not matter that the use was not enabling: the Federal Circuit stated that "the public need not have access to the 'inner workings' of a device for it to be considered 'in public use.'"[37]

But a small line of cases suggests that there is a second route to public use that directly in tension with both of these established principles: use *by an inventor* under non-secret conditions, but only if the relevant public could have learned how the invention works—even if there is no evidence that any

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[31] *See* Michael Abramowicz & John F. Duffy, *The Inducement Standard of Patentability*, 120 YALE L.J. 1590, 1677 (2011).

[32] *See* Craig Allen Nard, *Legal Fictions and the Role of Information in Patent Law*, 69 VAND. L. REV. 1517, 1531 (2016). On the Federal Circuit's preference for rules over standards, see Peter Lee, *Patent Law and the Two Cultures*, 120 YALE L.J. 2, 27–29 (2010).

[33] *See supra* note 27 and accompanying text.

[34] *See supra* note 24 and accompanying text.

[35] 107 F.3d 1565, 1568 (Fed. Cir. 1997).

[36] *Id.* at 1570.

[37] *Id.* Similarly, in *Netscape Communications v. Konrad*, the inventor placed his computer system for remote database access into public use because "he would simply turn on the system and let people try it out" without a confidentiality requirement. 295 F.3d 1315, 1322 (Fed. Cir. 2002). There was thus "no requirement for an enablement-type inquiry." *Id.* at 1323 (quoting *Lockwood*, 107 F.3d at 1570).

member of the public actually did learn these details. In other words, there can be public use without use by the public, but with an enablement requirement.

This line of precedent begins with a 1939 Supreme Court case, *Electric Storage Battery Co. v. Shimadzu*, which involved a process for producing lead oxide for use in batteries that Shimadzu had patented.[38] An independent inventor at Electric Storage Battery Co. had "continuously employed" the invention in their own factory for more than two years before the patent-in-suit was filed, and there was "no finding . . . that efforts were made to conceal [the invention] from anyone who had a legitimate interest in understanding them."[39] The Court did not mention any evidence that any member of the public actually did enter the factory and learn about the invention. Nonetheless, this non-secret use by an inventor was held to constitute an invalidating public use.[40] And though the Court does not say so explicitly, it seems obvious that the inverse must be true as well: had the independent inventor protected the battery with non-disclosure agreements and other mechanisms for maintaining secrecy, there would have been no public use.

The facts of *Shimadzu* are different from a standard public use case because Electric Storage Battery did not allow any members of the public to use the invention; rather, it used the invention itself, but in a non-secret way that did not conceal the invention's details. The third-party independent inventor at Electric Storage Battery also *does not* qualify as a "member of the public" relative to the first-party patent-seeker at issue. In patent law, a member of the public is someone who has received *someone else's* invention without a confidentiality obligation.[41] Nonetheless, despite the fact that no member of the public had actually used the invention, the court held that the inventor's non-secret use was sufficient to place the invention into "public use."

Instead, the *Shimadzu* Court appears to be relying on an idea of constructive public knowledge: just as an obscure thesis can be invalidating printed publication prior art if a researcher *could have* learned about the invention by reading it,[42] non-secret use of an invention can be an invalidating

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[38] 307 U.S. 5, 20 (1939).

[39] *Id.*

[40] *Id.*

[41] *See supra* note 18 and accompanying text; *see also* Gore v. Garlock, 721 F.2d 1540, 1549 (Fed. Cir. 1983) (holding that an independent inventor's secret use of their own invention is not public use). If a third-party inventor's secret use of their *own* invention constituted "public use" for any other inventor, it would eviscerate much of novelty doctrine, including the foundations of the first-to-file system under the AIA. For example, if Aleida invents something new and secretly tests it in her lab, and the next day Bruno invents the same thing and files for a patent, then Bruno should receive a patent under the AIA's first-to-file system. *See* Post-AIA § 102. But treating Aleida's private use as "public use" for Bruno would bar Bruno's patent.

[42] *See supra* note 28 and accompanying text.

public use if someone with "a legitimate interest in understanding" it could have learned about the invention from observing the use.[43]

The Fifth Circuit reached a similar result in the 1955 case *Rosaire v. National Lead Co.*[44] The invention in *Rosaire*—an oil-drilling method—was "performed in the field under ordinary conditions without any deliberate attempt at concealment or effort to exclude the public and without any instructions of secrecy to the employees performing the work."[45] The court held that this was a public use by an inventor that anticipated a third party's patent, notwithstanding the lack of documented public access.[46] In particular, the court stated that there is no need for an "affirmative act to bring the work to the attention to the public"—it is enough that the "work was done openly and in the ordinary course of the activities of the employer."[47] Again, this holding appears to rely on the idea of constructive public knowledge: someone from the public *could have* learned how the invention operated from observing its operation, and that was enough to constitute public use.

The Federal Circuit appears to have confirmed this understanding of the law as recently as 2020. In *BASF Corp. v. SNF Holding Co.*,[48] a third-party inventor had operated the claimed invention in its factory before the critical date and had given tours of its factory to the general public. Quoting *Shimadzu*, the court stated that "the public-use bar applies to uses of the invention 'not purposely hidden'" and that "the use of a process in the ordinary course of business—where the process was 'well known to the employees' and no 'efforts were made to conceal' it from anyone else—is a public use."[49] On the factual record presented to the Federal Circuit, it was unclear whether the tours revealed enough information about the invention to enable a person of ordinary skill in the art to construct it.[50] But the court made clear that if a person of ordinary skill in the art would have been able to glean sufficient information about the invention from these tours, the invention would have been in public use—without any member of the public ever having laid a finger on the invention, and irrespective of whether any person of ordinary skill in the art had actually ever taken a tour.[51] Similarly, in several other cases the Federal Circuit has held there to be a public use when the invention was demonstrated

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[43] 307 U.S. at 20.

[44] 218 F.2d 72 (5th Cir. 1955).

[45] *Id.* at 74.

[46] *Id.* at 75.

[47] *Id.*

[48] 955 F.3d 958 (Fed. Cir. 2020).

[49] *Id.* at 966 (quoting Elec. Storage Battery Co. v. Shimadzu, 307 U.S. 5, 20–21 (1939)).

[50] *Id.* at 966–67.

[51] *Id.* at 967 (noting that "no evidence suggests that any of these guests was a skilled artisan" and that there are genuine issues of material fact about whether certain elements of the process were already generally known or were visible from the tour).

to knowledgeable members of the public, even when those members of the public did not touch or use the invention in any fashion.[52]

To return to our first hypothetical from the Introduction: If Aleida invents something and demonstrates it to members of the public without any confidentiality restrictions, but she does not allow them to touch it, has she put the invention into public use? The answer from this line of cases appears to be yes: Aleida's non-secret use will bar both her and independent inventor Bruno from patenting the invention, but only if Aleida's demonstration is sufficiently informative about the technical details of the invention. The courts have refrained from explicitly describing this inquiry into what the demonstration taught as an enablement inquiry, perhaps because of the established principle that a public use need not be enabling.[53] But an enablement requirement is precisely what it appears to be. And this line of cases also conflicts with the principle that public use requires use by the public.[54] In other words, when it comes to "standard" public use, actual use by the public is both necessary and sufficient, and the use need not be enabling. But for this "constructive knowledge" version of public use, enabling disclosure to the public is both necessary and sufficient, and there need not be actual use by the public!

But despite its tension with the primary doctrine of public use, we think this constructive knowledge version of public use comports with the underlying principles discussed in Part I.A. If the public is already able to benefit from the invention and has come to believe that the invention is freely available, then granting a patent would upset these reliance interests and is less likely to have a substantial incentive benefit. In standard public use cases, the public is able to benefit because at least one member of the public is actually using the invention. But the public could also benefit from access to enabling information about the invention, which is the standard justification for printed publication prior art. If an inventor displays information about the invention on a conference poster for a few days[55] or at an oral presentation with handouts,[56] these disclosures count as invalidating prior art that preclude future patents

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[52] *See* Harrington Mfg. Co. v. Powell Mfg. Co., 815 F.2d 1478, 1480–81 (Fed. Cir. 1986) (finding public use where the patentee demonstrated an agricultural invention to a leading journalist); Eolas Techs. Inc. v. Microsoft Corp., 399 F.3d 1325, 1321–22 (Fed. Cir. 2005) (finding public use where the inventor demonstrated a computer program to two engineers from a different firm); Baxter Int'l, Inc. v. COBE Lab'ys, Inc., 88 F.3d 1054, 1059 (Fed. Cir. 1996) (finding public use where the invention was demonstrated to skilled members of the public in a public National Institutes of Health laboratory). In addition, in two other cases the Federal Circuit found that public use based on public observation alone cannot be found "if members of the public are not informed of, and cannot readily discern, the claimed features of the invention," implying that public use could be found if the public were so informed. *See* Delano Farms Co. v. Cal. Table Grape Comm'n, 778 F.3d 1243, 1249–50 (Fed. Cir. 2015); Dey, L.P. v. Sunovion Pharms., Inc., 715 F.3d 1351, 1359 (Fed. Cir. 2013).

[53] *See supra* note 24 and accompanying text.

[54] *See supra* note 27 and accompanying text.

[55] *In re* Klopfenstein, 380 F.3d 1345 (Fed. Cir. 2004).

[56] Mass. Inst. of Tech. v. AB Fortia, 774 F.2d 1104 (Fed. Cir. 1985).

as long as they are enabling. Displaying enabling information about the invention through a demonstration at the inventor's factory seems conceptually analogous. If Aleida has already told the world how to make the invention, there is no reason to award Bruno a patent on the same device.

Cases like *BASF* thus make sense as a matter of patent policy: public use should be extended beyond its traditional bounds to situations in which an inventor rather than a member of the public uses the invention, but only if the use is non-secret and enabling. Categorizing these cases as "public use" cases, however, strikes us as needlessly confusing. And that confusion is not merely relevant to academics who prize conceptual clarity. Classifying cases involving enablement but no public use as "public use" cases risks sowing confusion among the lower courts, confusion that can lead them astray.

There is evidence that this is already occurring. For instance, *ART+Com Innovationpool GmbH v. Google Inc.* concerned a public demonstration of an invention in which members of the public were merely observing the invention, not using it themselves.[57] The patent holder argued that this demonstration was insufficient to invalidate the patent because the audience could not have ascertained how to make the invention—in other words, it was not an enabling presentation.[58] The district court (actually, a Federal Circuit judge sitting by designation) held that this question was immaterial: "Controlling authority contradicts ACI's contention that the public must be able to ascertain the individual elements of an invention for it to constitute a public use."[59] The district court would of course had been correct had it been adjudicating a standard public use case in which some member of the public was actually using the invention. But here, in the context of public use without the public using, the rules are different. The slippage between these two doctrines and the fact that both are classified under the heading of "public use" likely led the expert court to err.

Similarly, in *System Management Arts v. Avesta Technologies*, the patentee argued that a demonstration by a third-party inventor could not be

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[57] No. 1:14-217-TBD, 2016 WL 9954312, at *8 (D. Del. Sept. 9, 2016), *aff'd*, 712 F. App'x 976 (Fed. Cir. 2017).

[58] *Id.*

[59] *Id.* In fairness, one of these authorities was a case in which the Federal Circuit judge—Judge Dyk—had dissented over a factual disagreement about the nature of the alleged use. In *New Railhead Manufacturing v. Vermeer Manufacturing*, the panel majority invalidated a patent on a method of drilling in rock formations based on prior public use by an acquaintance of the inventor. 298 F.3d 1290, 1299 (Fed. Cir. 2002). The majority concluded that the invention was in public use because the inventor had relinquished control. *Id.* at 1298. In dissent, Judge Dyk argued that the acquaintance was under a duty of confidentiality to the inventor. *Id.* at 1300 (Dyk, J., dissenting). Neither opinion, however, explicitly recognized the important distinction between use by a member of the public (someone under no confidentiality duty to the inventor) and use by the inventor or someone bound by confidentiality to the inventor. In *ART+Com Innovationpool*, Judge Dyk could have distinguished *New Railhead* and other cases of use by a member of the public from the different rules of the *Shimadzu* line of cases.

public use because there was "no evidence that any recipient of any such demonstration could have understood anything about [the claimed invention]."[60] The district court rejected this argument because "there is no requirement that the activities which constitute the 'on sale' or 'public use' bars be enabling."[61] Again, this is true in a standard public use case—but not in a case of public use without the public using.[62]

In other cases, courts appear to have made the opposite mistake. One example is *Avante International Technology Corp. v. Premier Election Solutions*. [63] There, a third-party inventor "publicly demonstrated" the invention—a system for tabulating votes—to potential customers before the critical date.[64] The court held that because this use was "only a demonstration" it could not qualify as a public use.[65] Another example is provided by *Xerox Corp. v. 3Com Corp.*, where the inventor videotaped himself using the invention and sent the videotape to a member of the public.[66] The court held that this could not constitute public use because "[t]here is no evidence that anyone other than the inventor himself actually used the invention prior to the critical date."[67] The court does not acknowledge and does not appear to have been aware of the *Shimadzu* line of cases.

At the very least, courts should be explicit that this is a second route to public use that should be distinguished from cases involving use by a member of the public. Perhaps even better, these situations could be treated as ones in which the invention was "otherwise available to the public." [68] To our

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[60] 87 F. Supp. 2d 258, 269 (S.D.N.Y. 2000).

[61] *Id.* at 270.

[62] Another example is *Shatterproof Glass Corp. v. Guardian Glass Co.*, 322 F. Supp. 854, 861 (E.D. Mich. 1970), *aff'd and remanded*, 462 F.2d 1115 (6th Cir. 1972). In that case, the patent was on a type of industrial mold for bending sheets of glass. Ford Motor Company (an independent third-party inventor) used the mold to bend glass for the windshields of its cars before the critical date and sold the glass but not the mold itself. *Id.* at 861–62. The patent holder argued that the mold was not in public use because no member of the public was using it, and no member of the public could learn how it operated. *Id.* Under the "public use without the public using" doctrine, as well as *Gore v. Garlock* and *Gillman v. Stern*, this should have been a winning argument. But the court gave it the back of its hand, citing *Electric Storage Battery v. Shimadzu* en route to the conclusion that Ford's use was "beyond question a prior public use." *Id.* at 862.

[63] No. 4:06-cv-0978, 2008 WL 2783237 (E.D. Mo. July 16, 2008).

[64] *Id.* at *15.

[65] *Id.*

[66] 26 F. Supp. 2d 492, 496 (W.D.N.Y. 1998). There was some dispute as to whether the video was protected by confidentiality (in which case the recipient would not be a member of the public), but the court held that in any case, inventor use could not be public use. *Id.*

[67] *Id.* The court also held (correctly) that the video could not be a printed publication because it was not made publicly available. *Id.*

[68] Post-AIA § 102(a)(1).

knowledge, that category of prior art—which appeared in the law for the first time with the AIA in 2011—has been thus far treated as an empty set: there are no "otherwise available to the public" cases on record. The class of cases we have described here might be precisely the right square peg for that square hole.

C. Constructive Public Use

As the foregoing discussion has demonstrated, the doctrine of public use in many ways behaves symmetrically to the rules governing printed publications. This is no accident, as the two doctrines are meant to further the same principles at a high level of generality: prevent the removal from the public domain of an invention that benefits the public, and avoid bestowing the benefit of a patent upon someone who is not first to bring that invention to the public.[69] But at a more fine-grained level, there are asymmetries between the doctrines. Whenever such asymmetries exist among doctrines that are meant to serve the same higher-level policy objectives, it is worth exploring them to determine whether the asymmetric treatment is, in fact justified.

Perhaps the most notable asymmetry between printed publications and public use is that the latter requires *actual* use,[70] while *constructive* access is sufficient for the former.[71] With regard to the primary doctrine of public use, some member of the public must actually be using the invention. For a printed publication to count as prior art, however, it is not necessary that any member of the public ever view the printed publication.[72] It is sufficient that the printed publication was made available, regardless of how frequently it was actually viewed. The reason is that if Inventor A has already brought the invention to the public—whether or not the public cared!—there is little to be gained (and much to lose) from awarding Inventor B a patent. There is perhaps also a secondary evidentiary purpose to this rule: if a document is made available, particularly online, it might be hard to determine if anyone has actually accessed the document, much less read and understood it. A rule requiring only constructive access reduces the question to the more manageable inquiry of whether the document was available in the first place. In addition, we have not yet arrived at our discussion of the on-sale bar, but it is worth noting that the on-sale bar is constructive as well: an invention can be on sale for prior art purposes if it is merely offered for sale, even if a sale is never made.[73]

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[69] *See supra* Part I.A.

[70] *See* Minn. Mining & Mfg. Co. v. Chemque, Inc., 303 F.3d 1294, 1307 (Fed. Cir. 2002) (noting that noted that under the pre-AIA statutory scheme, "public use" for purposes of § 102(b) and "use" for purposes of § 102(a) "both require *actual* use by someone at some point" (emphasis added)).

[71] *See, e.g.*, *In re* Hall, 781 F.2d 897 (Fed. Cir. 1986).

[72] *See* Samsung Elecs. v. Infobridge Pte., 929 F.3d 1363, 1369 (Fed. Cir. 2019); MASUR & OUELLETTE, *supra* note 4, at 61.

[73] *See* Pfaff v. Wells Elecs., Inc., 525 U.S. 55 (1998); *see also infra* Part II.A.

The existence of "constructive" printed publications begs the question of whether there should be a doctrine of "constructive public use" as well. What would it mean to say that an invention was constructively in public use without actually being in public use? Constructive public use is already contemplated by the second route to public use described in Part I.B: non-secret use by an inventor is public use if the relevant public *could have* learned how the invention works, even without evidence that anyone actually did.[74] One can imagine a similar doctrine for the primary route to public use: an invention is in public use not only if members of the public—those with no expectation of confidentiality to an inventor—actually used the invention, but also if they *could have* used the invention.

One complication is that public use and printed publication doctrine are each quite broad along different dimensions. Printed publications, as we have already explained, need only be constructively available to the public, not actually viewed. And whereas printed publications must be available to some broad swath of the relevant public,[75] it is only necessary that a single member of the public use an invention for it to be in public use.[76] An unthinking combination of these two doctrines would result in a rule that making an invention available to only a single member of the public, regardless of whether that member of the public ever laid a hand on the invention, constitutes constructive public use and bars anyone from ever obtaining a patent. Yet such a rule seems to cut far too broadly, barring inventions even under circumstances where it would be hard to say that the public has received any meaningful benefit.

Instead, we have in mind a situation in which multiple copies of an invention are made widely available to the relevant using public, whether or not they are actually used.[77] The inventions could simply be left lying around, but the more likely circumstance is an invention that is placed widely on sale—perhaps online, via Amazon or a similar platform—and is thus accessible to a broad swath of the public. Even if nobody purchased and used the invention, it was "constructively" in public use—it could have been widely used by the public. (Of course, this invention would also be "on sale," but in Part II.C we will explain why we think the on-sale bar creates prior art only against the inventor responsible for the sale, and not third-party inventors.)

Would such a rule be a positive addition to public use doctrine? As we have said, it has the virtue of further harmonizing public use and printed publications. It would also convey the same evidentiary benefits as attend

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[74] *See supra* notes 42–51 and accompanying text.

[75] *See* MASUR & OUELLETTE, *supra* note 4, at 61–63 (collecting and analyzing cases).

[76] *See supra* note 27 and accompanying text.

[77] *See, e.g.*, Civix-DDI, LLC v. Cellco P'ship, 387 F. Supp. 2d 869 (N.D. Ill. 2005). In this case, Expedia argued that Civix's patents were invalid because it had made the invention available to the public online before the critical date, though it presented no evidence that any member of the public had actually used the invention. *Id.* at 895–98. The district court rejected this argument, citing precedents holding that public use requires actual use. *Id.* at 896.

printed publication doctrine: a court would not need to discover whether anyone actually purchased the invention on Amazon (which might be difficult) much less actually used it (which might be even more difficult), only whether the invention was made available. This inquiry is likely to be both less trouble for courts and result in more predictable decisions for litigants. And patent judges concerned about doctrinal reliance interests of patentees who obtained their patents without a constructive public use doctrine could make this change purely prospective.[78]

On the other hand, this notion of constructive public use does not comport with the rationale behind regular public use in one critical respect: there is no member of the public whose reliance interests are being frustrated.[79] No one is actually using the invention and thus at risk of having that use curtailed by the granting of a patent.[80] Accordingly, there is a sense in which constructive public use is an awkward fit within public use doctrine more broadly. And yet the same could be said for constructive access to a printed publication: without evidence that anyone ever read an obscure printed publication, there is no evidence that the publication has meaningfully brought the invention to the public, or that removal of the invention from the public domain would frustrate existing reliance interests. This argument against constructive public use appears to apply just as well to constructive access to printed publications, so perhaps these doctrines should rise or fall together.

In sum, we do not intend to take a firm position on the soundness of this doctrinal innovation here. We will have more to say about third-party sales and how they should be governed in the sections that follow. Our broader point is that a close inquiry into patent law doctrine and its underlying principles can expose idiosyncrasies and asymmetries of this type. And when they are exposed, it is frequently fruitful to consider whether the idiosyncrasies are justified or whether the law would benefit from further doctrinal unification.

II. On Sale

Section 102 of the Patent Act (in both its pre- and post-AIA varieties) similarly bars an inventor from patenting an invention that was placed "on sale" more than one year before filing.[81] The on-sale bar does not require that the invention was actually ever sold, much less that anyone used it. Instead, the bar is triggered so long as the invention is "the subject of a commercial offer for sale" and is far enough along in its development that it is ready to be

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[78] *See* Jonathan S. Masur & Adam K. Mortara, *Patents, Property, and Prospectivity*, 71 STAN. L. REV. 963 (2019).

[79] *See supra* Part I.A.

[80] *Cf. infra* Part II.C.

[81] Post-AIA § 102(a)(1); Pre-AIA § 102(b).

patented.[82] In this Part, we consider how the on-sale bar differs from the public-use bar described above.

A. On-Sale Principles

The on-sale bar is often considered in conjunction with the "public use" bar—indeed, some courts speak of an invention being placed in "public use or sale" without distinguishing between the two.[83] Yet a quick examination of the doctrine reveals that the principles, based in reliance interests, used to justify the public use will not suffice for the on-sale bar.[84] The reason is that merely offering an invention for sale does not necessarily create reliance interests among the public. If no one purchases the invention—or, for that matter, if no one even notices the offer for sale—then there are no expectations to be disappointed if the invention is later patented. Some other rationale is required.

Accordingly, the Federal Courts have explained that the on-sale bar is instead designed to prevent an inventor from commercially exploiting her invention for longer than the twenty-year statutory patent term[85]—that is, from leveraging the patent system to earn supra-competitive profits from it for longer than twenty years.[86] The concern is that an inventor might hold the patented invention as a trade secret for some period of time and sell it at a supra-competitive price; then, if a competitor appeared ready to enter the market, the inventor could file for a patent and obtain *another* twenty years of patent protection.[87] The on-sale bar forces an inventor to choose between trade

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[82] Pfaff v. Wells Elecs., Inc., 525 U.S. 55, 67 (1998).

[83] *E.g.,* Woodland Tr. v. Flowertree Nursery, Inc., 148 F.3d 1368, 1370 (Fed. Cir. 1998).

[84] *Cf.* Dart Indus. v. E.I. du Pont de Nemours & Co., 489 F.2d 1359, 1365 (7th Cir. 1973) ("[T]he 'public use' and the 'on sale' objections—are sometimes considered together although it is quite clear that either may apply when the other does not.").

[85] U.S. patent term lasts for twenty years from the filing date, 35 U.S.C. § 154(a)(2), though term extensions are available in some cases, and in practice the term often extends twenty-one years from the initial filing because applicants begin with a "provisional" application or an application in another country, after which they have one year to file a regular application at the USPTO. *See* MASUR & OUELLETTE, *supra* note 4, at 17–18. In addition, the effective period of market exclusivity is often less than twenty years due to delays in prosecuting the patent or commercializing the product. We refer to the "twenty-year term" for simplicity.

[86] *See, e.g.*, Ferag AG v. Quipp, Inc., 45 F.3d 1562, 1567–68 (Fed. Cir. 1995) ("[T]he overriding focus of section 102(b) is preventing inventors from reaping the benefits of the patent system beyond the statutory term.").

[87] *See* Sunoco Partners Mktg. & Terminals L.P. v. U.S. Venture, Inc., 32 F.4th 1161, 1168 (Fed. Cir. 2022) ("Otherwise, patent owners could 'acquire[] an undue advantage over the public' by "preserv[ing] the[ir] monopoly . . . for a longer period than is allowed.'" (quoting City of Elizabeth v. Am. Nicholson Pavement Co., 97 U.S. 126, 137 (1877)) (alterations in original)); *see also* Pennock v. Dialogue, 27 U.S. (2 Pet.) 1, 19 (1829) ("If an inventor should be permitted to hold back from the knowledge of the public the secrets of his invention; if he should for a long period of years retain the monopoly, and make, and sell his invention publicly, and thus gather the whole profits

secret protection and patent protection, rather than availing herself of both.[88] Thus, whereas the public-use bar is focused on the public and the reliance interests formed around available inventions, the on-sale bar is focused on the inventor and the possibility that she will attempt to exploit the invention for longer than allowed.

This understanding of the on-sale bar is reflected in basic doctrine. For instance, an actual sale—much less use—of the invention is not required to trigger the on-sale bar.[89] Rather, the on-sale bar is triggered whenever there is a "commercial offer for sale" of the invention.[90] It is not necessary that the offer be accepted, or that the invention ever change hands.[91] This is one indication (and consequence) of the fact that the on-sale bar is concerned with commercial exploitation, rather than the public's reliance interests. If the inventor places the invention on sale and the sale is never accepted, the public has obviously formed no reliance interests around the invention—there appears to be no interest in the invention at all! But an offer for sale represents a clear effort by the patent holder to commercially exploit the invention and thus an appropriate moment to trigger a bar on patenting meant to limit exploitation to the statutory period. Similarly, the Supreme Court has squarely held that even entirely "secret" sales—sales in which no enabling information is made public, and the very fact of the sale itself is not made public—will nonetheless trigger the on-sale bar.[92] If the concern behind the on-sale bar is that a party will attempt to earn supra-competitive profits for longer than the patent term, it does not matter whether the relevant sales activities are public or secret.

The foregoing discussion has assumed that the party seeking the patent is the same party who has placed the invention on sale. Indeed, the paradigmatic on-sale case involves this type of "first-party" situation. In such a situation, the policy considerations described above are squarely implicated and the answer is clear: the on-sale bar is meant to prevent the party who attempted to exploit the invention commercially from obtaining a patent. But what about "third-party" on-sale bar cases, where the party that placed the invention on sale *is not* the same as the party who has applied for the patent? Suppose that Aleida offers an invention for sale but does not disclose any information about the invention. Three days later, independent inventor

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of it . . . and then only, when the danger of competition should force him to secure the exclusive right, he should be allowed to take out a patent, and thus exclude the public from any farther use than what should be derived under it during [the patent term]; it would materially retard the progress of science and the useful arts.").

[88] *See* Metallizing Eng'g Co. v. Kenyon Bearing & Auto Parts Co., 153 F.2d 516, 520 (2d Cir. 1946) ("[I]t 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.").

[89] *See* Pfaff v. Wells Elecs., Inc., 525 U.S. 55, 68 (1998).

[90] *Id.* at 69.

[91] *Id.* at 68.

[92] Helsinn Healthcare S.A. v. Teva Pharms. USA, Inc., 139 S. Ct. 628 (2019).

Bruno files for a patent on that same invention. In those situations, the animating principle behind the on-sale bar is not implicated. No party is attempting to exploit the invention beyond the twenty-year statutory term: Aleida has chosen trade secrets, and Bruno has chosen patents, but nobody is attempting to obtain both. Each party is coloring well within the lines established by the Patent Act. Should Aleida's offer for sale nonetheless bar Bruno from patenting?

This is a critical question, and one that is likely to become even more critical over time. As internet commerce expands, more and more inventions will be placed "on sale" in ways that will trigger the on-sale bar. In many cases these sales will happen well before any other type of prior art has been created, and in some instances—if the invention is never actually sold—they may be the only form of prior art that is ever created. It is thus important for putative inventors and the courts and agencies that administer patent law to understand the contours of the on-sale doctrine as it applies beyond simple first-party situations.

We will answer this question in Part II.C, but we have not yet arranged all of the necessary doctrinal pieces in place. We thus turn next to an intimately related topic: cases involving what is known as "secret commercial use."

B. Secret Commercial Use

In some instances, an inventor can earn money from an invention not by selling the invention itself, but by selling some product or service that is produced using the invention. This is particularly true when the invention is a process or method, rather than a physical product, but it can be true as well for certain types of machines that are used to produce other physical products, rather than being sold themselves. For instance, imagine that Aleida creates a machine that produces a new type of golf ball. She then begins selling the golf balls produced by her machine, but she does not sell the machine itself. Situations of this type are referred to as instances of "secret commercial use"—"commercial" because the invention is being used for profit, and "secret" because it is done behind closed doors.

Cases involving secret commercial use do not fit easily within the ordinary meaning of either "public use" or "on sale." No member of the public is using the invention—the only person using it is the inventor, behind closed doors. Nor is the invention—the physical thing or process claimed by the patent—changing hands in a commercial sale. Instead, the inventor is selling a "fruit" of the invention—a related product or service that stems from the secretly used invention.

Nonetheless, there is a clear intuition regarding how cases of secret commercial use should be handled. If Aleida engages in secret commercial use of her golf ball-producing machine in an effort to profit from selling the golf balls, and then later applies for a patent on the machine, she is quite directly attempting to extend her monopoly over the new golf balls produced by her machine past the twenty-year patent term. She is attempting to have it both

ways: trade secrets now, and patent protection later. It would exalt senseless formalism for a court to hold that Aleida is permitted to patent the machine after having sold "only" the new golf balls, when the entire purpose of the machine is to earn profits by producing and selling the new golf balls.

In accordance with this logic, the federal courts have consistently held that secret commercial use by a party will bar that party from subsequently obtaining a patent on the process or machine being used.[93] Yet while the courts have been consistent in judging the outcomes of these cases, they have not been able to agree on the doctrine or rationale that explains them.

In some instances, the courts have treated secret commercial use cases as implicating the public-use bar, not the on-sale bar. One important early example is *Metallizing Engineering v. Kenyon Bearing & Auto Parts*.[94] There, an inventor was using a metal reconditioning process in secret (behind the closed doors of his workshop) and selling the fruits of the process—the reconditioned metal—to the public. In an influential opinion, Judge Learned Hand held that the inventor was barred from obtaining a patent by the public-use bar. In a number of subsequent cases, the Federal Circuit has similarly stated that the public-use bar is triggered whenever the invention was "commercially exploited"—language that appears to stem from Learned Hand's opinion in *Metallizing*.[95] Some scholars have similarly treated secret commercial use cases as implicating the public-use bar.[96]

On other occasions, however, courts have treated secret commercial use cases as implicating the on-sale bar. One such example is *Quest Integrity v. Cokebusters*, decided by the Federal Circuit in 2019.[97] The patent in that case covered a method (and related hardware) for collecting and displaying data from furnace inspections. Quest, the patentee, did not sell devices or software embodying the claimed invention. Rather, it used the patented invention in the course of its furnace inspection business. The Federal Circuit invalidated the Quest patent under the on-sale bar. It wrote:

> The fact that Quest did not sell its furnace inspection hardware or software (i.e., its method, computer-readable medium, or system) does not take Quest's commercial activities outside the

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[93] *See, e.g.*, Quest Integrity USA, LLC v. Cokebusters USA Inc., 924 F.3d 1220 (Fed. Cir. 2019).

[94] 153 F.2d 516 (2d Cir. 1946).

[95] *See* Delano Farms Co. v. Cal. Table Grape Comm'n, 778 F.3d 1243, 1247 (Fed. Cir. 2015); Dey, L.P. v. Sunovion Pharms., Inc., 715 F.3d 1351, 1355 (Fed. Cir. 2013); Invitrogen Corp. v. Biocrest Mfg., L.P., 424 F.3d 1374, 1380 (Fed. Cir. 2005); BASF Corp. v. SNF Holding Co., 955 F.3d 958, 967 (Fed. Cir. 2020) ("[A]n inventor's commercial exploitation of his invention before the critical date created a public-use bar—'regardless of how little the public may have learned about the invention.'" (quoting Metallizing Eng'g Co. v. Kenyon Bearing & Auto Parts Co., 153 F.2d 516, 520 (2d Cir. 1946)).

[96] *See, e.g.*, Lemley, *supra* note 15.

[97] 924 F.3d 1220 (Fed. Cir. 2019).

> on-sale bar rule. Rather, Quest used its method, computer-readable medium, and system commercially to perform furnace inspection services and produce the Norco Reports for its customer. Sale of a product (here, sale of the Norco Reports) produced by performing a claimed process implicates the on-sale bar.[98]

Notwithstanding the waffling among courts and scholars, secret commercial use cases are better understood as implicating the on-sale bar, not the public-use bar. There is no way to avoid doing some violence to the language of 35 U.S.C. § 102 if secret commercial use cases are to implicate either the public use or on-sale bar.[99] As we explained, the use is not public, and the invention is not being sold. Some might consider the textual contest a wash. But we think it is a closer fit to say that "the invention" is on sale even when it is only a product or fruit of the invention that is being sold, and a greater leap to say that the use is "public" when it defies the meaning of that word as it is used in every other patent context.

Support for our preferred statutory interpretation comes from the doctrine of patent exhaustion, under which a patent owner who has sold one of her products cannot limit resale or exert other control over that product through the patent laws.[100] In this context, the Supreme Court has squarely held in *Quanta Computer v. LG Electronics* that a patented method may be embodied in the product resulting from that method:

> It is true that a patented method may not be sold in the same way as an article or device, but methods nonetheless may be "embodied" in a product, the sale of which exhausts patent rights. Our precedents do not differentiate transactions involving embodiments of patented methods or processes from those involving patented apparatuses or materials.[101]

This decision about when a process is placed on sale for purposes of patent exhaustion also seems to apply to the similar question of when that process is placed on sale for purposes of the on-sale bar. Both doctrines involve the issue of when an invention is on sale, and both are motivated by similar concerns about limiting the extent to which an inventor can use the patent laws to control commercial exploitation of her invention.

In addition, we think there are even stronger reasons in the realm of policy and principle for treating secret commercial use under on-sale bar. The

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[98] *Id.* at 1227.

[99] Of course, there is a third option, which is to hold that secret commercial use cases trigger neither statutory bar. But that would leave a significant loophole for inventors to exploit certain types of monopolies for longer than twenty years, which seems directly antithetical to the objectives of 35 U.S.C. § 102 and of patent law more generally.

[100] For an overview of patent exhaustion, see Impression Prod., Inc. v. Lexmark Int'l, Inc., 581 U.S. 360 (2017).

[101] 553 U.S. 617, 628–29 (2008).

most important reason is that secret commercial use more strongly implicates the central principle animating the on-sale bar: concern that the inventor will exploit the invention commercially for longer than the prescribed patent term. As Judge Hand wrote in *Metallizing* (again, a case in which he relied upon the public-use bar), "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."[102] By contrast, secret commercial use cases do not raise the primary concerns that animate the public-use bar. If only a single party is engaging in secret commercial use, and the service is available only at the inventor's (supra-competitive) price, it is hard to imagine members of the public forming reliance interests around the availability of that service. From the perspective of the public, there is no difference between a trade secret and a patent. In either case, the service is only available at the inventor's chosen price.

Cases like *Metallizing* and *Quest* are properly understood as first-party secret commercial use cases—the party engaging in the commercial use is the same party that eventually seeks the patent. But there are also third-party secret commercial use cases, in which one party makes commercial use of the invention and an independent inventor later seeks a patent. The most famous of these is *Gore v. Garlock*.[103] That case concerned of method of stretching teflon into a thin, tape-like shape that could be used in a variety of products.[104] The problem confronting Gore, the patentee, was that an independent inventor (Cropper, who sold to Budd Co.) had been using the process in secret and selling the (non-enabling) fruits of that process—namely the stretched teflon—to the public. Nonetheless, the Federal Circuit held that Budd's secret commercial use did not bar Gore from later obtaining a patent.[105] This echoed a result from 45 years earlier, when the Second Circuit (in the person of Judge Learned Hand) held in *Gillman v. Stern* that a third party's secret commercial use of a pneumatic machine used in quilting did not invalidate another inventor's later effort to obtain a patent.[106]

The court held that the secret commercial use by Cropper and Budd did not bar Gore from obtaining a patent. Moreover, the court's reasoning sounded in the language of the on-sale bar. Wrote the court,

> As between a prior inventor who benefits from a process by selling its product but suppresses, conceals, or otherwise keeps the process from the public, and a later inventor who promptly

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[102] *Metallizing*, 153 F.2d at 520.

[103] 721 F.2d 1540 (Fed. Cir. 1983).

[104] One of the most widely used products is GoreTex, a waterproof, breathable material used in outdoor equipment.

[105] *See also* BASF Corp. v. SNF Holding Co., 955 F.3d 958, 967 (Fed. Cir. 2020) ("SNF's second contention—that a third party's commercial exploitation of a secret process creates a *per se* public-use bar to another inventor—is simply wrong.")

[106] 114 F.2d 28 (2d Cir. 1940).

> files a patent application from which the public will gain a disclosure of the process, the law favors the latter.[107]

There are several notable phrases contained within this short passage. First, the issue for the court is whether the first inventor has commercially "benefit[ed] by selling its product." Second, the court is comparing the entitlements of two inventors and whether either inventor has sacrificed his right to the patent. Finally, the interests of the public are discussed only in the sense of the public benefiting from the information disclosed when a patent is filed, not from the availability of the product itself. There is no mention of public reliance interests in access to the invention. In all these respects, the language reads as an analysis under the on-sale bar, rather than the public-use bar.

The Federal Circuit thus appears to have reached the right result for the right reasons. If Cropper and Budd had applied for a patent after using their teflon-stretching invention commercially—which they did not—their application should have been denied. From them, a patent application would represent an effort to obtain monopoly profits on the invention for longer than the 20-year statutory term. But why should their activities bar Gore from obtaining a patent? If Cropper and Budd had simply sat on their invention and done nothing with it, there is no doubt that Gore could later have obtained a patent. Why should the fact that they made sales change the equation? Who has acquired an interest worth protecting from the mere fact of Cropper and Budd's sales? Certainly no member of the public, none of whom are using the invention in a way that would give rise to reliance interests.[108] And as the *Gore* court aptly observes, it would be odd to favor Cropper and Budd's interests over Gore's when the former intentionally sought to conceal the invention.

This analysis yields two important conclusions. First, secret commercial use cases are better understood—and better analyzed—as implicating the on-sale bar, rather than the public-use bar. Second, cases of third-party secret use do not bar an inventor who has not attempted to commercialize the invention from obtaining a patent. Indeed, the most recent iteration of the law (as amended by the AIA in 2011) explicitly contemplates this outcome. The law provides a defense to charges of infringement to any party that was

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[107] *Gore*, 721 F.2d at 1550.

[108] No members of the public were using the invention, and members of the public who purchased the *fruit* of the inventive process (stretched teflon) from Cropper or Budd could continue to use their stretched teflon. One potential caveat is that in 1988, Congress introduced patent liability for someone who "uses within the United States a product which is made by a process patented in the United States," 35 U.S.C. § 271(g), which might appear to bar continued use of the stretched teflon, This statute does not apply, however, to "noncommercial use or retail sale of a product unless there is no adequate remedy under [the Patent Act] for infringement on account of the importation or other use, offer to sell, or sale of that product," *id.*, which would exempt most uses, including noncommercial use by Cropper and Budd's customers. Furthermore, whether § 271(g) applies at all to domestically manufactured products remains unclear. *See* ROBERT A. MATTHEWS, JR., 2 ANNOTATED PATENT DIGEST § 10:103 (2022).

commercially using a process or machine in manufacturing at least one year before the date on which the patent on the process or machine was filed.[109] If secret commercial use barred all parties from obtaining a patent, this provision of law would be irrelevant. Anyone who qualified for the defense would have engaged in activities that would bar anyone from ever patenting the invention and thus would face no risk of suit. The practical consequences of these twin conclusions may not be large in the context of secret commercial use, where every court appears to agree on the right outcomes.[110] But they have potentially significant ramifications for our understanding of the on-sale bar more generally, the topic to which we now return.

C. The Third-Party On-Sale Bar

We are now ready to return to the question of secret sales by a third-party inventor. Consider again this animating example: suppose Aleida creates an invention and offers it for sale (without disclosing any information about it), but the sale is never accepted. Aleida has triggered the on-sale bar, and under *Pfaff* she will be barred from obtaining a patent if she does not file within a year. But should her offer for sale bar Bruno, another inventor who is unconnected with Aleida?

Based upon the analysis in the prior two sections, it would seem that the answer should be "no." Per *Pfaff*, the on-sale bar exists to prevent inventors from commercially exploiting their inventions for longer than the twenty-year statutory period. Bruno is not doing that; only Aleida is. And from the perspective of patent law, there is no meaningful difference between secret commercial use that does not disclose the invention and a secret sale that does not disclose the invention. Both involve commercial exploitation, neither involves any sort of public use, and neither creates enabling prior art. It would seem that they should be treated identically.

Yet the picture is far more muddled. Begin with what the Federal Circuit has said. On a handful of occasions, the court has stated explicitly third-party sales will bar *anyone* from obtaining a patent. As the court wrote in *Zacharin v. United States*, "under this court's precedents, it is of no consequence that the sale was made by a third party, not by the inventor."[111] But there is also one case in which the Federal Circuit has held the opposite. In *Poly-America, L.P. v. GSE Lining Technology, Inc.*, well before the critical

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[109] 35 U.S.C. § 273(a)(1).

[110] Nonetheless, the law on this question is sufficiently convoluted that even normally reliable commentators have been flummoxed. *See* 2A CHISUM, *supra* note 21, § 6.02 ("Whether secret commercial use by one without the knowledge or consent of the first inventor constitutes 'public use' is a difficult question that lacks definitive resolution.").

[111] 213 F.3d 1366, 1371 (Fed. Cir. 2000); *see also* Abbott Labs. v. Geneva Pharms., Inc., 182 F.3d 1315, 1318 (Fed. Cir. 1999) ("Furthermore, the statutory on-sale bar is not subject to exceptions for sales made by third parties either innocently or fraudulently.").

date a third party had sold a machine that may have been capable of performing the claimed method.[112] But the court held that this third-party sale could not invalidate the patent:

> [T]his case involves a purported sale by a third party of a device asserted after the critical date to be usable in a claimed method. This case thus does not involve the policy prohibition against an inventor commercializing his invention while deferring the filing of a patent application.[113]

Next, consider what the Federal Circuit has actually *done* in these cases, in the sense of what types of actual third-party activities have been held to invalidate (or not invalidate) the patents at suit. First, some of the cases that the court considers "third party" sales cases are actually just standard first-party cases in which the inventor seeking the patent is the same party who made the sale. Incredibly, one such example is *Zacharin v. United States*, the case we quoted above.[114] In that case, the inventor, an engineer working for the Army, disclosed the invention to the Army.[115] The Army in turn disclosed it to a private company (Breed), which manufactured 6000 units and sold them back to the Army.[116] The court held that this sale (Breed to the Army) barred the inventor. [117] But the sale stemmed from Zacharin's—the first-party inventor's—own commercial exploitation of the invention: He convinced the Army to adopt his invention and then made money when Breed manufactured and sold it.[118] Any third-party sale was entirely immaterial; the court should have just held the patent barred under standard first-party on-sale doctrine.[119]

Similarly, in *Pennwalt Corp. v. Akzona Inc.*, the Federal Circuit invalidated the plaintiffs' patent because the defendant sold the patented chemical (and raw materials for making more of it) to a manufacturer, who then sold to farmers before the critical date.[120] The court claimed that "is well settled that the 'on sale' bar applies to sales made by the inventor or another, with or without the inventor's consent."[121] But again, if it is "well settled," it is not well settled by this case. This appears to be yet another instance of *first-*

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[112] 383 F.3d 1303 (Fed. Cir. 2004). There was conflicting evidence regarding whether this machine actually could have performed the method as claimed. *Id.* at 1306–09.

[113] *Id.* at 1309.

[114] 213 F.3d at 1371.

[115] *Id.* at 1367.

[116] *Id.* at 1368.

[117] *Id.* at 1370.

[118] *Id.*

[119] In this sense *Zacharin* is analogous to *Medicines Co. v. Hospira, Inc.* (*Medicines II*), 881 F.3d 1347 (Fed. Cir. 2018), a standard first-party case in which the patent was held invalid because the inventor contracted with a distributor to sell the invention to consumers.

[120] 740 F.2d 1573, 1576, 1580 (Fed. Cir. 1984).

[121] *Id.* at 1580 n.14.

party commercial use: The inventor and patentee (Akzona) provided the defendant (Pennwalt) with the original invention, a component chemical, and technical assistance, all pursuant to a commercial agreement.[122] The court did not need to consider Pennwalt's subsequent sale of the invention; it would have been more than enough to note that Akzona was selling the invention for profit well before the critical date.

Second, and perhaps even more importantly, nearly every case in which the Federal Circuit has held that a third-party sale bars another inventor has involved a sale that was not secret. By "not secret," we mean that the sale created some other type of prior art alongside the sale itself. The sale either put the invention into public use—by making embodiments of the invention publicly available—or it disclosed the invention to the public in an enabling way.

Zacharin—which, again, is not really a third-party sale case!—offers a good example this as well. Recall that the Army provided Breed (a private contractor) with the invention and asked Breed to manufacture the invention for the Army.[123] There is no mention of Breed being bound by any duty of secrecy. At minimum, then, the invention appears to have been in public use by Breed itself. The argument for public use is even stronger than it would be in a typical case, because Breed was actively induced by the inventor to use the invention, without any mention of a patent. The public-use bar exists to protect reliance interests on the part of members of the public who believe that they have access to an unpatented invention. Those reliance interests loom especially large in a case such as *Zacharin*. Standing alone, this public use would have been yet another reason to invalidate the patent.

Pennwalt—again, also not a true third-party sale case!—is another such example. Recall that Pennwalt sold the patented chemical to farmers well before the critical date.[124] Those sales put the invention into public use—"the use of these suspensions by farmers" also occurred before the critical date.[125] Here too, the public use would pose an independent bar to patenting irrespective of any on-sale issue.

Another example is *Abbott Laboratories v. Geneva Pharmaceuticals*.[126] There, a true third party, Byron Chemical Company, sold the patented chemical to a variety of other parties more than one year before the patent application was filed.[127] It is possible that the purchasers stored the chemical away and did nothing with it until after the critical date—the opinion does not say either way. But it is far more likely that the purchasers did something—anything—with the chemical, thereby placing it into public use.

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[122] *Id.* at 1575–76.

[123] *Zacharin*, 213 F.3d at 1368.

[124] *Pennwalt*, 740 F.2d at 1576, 1580.

[125] *Id.* at 1577.

[126] 182 F.3d 1315 (1999).

[127] *Id.* at 1317.

In re Caveney is of a piece.[128] There, prior to selling the patented invention, a third-party inventor "sent samples of the claimed invention to [a member of the public] for evaluation along with a catalogue and technical information."[129] The Federal Circuit focuses on the on-sale bar, but any law student trained in issue spotting would recognize that this action almost certainly created multiple types of prior art. The samples were in public use, either through actual use by a member of the public or because they were enabling when examined by someone with skill in the art. As the court noted, the facts are distinguishable from sales that only create prior art against the seller because "the claimed invention was disclosed to the purchaser."[130] And the catalogue and technical information might themselves have constituted a separate printed publication.

So too is *General Electric v. United States*, a case involving a suit against the government for damages (and thus decided by the Court of Claims).[131] There, a third-party inventor sold the patented gyroscope invention to members of the public before the critical date, and the court specifically notes that "all orders were filled"—that is, the invention was shipped and received by purchasers—by the critical date as well.[132] Again, though the court makes no explicit mention, we can be relatively certain that the recipients placed the gyroscopes in public use before the critical date.[133]

In fact, there is only one case in which the Federal Circuit invalidated a patent on the basis of a third-party sale where the sale does not appear to have created any other prior art. That case is *Evans Cooling System v. General Motors*, which involved a claim by an inventor that General Motors had misappropriated his invention and incorporated it into the 1992 Corvette.[134] At least one customer had purchased the '92 Corvette before the critical date, but it does not appear that the car was delivered by that date, making this a pure case of a sale without public use.[135] On the other hand, this case is

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[128] 761 F.2d 671 (Fed. Cir. 1985).

[129] *Id.* at 673.

[130] *Id.* at 675–76.

[131] 654 F.2d 55 (Ct. Cl. 1981).

[132] *Id.* at 59.

[133] Another example (of a sort) is *Mosaic Brands, Inc. v. Ridge Wallet LLC*, No. 2022-1001, 2022 WL 17814226 (Fed. Cir. Dec. 20, 2022). In that case, the defendant claimed that it has separately invented and then sold the patented invention at a trade show well before the critical date. The opinion never discusses the fact that this is a third-party sale rather than a first-party sale, but it seems to assume that the third-party sale (if it existed) would invalidate the patent. *Id.* at *5-7. Here too, however, the supposed sale was to members of the public—customers at a trade show—and so the sale would have almost immediately created a public use as well.

[134] 125 F.3d 1448, 1454 (Fed. Cir. 1997).

[135] *Id.* at 1453–54.

juxtaposed with *Poly-America*, where the Federal Circuit held that third-party sales could never create prior art against a party who was not selling.[136]

The reason for noting that nearly all of the "third-party sale" cases have in fact involved some other type of prior art is not to advance the argument that the on-sale bar language in those cases is technically dicta. (It may not be; and even if it is, this isn't a very interesting or compelling argument.) Rather, the point is that courts may have been confused by the fact that the invention was becoming prior art by some other route as well. It may have seemed intuitive to the courts that the sale should bar a third-party inventor from obtaining a patent precisely because the sale led to the creation of prior art that indisputably bars everyone from obtaining a patent. The courts may not have been focused with perfect clarity on the on-sale issue at hand.

The situation in the lower courts is no less muddled. Some lower courts have held that the on-sale bar is party-specific: a sale by one party does not preclude another party from obtaining a patent, so long as the sale does not also trigger the public-use bar.[137] *MDS Associates v. United States* is illustrative. That case involved technology used to prevent ship-to-ship collisions. More than a year before the applicant (MDS) filed for a patent, the United States Navy had sold the invention to the nation of West Germany.[138] As befitting a sale from one country's military to another's, the sale was kept confidential and the technology was protected by various secrecy and classification rules. The court held that MDS was not barred from obtaining a patent by a secret third-party sale.[139] In other cases, however, courts have held that truly secret sales nonetheless trigger the on-sale bar against third parties.[140] As with Federal Circuit caselaw, these cases simply cannot be reconciled.

Accordingly, there are two possible conceptual approaches to this area of law, neither of which perfectly fits and justifies all of the extant legal materials. The first approach is simply to understand the on-sale bar as not party-specific. A sale by one inventor will bar a patent by another inventor who was unconnected to the sale.[141] This approach has the virtue of comporting

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[136] Poly-Am., L.P. v. GSE Lining Tech., Inc., 383 F.3d 1303, 1309 (Fed. Cir. 2004).

[137] *See, e.g.*, Schlumberger Tech. Corp. v. BICO Drilling Tools, 2019 WL 2450948 (S.D. Tex. June 12, 2019); MDS Assocs. v. United States, 37 Fed. Cl. 611 (1997).

[138] *MDS*, 37 Fed. Cl. at 614.

[139] *Id.* at 616.

[140] *See, e.g.*, Piet v. United States, 176 F. Supp. 576 (S.D. Cal. 1959).

[141] This approach has been adopted by the most prominent commentators as well. *See, e.g.*, 2A CHISUM, *supra* note 21, § 3.05 n.12 ("In *Evans Cooling Systems, Inc. v. General Motors Corp.* (1997), the Federal Circuit declined to 'create an exception to the on sale bar for those instances in which a third party misappropriates the invention and later places the invention on sale or causes an innocent third party to place the invention on sale.'"). We were able to find one instance of dissent, however. *See* Harris A. Pitlick, *On Sale Activities of an Independent Third Party Inventor, or—Whose Widget Is It*?, 64 J. PAT. OFF. SOC'Y 138 (1982) (arguing that the on-sale bar should not extend to third parties unless the invention is made public).

with the majority of Federal Circuit statements of the law—we have described every single case above, and if the Federal Circuit's language is taken at face value the vote is 6–1 (assuming we generously include *Zacharin* and *Pennwalt*, which are not actually third-party sales cases).

However, there are two problems with this approach. The first is that it requires incorporating at least one exception, for secret commercial use (as in *Gore v. Garlock*).[142] There is of course nothing wrong with exceptions to a doctrine, when the exceptions are motivated by some compelling reason. But here, there is no reason whatsoever that secret commercial use should be treated differently than secret sales when they implicate precisely the same policy concerns. This relates to the second—and more significant—problem, which is that the policy underlying the on-sale bar dictates that it should be party-specific. Again, as the Supreme Court explained in *Pfaff*, the primary focus of the on-sale bar is the threat that a party will attempt to exploit a patent beyond the prescribed twenty-year term.[143] Actions by one inventor simply do not implicate this concern with respect to another inventor; the second inventor has done nothing wrong.[144]

At minimum, it would seem that if the on-sale bar is to be extended to cover sales by third parties, it should require additional justification—the rationale of preventing patentees from double-dipping will not suffice. The only case to take a stab at offering such a rationale was *Abbott Laboratories* (discussed above). There, the Federal Circuit suggested that "buyers had come to rely on [the invention] being freely available" and argued that "[o]ne 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."[145]

There is something to this argument, even though no other court has advanced it (to the best of our knowledge). Perhaps when a third party places an invention on sale, members of the public do indeed form reliance interests in the continued availability of that invention. The on-sale bar could be deployed in non-party-specific fashion to protect those interests.

At the same time, there are two important problems with this argument as well. First, if the invention is offered for sale but never sells—thus not triggering the public-use bar as well—it's hard to imagine that anyone actually relied on its commercial availability. If some putative consumer has formed reliance interests so important that the law should protect them by overriding an innocent third party's right to a patent, why didn't that putative consumer actually buy and use the product?

Second, even if it existed, this type of reliance interest would be quite unlike the reliance interests that the law protects in the context of the public-

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[142] *See supra* notes 103–108 and accompanying text.

[143] Pfaff v. Wells Elecs., Inc., 525 U.S. 55, 62 (1998).

[144] *See* Poly-Am., L.P. v. GSE Lining Tech., Inc., 383 F.3d 1303, 1309 (Fed. Cir. 2004).

[145] Abbott Labs. v. Geneva Pharms., Inc., 182 F.3d 1315, 1319 (Fed. Cir. 1999).

use bar. There, the interest at stake is in continued *unfettered* use of the invention, *without having to pay monopoly prices* or a royalty to the inventor. Recall that the touchstone of public use is whether the inventor has "maintained control" of the invention or surrendered control to the public.[146] Here, on the other hand, the only reliance interest potentially implicated is the interest in continuing to be able to purchase the invention—at what might very well be monopoly prices. What is more, it is not the least bit clear that granting a patent would threaten those interests. If the inventor were to receive a patent, the mostly likely outcome is that she would then sell the product herself, potentially at the very same (monopoly) price. From the perspective of the public, it is entirely possible that nothing would change but the name of the seller.[147]

The other way of conceptualizing this area of law is to view the on-sale bar as purely party-specific: Sales by Aleida can only bar Aleida, not Bruno. However, sales by Aleida will often give rise to other types of statutory bars. If Aleida sells 1000 units of her invention to the public, and the public uses the invention, the invention is now in public use. The public-use bar is not party-specific, so those uses will bar Bruno from obtaining a patent on the same invention. (Again, the key difference is that granting Bruno a patent would allow him to rip—legally speaking—the invention away from those thousand members of the pubic who thought they could use it free and clear.) But if Aleida's sale had been non-public, or if her offer for sale had never been accepted, the offer itself would bar only Aleida and not Bruno.

There are several important virtues to this approach. First, and most importantly, it would align the on-sale and public-use doctrines with their underlying policies. The on-sale bar would be party-specific because it exists to vindicate a party-specific policy objective; the public-use bar would not be party-specific because it exists to vindicate a policy objective that concerns the public at large, rather than any specific patent applicant. Second, it would eliminate the need for a special, unprincipled exception for secret commercial use. Third, it would reduce the incentives for inventors to protect their inventions with non-disclosure agreements when selling them. Making a sale will always bar the inventor from obtaining a patent, but if the sale is kept secret using a non-disclosure agreement, an independent third-party inventor could still obtain a patent.[148] By contrast, if the inventor does not try to keep

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[146] *See supra* Part I.

[147] One other potential policy that could undergird third-party application of the on-sale bar is the idea that consumers should never be asked to pay monopoly prices for an invention for more than the twenty-year statutory period. Thus, from the consumer perspective, a few years of trade secret exclusivity for Aleida's part, followed by twenty years of patent exclusivity for Bruno, is just as bad as if Bruno was the exclusive seller for that entire period. This rationale has never been advanced by any court, however. And there is a real question about whether the goal of protecting the consumer in this situation would be strong enough to override Bruno's right to a patent, given that Bruno (by hypothesis) is coloring within the lines.

[148] *See supra* Part II.A.

the invention secret, the sale will likely create a public use, which will bar all parties from patenting.[149] And it is better for the public if there are fewer non-disclosure agreements because more information will make it into the public domain.

Third and finally, it would harmonize how the public-use and on-sale doctrines treat third-party activities in a deeper sense. It is black-letter public use doctrine that an inventor's own secret use of an invention does not constitute public use with respect to that inventor or anyone else.[150] That is, if Bruno independently creates an invention and uses the invention in secret, his use does not bar Aleida from later obtaining a patent on the same invention (assuming she independently invented it as well).[151] The principle behind this rule is presumably that, unlike a member of the public, the independent inventor who keeps the invention secret is deliberately foregoing the option of protecting her interests by filing or publishing the invention.[152] She thus assumes the risk that that someone else will file for a patent.[153] All of this is to say that the non-public activities of a third-party inventor do not create a public use that would bar an independent inventor from obtaining a patent. Here, in symmetric fashion, we are suggesting that the non-public activities of a third-party inventor do not create a *sale* that would bar an independent inventor either.

At the same time, one downside of the approach we describe is that it would conflict with the majority of the Federal Circuit's statements on the issue. But critically, it would conflict with the actual result in only one case—as would the alternative conceptual approach. As we explained above, *Evans Cooling* is the only case in which the Federal Circuit has barred a third party from obtaining a patent on the basis of a sale absent some other type of prior art. And *Poly-America* is the opposite; either approach to this area of law requires declaring one Federal Circuit case wrongly decided. Every other case in which the Federal Circuit has applied the on-sale bar to third parties is either not a true third-party sale case (*Zacharin* and *Pennwalt*) or is better understood as an instance in which a sale led to public use, which in turn barred all parties from patenting. Indeed, the Federal Circuit has at least once

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[149] *See supra* notes 129–134 and accompanying text.

[150] W.L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1549–52 (Fed. Cir. 1983).

[151] Put another way, use of an invention *by an independent inventor* does not constitute public use unless the inventor creates an enabling disclosure to the public under the "public use without the public using" doctrine. *See supra* Part I.B.

[152] To the extent one is concerned about the independent inventor's reliance interests in continued use of her invention, Congress provided a limited defense to infringement for a prior user in 35 U.S.C. § 273.

[153] *Gore*, 721 F.2d at 1550 ("As between a prior inventor who benefits from a process by selling its product but suppresses, conceals, or otherwise keeps the process from the public, and a later inventor who promptly files a patent application from which the public will gain a disclosure of the process, the law favors the latter.").

described the two bars as operating in this manner. In a footnote to *In re Caveney*, the court wrote:

> The "on sale" provision of 35 U.S.C. § 102(b) is directed at precluding an inventor from commercializing his invention for over a year before he files his application. Sales or offers made by others and disclosing the claimed invention implicate the "public use" provision of 35 U.S.C. § 102(b).[154]

A second downside of this approach is evidentiary: to invalidate a third-party patent, it may be easier to prove that an embodiment of the invention was on sale than that it was in public use. We think this is an important consideration, but that it could be addressed through either of two approaches. First, under our proposed doctrine of "constructive public use," an invention placed widely on sale such that it *could have been* used would be in public use.[155] Second, courts could adopt a rebuttable presumption that sales lead to use, shifting the evidentiary burden to the patent owner to show that an earlier sale did *not* result in use.

On balance, we think that this second conceptual approach is the best way to understand the on-sale and public-use bars: the former should be party-specific, the latter party-independent. It better aligns doctrine with policy and principle, and it rationalizes the doctrine without epicycles of caveats and exceptions. But we recognize that there are meaningful arguments on both sides. And at the moment, the Federal Circuit seems to describe the law as party-independent more than the alternative. At minimum, the court should clarify this area of law definitively, lest practitioners and lower courts remain at sea.

Table 1 summarizes our discussion of real-world prior art. Paper prior art, such as a scientific journal article, is prior art against both the author of the paper and third parties as long as it enables the invention and is non-secret, but it does not have to actually have been read by any member of the public—it is enough that a researcher could have learned about the invention by reading it. We have argued that public use *by an inventor* ought to be similarly treated as prior art only if it provides the public with constructive knowledge of the invention through an enabling disclosure, as in cases such as *Shimadzu* and *BASF*.[156] Public use *by a member of the public* (anyone who obtained the invention without a confidentiality restriction) need not be enabling, and we think courts should clarify whether constructive public use is sufficient—whether it is enough that an invention was available for use by members of the public, even without direct evidence of that use.[157] Finally, placing an invention in commercial use—such that either the invention itself or a product or service produced by the invention is on sale—is prior art even if it is secret

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[154] 761 F.2d 671, 676 n.5 (Fed. Cir. 1985).

[155] *See supra* Part I.C.

[156] *See supra* Part I.B (discussing Elec. Storage Battery Co. v. Shimadzu, 307 U.S. 5 (1939); BASF Corp. v. SNF Holding Co., 955 F.3d 958 (Fed. Cir. 2020)).

[157] *See supra* Part I.C.

and non-enabling, but we think this on-sale bar is best understood as party-specific: it creates prior art against the seller, but not against third parties.[158]

Table 1. Summary of Paper and Real-World Prior Art

	Paper prior art	**Public use by inventor**	**Use by member of the public**	**Commercial use/sale**
Needs to enable?	Yes	Yes	No	No
Needs to be non-secret?	Yes	Yes	Yes	No
Constructive disclosure ok?	Yes	Yes	Yes	No
Bars third-party inventors?	Yes	Yes	Yes	No
Bars applicant?	Yes	Yes	Yes	Yes

III. Applying Prior Art Principles

As the foregoing discussion should make clear, there is no single appropriate approach to real-world prior art. Patent novelty is unified in the goal of promoting social welfare by preventing unnecessary patents, but the public-use and on-sale bars serve this objective in different ways. Accordingly, the way that they treat real-world prior art must similarly diverge when the underlying principles and policy compel it. Patent law is a field where "a foolish consistency"[159] can lead courts and policymakers astray.

Yet this does not mean that patent law doctrines should be siloed from one another. To the contrary, the analysis we have offered regarding real-world prior art sheds light on a variety of other patent law doctrines as well, doctrines that implicate either similar principles or similar real-world instantiations of inventive activity. In this section, we connect real-world prior art doctrines to five other areas of patent law. We show where other doctrines have already incorporated the principles described above, and—where the law is ambiguous—we explain how the courts could clarify existing law to harmonize its application of principles across doctrinal categories.

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[158] *See supra* Part II.

[159] RALPH WALDO EMERSON, *Self-Reliance*, *in* ESSAYS 39, 50 (1857), https://books.google.com/books?id=nAw6AQAAIAAJ&pg=PA50.

A. Safe Harbor for Public Disclosures

We begin with the doctrine most closely tethered to the novelty rules discussed in the preceding Part. It is by now well-understood that the America Invents Act creates a "first to publish" regime, as opposed to a "first to invent" or purely "first to patent" system.[160] The first inventor to "publish" the invention—by publicly disclosing it—simultaneously receives two benefits: (1) she prevents other parties from ever patenting the invention; and (2) she secures for herself a one-year grace period during which she may file for a patent. Section 102(a) effectuates the first benefit through the rule that any "disclosure"—a patent, printed publication, public use, sale, or anything making the invention "otherwise available to the public"—bars a party from obtaining a patent.[161] The AIA provides the second benefit through the provisions in § 102(b) that provide that any putative patent applicant is protected against disclosures by others if they first "publicly disclose[]" the invention themselves.[162] That is, if Aleida publishes a paper describing her invention, and then one week later Bruno independently places that same invention in public use, Bruno's public use does not count as a disclosure against Aleida that would bar Aleida from obtaining a patent.[163]

The key language from the statute is that Aleida must "publicly disclose[]" the invention, not merely "disclose" it. The five categories of prior art listed in § 102(a) are labeled as "disclosures,"[164] whereas the safe harbor provisions of the statute that insulates Aleida from Bruno's disclosures use the word "publicly" to modify "disclose."[165] No court has ever addressed what it means to "publicly" disclose, as opposed to merely disclose.[166]

Our analysis from Part II suggests an answer. To "publicly disclose" is to make the invention available to the public in some fashion that allows the public to take advantage of it. This is the quid pro quo embedded in the safe-harbor provision of the statute: in exchange for making the invention available to the public, the inventor/applicant is protected against subsequent disclosures by later-arriving competitors. Patents and printed publications are public disclosures because they enable the invention and allow others to learn from it. Public use is a public disclosure because it allows some member of the

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[160] *See, e.g.*, David S. Abrams & R. Polk Wagner, *Poisoning the Next Apple? The America Invents Act and Individual Inventors*, 65 STAN. L. REV. 517, 522 n.20 (2013).

[161] Post-AIA § 102(a) (describing categories of prior art); § 102(b)(1)–(2) (defining a "disclosure" as § 102(a) prior art).

[162] Post-AIA § 102(b)(1)(B) & (b)(2)(B).

[163] *Id.*

[164] Post-AIA § 102(b)(1)–(2).

[165] Post-AIA § 102(b)(1)(B) & (b)(2)(B).

[166] The Court came closest in *Helsinn Healthcare S.A. v. Teva Pharms. USA, Inc.*, 139 S. Ct. 628 (2019), but in the end only decided that the word "publicly" in post-AIA § 102(b)(1)(B) did not change the meaning of what it meant for something to be a "disclosure" more generally, thus leaving this question unanswered.

public to use the invention. (Alternatively, via the "constructive public use" channel, it enables the invention akin to a printed publication.[167])

However, merely placing the invention on sale, without creating any other type of prior art, should not be understood as a public disclosure. The public gains nothing from an offer for sale if the item is never sold and delivered, or if the sale is confidential. The invention is not made "public" in any meaningful sort of way—it remains within the private control of the inventor. And the inventor is not furthering any social purpose by merely offering the item for sale; she is only seeking to obtain private benefits from selling. This rule would parallel the rule we recommend regarding third-party sales: just as an inventor would not bar others from patenting merely by placing an invention on sale, so too she would not insulate herself from others' disclosures under the law's safe harbor provision.

B. Public Accessibility

Our analysis can also help clarify the rules for public accessibility of prior art. As explained above, an activity or reference need not be very accessible to constitute prior art. Prior art includes use by a single member of the public not under a duty of confidentiality, obscure references like a single foreign-language copy of a thesis, and sales that were secret to everyone but the parties involved.[168] The invalidation of patents based on prior art that the inventor could not reasonably have been aware has been the subject of ongoing dispute, and we think a failure to distinguish among categories of prior art has contributed to this confusion.

Some scholars have argued for elimination of non-public prior art since before the AIA,[169] but the AIA's new statutory language that prior art include references "otherwise available to the public"[170] created a new basis for dispute. In particular, commentators involved with drafting the AIA argued that this language implied "an overarching requirement for availability to the public in order for a prior disclosure to constitute prior art," abrogating cases like *Metallizing Engineering*.[171] The USPTO initially took this position, advising examiners that the AIA imposed a new public accessibility standard such that

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[167] *See supra* Part I.B.

[168] *See supra* notes 27–28, 92, 93 and accompanying text.

[169] *See, e.g.*, Dmitry Karshtedt, *Did Learned Hand Get It Wrong?: The Questionable Patent Forfeiture Rule of Metallizing Engineering*, 57 VILL. L. REV. 261, 332 (2012); Dmitry Karshtedt, *The Riddle of Secret Public Use: A Response to Professor Lemley*, 93 TEX. L. REV. SEE ALSO 159, 160 (2015).

[170] Post-AIA § 102(a)(1).

[171] Robert A. Armitage, *Understanding the America Invents Act and Its Implications for Patenting*, 40 AIPLA Q.J. 1, 53–54 (2012); *see also* Joe Matal, *A Guide to the Legislative History of the America Invents Act: Part I of II*, 21 FED. CIR. BAR J. 435, 472–73 (2012) (describing a new "public-availability standard of prior art").

secret sales were no longer prior art.[172] The United States also argued for this position in *Helsinn v. Teva*, including for the policy reason that the on-sale bar "has served to prevent use of the patent system to withdraw from public access inventions that had previously entered the public domain" and thus "should be confined" to public sales.[173]

Of course, these views were not uncontested. Notably, Mark Lemley argued that the AIA did not change the meaning of "public use" and that applying this term to secret commercial use as in *Metallizing* is good public policy.[174] He also led an amicus brief in *Helsinn* signed by forty-five IP professors (including one of us) arguing that the AIA did not impose a new publicness requirement.[175] The Supreme Court largely adopted this view, holding in *Helsinn* that at least the meaning of "on sale" was unchanged by the AIA.[176] But the Court did not expressly address the meaning of "public use," or a public accessibility standard more generally.

Our analysis from Parts I and II helps shed new light on this dispute, and on a path forward. We think part of the confusion has stemmed from the canonical case of secret commercial use—*Metallizing*—having been treated as implicating the public-use bar, not the on-sale bar.[177] As explained in Part II.B, other courts have treated secret commercial use cases under the on-sale bar, and we think this is the better approach because the key policy concern of *Metallizing* and other secret commercial use cases—preventing exploitation of an invention for longer than the patent term—is the principle underlying the on-sale bar, not the public-use bar.[178] In contrast, the policy concern cited by the government brief in *Helsinn*—removing inventions from the public domain in frustration of existing reliance interests—is the principle underlying the public-use bar, not the on-sale bar. The government brief is correct that allowing secret uses to serve as prior art does not protect the public from patents on inventions that were in the public domain, but it does serve the separate goal of preventing an inventor from unfairly extending her period of monopoly protection.

Placing fact patterns involving secret commercial use like *Metallizing* and *Helsinn* in the "on sale" category not only can help courts recognize the

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[172] Examination Guidelines for Implementing the First Inventor to File Provisions of the Leahy-Smith America Invents Act, 78 Fed. Reg. 11,059, 11,062, 11,075 (Feb.14, 2013).

[173] Brief for the United States as Amicus Curiae Supporting Petitioner at 12, Helsinn Healthcare S.A. v. Teva Pharms. USA, Inc., 139 S. Ct. 628 (2019) (No. 17-1229), 2018 WL 4179034, at *12, 24.

[174] Lemley, *supra* note 15, at 1120, 1131–32.

[175] Brief Amici Curiae of 45 Intellectual Property Professors in Support of Respondents at 7, Helsinn Healthcare S.A. v. Teva Pharms. USA, Inc., 139 S. Ct. 628 (2019) (No. 17-1229), 2018 WL 4941710, at *7.

[176] Helsinn Healthcare S.A. v. Teva Pharms. USA, Inc., 139 S. Ct. 628, 634 (2019).

[177] *See supra* note 94 and accompanying text.

[178] *See supra* notes 97–102 and accompanying text.

distinct policy rationale underlying these disputes; it also can allow courts to think more clearly about what the separate category of "public use" should really mean. That is, once secret prior art is no longer treated as the square peg that must fit in the round hole of "public use," it may be easier to recognize which round pegs actually fit.

One possibility for defining the contours of "public use" was recently suggested by Camilla Hrdy and Sharon Sandeen, who argue that trade secrecy law can provide a general guide to when something is sufficiently publicly accessible to constitute prior art.[179] They still attempt to fit the square peg into this theory: they concede that *Metallizing* and other cases of secret commercial use are not consistent with this standard, but argue that "the exceptions only prove the general rule that trade secrecy uses of the invention don't usually count, *unless* a policy other than publicness is at play."[180] Our analysis eliminates the need for this special exception. The trade secrecy standard can be used to figure out whether something is sufficiently publicly accessible for public use because the public use doctrine is animated by a focus on whether the public has actually received some benefit. And a different standard is used for the on-sale bar because the underlying policy is focused on the inventor, not the public.

An additional implication of this analysis is that the contours of "public use" can be adjusted without overruling *Metallizing* or doing away with secret sales as prior art. As noted previously, there are good arguments that public use should require use by more than just a single member of the public not under a duty of confidentiality to the inventor.[181] If an invention has led to very little public benefit, then the arguments for barring a later patent become less compelling. For example, perhaps public use should require evidence of ongoing use, or use by a non-trivial number of people. This might lead to different results in cases such as *NRDC v. Varian*, where the only "public" use was secret use by Monsanto scientists who constituted members of the public only because they were not the inventor—rather, they had obtained the invention from the inventor through the latter's carelessness.[182] The value to the public writ large was minimal or nonexistent.

To be sure, the costs of this kind of flexible standard might outweigh its benefits. This would also represent a more dramatic shift in the law than we have previously suggested, and it might be undesirable for that reason alone. Our point is simply that the question of whether something is "public" and the doctrine that prevents commercial exploitation of an invention for longer than the twenty-year term are conceptually separate. There could be a greater threshold for publicness without doing away with the important rule that

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[179] Camilla A. Hrdy & Sharon K. Sandeen, *The Trade Secrecy Standard for Patent Prior Art*, 70 AM. U. L. REV. 1269, 1275 (2021).

[180] *Id.* at 1312.

[181] *See supra* notes 27–32 and accompanying text.

[182] Nat'l Rsch. Dev. Corp. v. Varian Assocs., Inc., 30 U.S.P.Q.2d 1537, 1539 (Fed. Cir. 1994).

putting an invention into commercial use always starts a clock for getting to the patent office.

C. Inherent Anticipation

Thus far, we have focused on the doctrines related to whether a given real-world use or sale counts as prior art. But determining that a reference is prior art does not end the novelty inquiry. The reference only anticipates a given patent claim—that is, renders the claim invalid for lack of novelty—if it also discloses every element of the invention. In many cases, this anticipation inquiry is straightforward. If the claim is for a pencil with (a) a graphite core, (b) a wooden holder encasing the graphite core, and (c) an eraser attached to one end of the wooden holder, then prior public use of a classic Ticonderoga pencil clearly anticipates this claim.[183] Suppose, however, that an inventor discovers that handwriting facilitates brain development,[184] and then she seeks a patent claim on writing with a graphite-and-wood pencil to enhance cognition. If prior Ticonderoga users were not aware of the cognitive benefits of handwriting, does their use still anticipate the claim?

This hypothetical illustrates the problem of *inherent anticipation*: a situation where the prior art does not *expressly* disclose one of the claim limitations (here, enhancing cognition), but where the prior art nonetheless may anticipate the claim if the missing limitation is found to be *inherent* in the prior art. For example, the Federal Circuit has held that a claim for preparing foods such as broccoli that are "rich in glucosinolates" was anticipated by prior art descriptions of growing and eating these foods because the glucosinolate content of broccoli already existed even though prior broccoli preparers were not aware of it.[185] Similarly, in *Schering v. Geneva*, a claim for a compound produced in the body after someone takes Claritin was anticipated by an earlier patent describing prior use of Claritin even though no one was previously aware of this compound.[186] On the other hand, the Federal Circuit has also stated that in some cases, inherent anticipation requires that someone "recognize that the missing descriptive matter is necessarily present in the reference."[187]

The contours of inherency doctrine are far from clear. Dan Burk and Mark Lemley have referred to inherency as "perhaps the most elusive doctrine in all of patent law," including due to confusion about whether an element can

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[183] *See Classic Yellow Wood-Cased Pencils*, TICONDEROGA, https://weareticonderoga.com/shop/pencils/graphite-pencils/yellow-wood-cased-pencils (last visited Jan. 26, 2023).

[184] *See* Karin H. James & Laura Engelhardt, *The Effects of Handwriting Experience on Functional Brain Development in Pre-Literate Children*, 1 TRENDS NEUROSCIENCE & EDUC. 32 (2012).

[185] *In re* Cruciferous Sprout Litig., 301 F.3d 1343 (Fed. Cir. 2002).

[186] Schering Corp. v. Geneva Pharms., 339 F.3d 1373 (Fed. Cir. 2003).

[187] EMI Grp. N. Am., Inc. v. Cypress Semiconductor Corp., 268 F.3d 1342, 1350 (Fed. Cir. 2001).

be inherent without prior appreciation of the existence of that element.[188] Burk and Lemley persuasively argue that the doctrine could be simplified by recognizing that "the inherency cases are all ultimately about whether the public already gets the benefit of the claimed element or invention."[189]

Here, we offer a friendly amendment to this approach. As discussed above, the public-use bar is motivated by whether the public is already benefitting from the invention, and it thus fits neatly within a benefit-focused approach to inherent anticipation. The on-sale bar, in contrast, is designed to prevent inventors from commercially exploiting an invention for more than the patent term. We thus think that whether a *sale* inherently anticipates an invention should depend on whether the commercial exploitation is linked to the inherent benefit.[190]

For example, if the only prior art in *Schering v. Geneva* had been a secret sale of Claritin by Schering, then we think this would still inherently anticipate Schering's later attempt to patent the compound produced in the body after someone takes Claritin. The compound is merely a byproduct of metabolizing Claritin, so a patent on the compound would improperly extend the commercial benefit initiated by the secret sale. In contrast, imagine that people who take Claritin metabolize the drug into another compound that cures bunions,[191] but at the time of the sale everyone is unaware of this fact. Under these circumstances, a sale of Claritin should not inherently anticipate a claim on the bunion-curing compound. If nobody knows that Claritin can be used to cure bunions, the sale would not involve an exploitation of that benefit. That is, there is no reason to think that the price of Claritin would reflect its bunion-curing properties.

In theory, there might be cases in which it is difficult to determine whether the price of a particular invention reflected some inherent (but not explicit) quality, and thus whether the inherent quality was being commercially exploited. In practice, however, this will often be easily ascertained simply by examining the state of knowledge about the inherent quality at the time the invention is being sold. Our suggestion here would therefore re-center the doctrine of inherency around the question of whether some "recognize[d] that the missing descriptive matter is necessarily present in the reference"[192]—but only with regard to sales, not public uses.

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[188] Dan L. Burk & Mark A. Lemley, *Inherency*, 47 WM. & MARY L. REV. 371, 373 (2005).

[189] *Id.* at 374.

[190] Under current doctrine, the Federal Circuit treats sales and uses symmetrically and has expressly extended inherent anticipation to the on-sale context. *See* Scaltech Inc. v. Retec/Tetra, L.L.C., 178 F.3d 1378, 1383–84 (Fed. Cir. 1999); *see also* Netscape Commc'ns Corp. v. ValueClick, Inc., 704 F. Supp. 2d 544, 548 (E.D. Va. 2010).

[191] There is no reason to believe this is true. But wouldn't it be great if it were?

[192] *See supra* note 187.

D. Double Patenting

Another takeaway from our analysis in Parts I and II is the importance of distinguishing inventor versus third-party prior art, so it is worth examining the place where patent law most explicitly provides different treatment for applicants and third-party inventors: double patenting doctrine.

Double patenting arises for a different kind of secret prior art than what we have considered so far: patent applications, which are generally prior art as of the date they are filed,[193] but which are not published for at least eighteen months after filing.[194] These confidential patent applications are prior art against third parties as of the filing date (as long as they are eventually published), but they do not count as prior art against the inventor until the date they are published.[195] This means that in general, a patent applicant can file additional patent applications claiming obvious improvements on an invention for the first eighteen months after the initial application is filed. But this benefit comes with a limitation: to prevent invalidation for "double patenting," the inventor must disclaim any term after expiration of the first application, so that the first application and all the obvious improvements expire at the same time.[196]

Why should patent applicants be given this particular kind of beneficial treatment over third-party inventors? The justification for these convoluted double patenting rules is not entirely clear, and the contours of the doctrine vary around the world.[197] The variety of justifications offered in the literature include increased disclosure of follow-on innovation, faster disclosure of the original invention, and greater incentives for follow-on innovation.[198] And the specific policy interests at stake affect how double patenting doctrine should be reformed; for example, Amy Motomura has argued that supplementary applications should be allowed even after the first application is published because the public cannot form reliance interests while the original patent application and any continuing applications are pending.[199]

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[193] Post-AIA § 102(a)(2); Pre-AIA § 102(e).

[194] 35 U.S.C. § 122(b).

[195] *See* Post-AIA § 102(a)(2) (stating that a patent application is prior art if it "names another inventor"); Pre-AIA § 102(e) (stating that a patent application is prior art if it is "by another"). Once the patent application is published, it is prior art against both the inventor and third parties as "patented" prior art and as a "printed publication." *See* Post-AIA § 102(a)(1) and Pre-AIA § 102(a) or (b).

[196] *See* MASUR & OUELLETTE, *supra* note 4, at 319–23 (explaining this doctrine).

[197] *See* Amy R. Motomura, *Innovation and Own Prior Art*, 72 HASTINGS L.J. 565, at 593 & n.153 (2021).

[198] *Id.* at 595–603; *see also* ROBERT PATRICK MERGES & JOHN FITZGERALD DUFFY, PATENT LAW AND POLICY: CASES AND MATERIALS (7th ed. 2017) ("By privileging the obvious follow-on inventions of the pioneer, double patenting doctrine gives a modest extra encouragement to the pioneer to follow through on the original research.").

[199] Motomura, *supra* note 197, at 622–23.

We think it may help to compare double patenting doctrine with the on-sale bar. A secret patent application, like a secret sale, does nothing to enrich the public and creates no reliance interests. Unlike a secret sale, which may never become public, the secret patent application will benefit the public once it is published as long as there is an enabling disclosure of the invention, so it makes sense to prevent third parties from patenting the same invention. But for prior art against the applicant, the key goal is to prevent the inventor from exploiting the invention for longer than the patent term. Double patenting doctrine accomplishes this by requiring disclaimer of term on obvious improvements after the first patent expires.

This comparison reveals an asymmetry between the doctrines. While an inventor may file supplementary patent applications between her initial filing date (the start of her commercial exploitation) and the date that first application is published (when the public benefits), there is no similar period between the first offer for sale and the first resulting public use. Of course, in many cases this period will be negligible because a sale will lead to public use. Suppose, however, that Aleida offers her invention for sale in a way that doesn't lead to public use because the sale is confidential, or because no one accepts the offer. This offer for sale still starts a clock that prevents Aleida from exploiting her invention for more than the twenty-year term. But why shouldn't Aleida be able to file supplementary patent applications that disclaim term beyond this twenty-year period?

We do not think courts could implement this change on their own—it would do too much violence to the statutory language. But if policymakers are concerned about this unjustified asymmetry, a statutory amendment could allow an inventor to file a supplementary patent application disclaiming term more than twenty years after an initial offer for sale.

E. § 102(g) as Third-Party Prior Art

It is not merely § 102(a) and (b) that presents vexing problems connected with real-world prior art—§ 102(g) does so as well. That provision, which was eliminated by the AIA but continues to exist in pre-AIA law, governs contests between two inventors who both claim to have been first to invent. In relevant part, the statute provides that an inventor can obtain a patent if there was no other party who had invented first and had not "abandoned, suppressed, or concealed" the invention.[200] The point of this provision is to penalize inventors who unreasonably delayed ("abandoned, suppressed, or concealed") before bringing an invention to the public—either by filing a patent or commercializing the invention—and to reward those who did not.[201] However, this relatively simple formulation masks a substantial degree of confusion regarding what, exactly, constitutes abandonment, suppression, or concealment.

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[200] Pre-AIA § 102(g).

[201] *See* MASUR & OUELLETTE, *supra* note 4, at 104.

Consider the following not-so-hypothetical situation: Aleida invents a new type of coating for golf balls that makes them more resistant to damage. She begins producing golf balls incorporating this coating and selling them to the public, but she never files for a patent on the coating. Six months after Aleida's invention, Bruno invents the identical coating and files for a patent on it. Can Bruno obtain a patent? Aleida has unquestionably put the invention into public use, but Bruno filed for a patent within the pre-AIA statutorily allowed year of grace period.[202] Aleida also put the invention on sale, but (1) again, Bruno filed within a year, and (2) Aleida's sale would not bar Bruno.[203] The issue, then, is whether Aleida abandoned, suppressed, or concealed the invention under pre-AIA § 102(g). If she did not, pre-AIA § 102(g) would bar Bruno from obtaining a patent.

These are effectively the facts of *Dunlop Holdings v. Ram Golf*, a case decided in 1975 by the Seventh Circuit, with an opinion written by then-Judge John Paul Stevens.[204] In *Dunlop*, Judge Stevens held that the first inventor *had not* abandoned, suppressed, or concealed, thereby barring the subsequent inventor from obtaining a patent. He offered three rationales for this holding:

> First, even such a use gives the public the benefit of the invention. If the new idea is permitted to have its impact in the marketplace, and thus to "promote the Progress of Science and useful Arts," it surely has not been suppressed in an economic sense. Second, even though there may be no explicit disclosure of the inventive concept, when the article itself is freely accessible to the public at large, it is fair to presume that its secret will be uncovered by potential competitors long before the time when a patent would have expired if the inventor had made a timely application and disclosure to the Patent Office. Third, the inventor is under no duty to apply for a patent; he is free to contribute his idea to the public, either voluntarily by an express disclosure, or involuntarily by a noninforming public use.[205]

Now, consider a slightly different (and slightly more hypothetical) version of the facts: suppose that instead of inventing a new golf ball coating, Aleida has invented a new type of machine that manufactures (standard) golf balls. She constructs this machine and then begins producing golf balls, which she again sells to the public. Six months later, Bruno invents the same machine and files for a patent on it. Can Bruno obtain a patent? Again, he is within the one-year pre-AIA grace period. And Aleida's secret commercial use—for that is what this is—does not bar Bruno.[206] But what about § 102(g)? Under these facts, has Aleida abandoned, suppressed, or concealed? In *Gillman v. Stern*, a case we referenced above, Judge Learned Hand held that a similarly situated

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[202] Pre-AIA § 102(b).

[203] *Id.*; *see supra* Part II.C.

[204] 524 F.2d 33, 34 (7th Cir. 1975).

[205] *Id.* at 37 (footnotes omitted).

[206] *See* Gore v. Garlock, 721 F.2d 1540 (Fed. Cir. 1983).

inventor had indeed abandoned, suppressed, or concealed and *could not block* a subsequent inventor from obtaining a patent.[207]

The critical difference between *Dunlop* and *Gillman* sounds in the language of public use, as we have explained it. In *Dunlop*, the invention was in public use: members of the public were making use of the golf balls with the new coating. In *Gillman*, the invention was on sale but *not* in public use: the inventor was using it behind closed doors and only selling the fruits of the invention publicly. This is not dispositive in a technical sense—it is § 102(g), not the public-use bar of § 102(a) or (b), at issue—but it is determinative as a matter of principle and policy. By making the invention meaningfully available to the public, the *Dunlop* inventor offered the public the ongoing benefit of the invention in such a manner as to create reliance interests. It would frustrate the underlying policy rationales of patent law to allow a subsequent inventor to remove the invention from the public domain.[208] And it would make no sense to reward the inventor who was second, not first, to give the public the benefit of the invention.[209] By contrast, the first inventor in *Gillman* did not make the invention available to the public, did not create reliance interests, and did nothing to warrant excluding a subsequent inventor who actually *did* bring the invention to the public.[210]

This understanding of the connection between § 102(g) and the public-use bar dovetails with Judge Stevens's three rationales (quoted above) as well. Stevens's third rationale applies just as much in *Gillman* as in *Dunlop*. But the first two do not: the inventor who conceals the machine has not given the public the benefit of the invention, and when the machine is kept secret there is no reason to presume that the secret behind the invention will be revealed. Note also that Stevens's second rationale sounds in the language of the line of cases we have described as "public use without the public using."[211] Without so much as referencing the public-use bar or its underlying principles, Judge Stevens seems implicitly to have understood that § 102(g) was meant to serve similar ends.

So far as we can determine, the Federal Circuit has never weighed in on this question and confirmed this interpretation of § 102(g). There is a reason we are discussing old cases from the Second and Seventh Circuits! Within a decade, nearly every patent governed by pre-AIA law will have expired, and interpretations of § 102(g) will be merely historical artifacts.[212] For that reason, it is perhaps not as critical that the Federal Circuit clarify this doctrine as it would be with others. What is more important is that the federal courts

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[207] 114 F.2d 28 (2d Cir. 1940).

[208] *See supra* Part I.A.

[209] *Id.*

[210] *Gillman*, 114 F.2d at 30.

[211] *See supra* Part I.B.

[212] MASUR & OUELLETTE, *supra* note 4, at 50.

continue to appreciate the common threads that bind these disparate doctrines together—as well as the places where those threads begin to fray.

IV. Real-World Prior Art at the USPTO

As noted in the Introduction, real-world prior art is important during patent litigation, with public uses and sales serving as the basis for nearly half of district court decisions holding patents invalid for lack of novelty.[213] But real-world prior art is rarely referenced during patent examination, when the USPTO decides whether a patent application should be granted in the first place.[214] The USPTO receives around 600,000 utility patent applications each year, and the roughly 8,000 examiners tasked with reviewing these applications have an average of only around twenty hours to research relevant prior art, explain any bases for rejecting the application, and respond to applicant arguments.[215] Because of this time pressure, examiners are most likely to focus on earlier patent applications as prior art, which are available in text-searchable, technology-categorized databases.[216] The inability to locate the most relevant prior art in the time available leads to quality-control problems with improperly granted patents.[217]

In this Part, we propose reforms to address this deficiency. Part IV.A suggests ways that the USPTO could improve training and guidance for patent examiners to clarify the role of real-world prior art, and Part IV.B proposes three ways that the agency could surface more real-world prior art during the examination process. Part IV.C then argues that Congress should amend the procedures for challenging improperly granted patents at the USPTO to remove the exclusion for real-world prior art.

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[213] *See supra* note 8 and accompanying text.

[214] *See* Gregory Reilly, *The Complicated Relationship of Patent Examination and Invalidation*, 69 AM. U. L. REV. 1095, 1131–33 (2020).

[215] *See* U.S. PATENT & TRADEMARK OFF., PERFORMANCE AND ACCOUNTABILITY REPORT 201, 243 (2021); Michael D. Frakes & Melissa F. Wasserman, *Is the Time Allocated to Review Patent Applications Inducing Examiners to Grant Invalid Patents? Evidence from Microlevel Application Data*, 99 REV. ECON. & STAT. 550 (2017).

[216] *See* U.S. DEP'T OF COMMERCE, USPTO HAS OPPORTUNITIES TO IMPROVE ITS PATENT EXAMINATION PROCESS AND TO ADVANCE PATENT DECISION-MAKING 2-15 (2021), https://www.oig.doc.gov/OIGPublications/OIG-22-010-I.pdf; Mark A. Lemley & Bhaven Sampat, *Examiner Characteristics and Patent Office Outcomes*, 94 REV. ECON. & STAT. 817, 818, 820 (2012).

[217] *See* NAT'L RSCH. COUNCIL, A PATENT SYSTEM FOR THE 21ST CENTURY (2004); Frakes & Wasserman, *supra* note 215.

A. Clarifying Guidance for Patent Examiners

The USPTO publicizes training materials for new patent examiners on its website, which currently provide little guidance on real-world prior art.[218] New examiners see only five short bullet points on the subject, informing them (1) that a prior art use "must be 'public,'" (2) that a sale "does not have to be public," (3) that real-world prior art "does not have to enable someone to make and use the invention," (4) that the AIA expanded the geographic scope for real-world prior art, and (5) that the relevant date is the date the use or sale took place.[219] That's it. And the publicly available additional materials used to train examiners beyond entry level contain *no* discussion of the meaning of either "public use" or "on sale."[220]

Based on this training, a new examiner is unlikely to understand most of the basic doctrine related to real-world prior art, such as the fact that use by a single member of the public can be sufficient to constitute "public use,"[221] or that a commercial offer for sale that is refused can be sufficient to place an invention "on sale."[222]

The USPTO provides additional guidance to patent examiners through the Manual of Patent Examining Procedure (MPEP).[223] The MPEP receives no formal deference from the courts on substantive questions of patent law,[224] but it may be given judicial notice,[225] and it heavily influences examiner decisions and is important for the vast majority of patents that never end up in the courts.[226] The MPEP divides guidance on real-world prior art into separate sections for before and after the AIA: section 2133.03 describes rejections based on "public use" or "on sale" prior art for pre-AIA § 102, and section 2152.02(c)-

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[218] *See Examiner Training Materials*, U.S. PATENT & TRADEMARK OFF., https://www.uspto.gov/learning-and-resources/examiner-training-materials (last modified June 29, 2022).

[219] U.S. PATENT & TRADEMARK OFF., INTRODUCTION TO 35 U.S.C. 102(A)(1): PATENT TRAINING ACADEMY ENTRY LEVEL, at slides 20–21 (Apr. 2019), http://www.uspto.gov/video/cbt/intro35USC102a1.

[220] *See Examination Guidance and Training Material*, U.S. PATENT & TRADEMARK OFF., https://www.uspto.gov/patents/laws/examination-policy/examination-guidance-and-training-materials (last modified Aug. 16, 2021).

[221] *See supra* note 27 and accompanying text.

[222] *See supra* note 82 and accompanying text.

[223] U.S. PATENT & TRADEMARK OFF., MANUAL OF PATENT EXAMINING PROCEDURE (9th ed. 2020) [hereinafter MPEP].

[224] *See* Melissa F. Wasserman, *The Changing Guard of Patent Law:* Chevron *Deference for the PTO*, 54 WM. & MARY L. REV. 1959, 1973 (2013).

[225] *See In re* Fisher, 421 F.3d 1365, 1372 (Fed. Cir. 2005) (stating that the MPEP and other guidelines for examiners "are not binding on this court, but may be given judicial notice to the extent they do not conflict with the statute").

[226] *See* Michael D. Frakes & Melissa F. Wasserman, *Irrational Ignorance at the Patent Office*, 72 VAND. L. REV. 975, 994 (2019) (noting that only 0.6% of 2.7 million patents in their sample were subject to litigation).

(d) describes the meaning of "public use" and "on sale" under the current statute.[227]

Section 2133.03 on "public use" and "on sale" in pre-AIA applications is lengthy—over 10,000 words, plus numerous citations to judicial decisions and other MPEP sections—but it fails to address many of the questions we have raised above.[228] Because the USPTO is bound by the federal courts' interpretation of substantive patent doctrine, it cannot independently adopt the conceptual distinctions we describe in Parts I and II that have not (yet) been articulated by the Federal Circuit. Nonetheless, we think there are at least three ways this guidance could be improved.

First, section 2133.03 never states that a sale need not be enabling, and the discussion of whether a public use needs to enable the invention is quite confusing. The following MPEP headings about inventor versus third-party use seem to get the doctrine completely backward:

> Even If the Invention Is Hidden, Inventor Who Puts Machine or Article Embodying the Invention in Public View Is Barred from Obtaining a Patent as the Invention Is in Public Use . . . .
>
> Use by an Independent Third Party Is Public Use If It Sufficiently "Informs" the Public of the Invention or a Competitor Could Reasonably Ascertain the Invention.[229]

In other words, the MPEP suggests that an inventor who merely *displays* the invention creates a public use even if the display is non-enabling, while *use* by an independent third-party (i.e., a member of the public) is public use only if it is enabling. This is backwards. We think this section should be revised to explicitly and clearly state the blackletter rule that public use and on sale prior art generally need *not* be enabling, and to note that a small line of cases suggests there is a second route to public use for enabling use by an inventor.

Second, section 2133.03 does not acknowledge the uncertainty over whether a third-party sale will bar a patent. Rather, it asserts that "[s]ale or offer for sale of the invention by an independent third party more than 1 year before the filing date of applicant's patent will bar applicant from obtaining a patent," citing *In re Caveney*.[230] But as explained in Part II.C, *Caveney* itself distinguished the role played by the two statutory bars, and *Poly-America* held that a third-party sale could not invalidate the patent at issue.[231] We think the MPEP should note this ambiguity, which would hopefully lead the Federal Circuit to clarify the issue.

Third, section 2133.03 is poorly written almost to the point of seeming intentionally obfuscatory. It fails utterly to communicate clearly to patent

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[227] MPEP, *supra* note 223, §§ 2133.03, 2152.02(c)–(d).

[228] *See* MPEP, *supra* note 223, § 2133.03.

[229] *Id.*

[230] *Id.* (citing *In re* Caveney, 761 F.2d 671, 675 (Fed. Cir. 1985)).

[231] *See supra* notes 112–113, 154 and accompanying text.

examiners. And in this realm, where fine conceptual distinctions can matter substantially, those failures can be fatal.[232] Consider the following excerpt:

> "Public" is not necessarily synonymous with "non-secret." The fact "that non-secret uses of the device were made [by the inventor or someone connected with the inventor] prior to the critical date is not itself dispositive of the issue of whether activity barring a patent under pre-AIA 35 U.S.C. 102(b) occurred. The fact that the device was not hidden from view may make the use not secret, but nonsecret use is not *ipso facto* 'public use' activity. Nor, it must be added, is all secret use *ipso facto* not 'public use' within the meaning of the statute," if the inventor is making commercial use of the invention under circumstances which preserve its secrecy.[233]

This passage violates many basic rules of clear communication, including those written for federal agencies! It is almost entirely phrased in the negative.[234] It repeats itself[235] and uses wordy expressions.[236] It uses the legal jargon "*ipso facto*."[237] We think this passage could be replaced by a single sentence: "Secret commercial use of an invention is prior art against the user but not against third-party inventors."

MPEP section 2152.02(c)-(d) on "public use" and "on sale" post-AIA is much shorter than its pre-AIA counterpart, in part because it notes that "on sale" has the same meaning pre- and post-AIA and refers back to section 2133.03. But even in a few short paragraphs, the MPEP manages to make a hash of the law in a manner that could confuse even the most skilled examiner. Consider first this passage:

> Whether a use is a pre-AIA 35 U.S.C. 102(b) public use also depends on who is making the use of the invention. "[W]hen an asserted prior use is not that of the applicant, [pre-AIA 35 U.S.C.] 102(b) is not a bar when that prior use or knowledge is not available to the public." See *Woodland Trust v. Flowertree Nursery, Inc.*, 148 F.3d 1368, 1371 (Fed. Cir. 1998). In other words, a use by a third party who did not obtain the invention from the inventor named in the application or patent is an invalidating use under pre-AIA 35 U.S.C. 102(b) only if it falls

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[232] To examiners' ability to determine which inventions are patentable, at least.

[233] *See* MPEP, *supra* note 223, § 2133.03 (quoting TP Lab'ys, Inc. v. Pro. Positioners, Inc., 724 F.2d 965, 972 (Fed. Cir. 1984) (alterations in original)).

[234] *See Principles of Clear Writing*, OFF. FED. REG. (last reviewed Mar. 1, 2022), https://www.archives.gov/federal-register/write/legal-docs/clear-writing.html ("If you can accurately express an idea either positively or negatively, express it positively.").

[235] *See id.* ("Avoid redundancies.").

[236] *See id.* ("Omit needless words.").

[237] *See id.* ("Prefer simple words.").

> into the first category: That the use was accessible to the public. See MPEP § 2133.03(a), subsection II.C.[238]

The MPEP is quoting *Woodland Trust*, a case that involved prior secret commercial use, akin to *Gore v. Garlock*.[239] In that context, the MPEP's statement is true as far as it goes: secret commercial use by a third-party inventor does not bar an independent inventor from obtaining a patent.[240]

But rather than expressing this discrete idea plainly, the MPEP confuses the issue with a much more categorical statement: "a use by a third party who did not obtain the invention from the inventor . . . is an invalidating use . . . only if it . . . was accessible to the public."[241] Depending on what the MPEP means by "accessible to the public," a critical phrase that the MPEP *does not define*, this may simply be a drastic misstatement of the law. A use by a third party who received the invention without a confidentiality restriction can certainly be an invalidating public use even if the invention was not enabled—if by "publicly accessible" the MPEP means "enabled," then it has misstated the law.[242] And a use by a third party can be an invalidating public use even if the third party is themselves keeping the invention secret such that no other member of the public can access it.[243] If that is what the MPEP means by "publicly accessible," it is getting the law wrong.

The MPEP's statement is only correct in one limited circumstance: when the third party is herself an independent inventor who is using the invention secretly—as in *Gore v. Garlock*.[244] Yet the MPEP cannot find a way to express this, and the result is a collection of words that has almost surely mislead examiners. This is part of the price of the lack of conceptual clarity in the law surrounding public use and secret commercial use we detailed in Parts I and II. Of course, the MPEP can hardly be faulted for failing to keep these concepts straight for its examiners when the Federal Circuit has had great trouble doing the same.

What is more, this section of the MPEP does not state that the meaning of "public use" was unchanged by the AIA, even though the Supreme Court has (thus far) implied as much.[245] Rather, it says that post-AIA, public use "has the

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[238] MPEP, *supra* note 223, § 2152.02(c) (alterations in original).

[239] Woodland Tr. v. Flowertree Nursery, Inc., 148 F.3d 1368, 1371 (Fed. Cir. 1998) (describing prior secret commercial use by an independent inventor).

[240] *See supra* Part II.B.

[241] MPEP, *supra* note 223, § 2152.02(c). We apologize for all of the ellipses, but we think we have simplified the text of the MPEP while remaining faithful to what it actually expresses.

[242] *See supra* Part I.A.

[243] *See, e.g.*, Nat'l Rsch. Dev. Corp. v. Varian Assocs., Inc., 30 U.S.P.Q.2d 1537, 1539 (Fed. Cir. 1994).

[244] 721 F.2d 1540 (Fed. Cir. 1983).

[245] For the related "on sale" language in § 102, the Supreme Court has held that the meaning was unchanged by the AIA, under reasoning that appears to apply to "public use" as well. *See* Helsinn Healthcare S.A. v. Teva Pharms. USA, Inc., 139 S. Ct. 628,

same substantive scope, with respect to uses by either the inventor or a third party, as public uses under pre-AIA 35 U.S.C. 102(b) by unrelated third parties or others under pre-AIA 35 U.S.C. 102(a)."[246] Woe unto the poor examiner who must attempt to parse this sentence! One way of reading this sentence is as saying: public use only exists when the *public*—a third party—is actually using the invention. In other words, instances of secret commercial use—use by the inventor herself—are not public uses under the meaning of the statute. We believe that is the correct understanding of the law, as we have explained.[247] But that is not new to the AIA; it has been the correct understanding of the law from the beginning.[248] And if this is in fact what the MPEP means, it has chosen an extraordinarily convoluted means of expressing it! Needless to say, hoping that the PTO's document of record has stumbled into the correct interpretation of the law, via language that is almost impossible to interpret, is not ideal.

B. Surfacing More Real-World Prior Art

In this Section, we suggest three policy interventions for increasing the availability of real-world prior art to examiners during examination: (1) asking inventors to certify whether they are aware of any real-world use or sale of the claimed invention at the time of filing, (2) improving prior art databases available to examiners to include real-world prior art, and (3) engaging with counterpart agencies, particularly the FDA with respect to pharmaceutical patents, to ensure that statements made by the applicant to other agencies are available to examiners.

1. Inventor Certification of Commercial Use

As noted above, even though real-world prior art is rarely used during patent examination, it is important for invalidating patents in litigation.[249] And of anticipation findings during litigation based on real-world prior art, twenty-seven percent are due to activities of the patent owner.[250] In other words, for an important subset of litigated patents, the patent owner herself placed the invention on sale or in public use before the relevant priority date.[251]

633–34 (2019) ("In light of this settled pre-AIA precedent on the meaning of 'on sale,' we presume that when Congress reenacted the same language in the AIA, it adopted the earlier judicial construction of that phrase.").

[246] MPEP, *supra* note 223, § 2152.02(c).

[247] *See supra* Part II.B.

[248] *Id.*

[249] *See supra* notes 8, 216 and accompanying text.

[250] Yelderman, *supra* note 8, at 870, 872 fig.6.

[251] In some cases, the original inventor may have licensed the patent to a separate entity that had placed the invention into public use before filing, but then the parties should have been aware at the time of licensing that the patent was in fact invalid.

In these cases, why was this invalidating real-world activity not disclosed during examination? Patent applicants have a duty to disclose relevant prior art to the USPTO. Almost by definition, if the applicant herself has placed the invention in public use or on sale, she must be aware of the prior art she has created. If an applicant fails to disclose material information that she is aware of, her entire patent can be held unenforceable for inequitable conduct.[252] Of course, as judges and scholars have explained, if the only sanction for hiding material information is invalidation of a claim that would be invalid anyway, inequitable conduct fails to provide optimal deterrence.[253] But the doctrine likely produces at least *some* deterrence, both because many applicants are internally motivated to avoid explicitly unethical behavior even if the penalty is low, and because it triggers invalidation of the entire patent, not merely the relevant claim. And this effect is strengthened by patent office regulations that impose "a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability."[254] Violations of this rule can result in dismissal of the patent application and sanction of the patent prosecutor.[255] The vast majority of patent applications are prosecuted with the help of patent professionals,[256] and these patent agents likely do not want to risk their right to continue USPTO practice.

One reason for under-disclosure of the patent applicants' own real-world prior art may be that applicants are not aware that these activities are material. Currently, the USPTO encourages applicants to search paper prior art but not real-world prior art:

> You cannot get a patent if your invention has already been publicly disclosed. Therefore, a search of all previous public disclosures, foreign patents and printed publications should be conducted.[257]

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[252] *See* Therasense, Inc. v. Becton, Dickinson & Co., 649 F.3d 1276, 1290–92 (Fed. Cir. 2011) (en banc).

[253] *See, e.g.*, *Therasense*, 649 F.3d at 1305 (Bryson, J., dissenting) ("[I]n most instances the sanction of inequitable conduct will apply only if the claims that issue are invalid anyway."); Tun-Jen Chiang, *The Upside-Down Inequitable Conduct Defense*, 107 NW. U. L. REV. 1243, 1253 (2013) ("[T]he more culpable the patentee's dishonesty (i.e., the more likely that the patent is really invalid), the less ex ante deterrence the unenforceability penalty will provide against that misconduct.").

[254] 37 C.F.R. § 1.56.

[255] *See* Jaskiewicz v. Mossinghoff, 822 F.2d 1053, 1057 (Fed. Cir. 1987); 37 C.F.R. § 11.19.

[256] *See* Dennis Crouch, *Grant Rate by Size and Representation*, PATENTLY-O (Apr. 12, 2021), https://patentlyo.com/patent/2021/04/grant-rate-by-size-and-representation.html (finding that over ninety-nine percent of non-provisional utility application filings were represented by a U.S. patent prosecutor).

[257] *Inventor Search Assistant*, U.S. PATENT & TRADEMARK OFF., https://developer.uspto.gov/inventor-search/#/search/publication/intro (last visited Jan. 26, 2023); *see also How Do I Know if My Invention Is Patentable?*, U.S. PATENT &

Indeed, none of the USPTO's information for inventors makes clear that the inventor's own activities might bar her from patenting.[258] Applicants must submit relevant prior art to the USPTO using an Information Disclosure Statement (IDS), but the IDS regulations refer only to patent prior art and printed publications.[259] Even if an applicant is independently aware that sales and public uses are relevant prior art, it is not obvious how to submit this information on the IDS.

Rather than obscuring the importance of real-world prior art and making it difficult to submit, the USPTO could emphasize the importance of these categories and affirmatively solicit this information from applicants. For example, the agency could update its guidance to inventors to include information along these lines:

> You cannot get a patent if you have engaged in certain activities involving your invention more than one year before filing a patent application. Relevant activities include: (1) You offered your invention for sale, even if the offer was confidential and was not accepted. (2) You used your invention commercially, even if the invention itself was kept secret. (3) You allowed even a single member of the public to use your invention without a confidentiality restriction. (4) You described or demonstrated the invention to any members of the public, such as at your place of business, at a conference, or on a website.

Similarly, the IDS form could be revised to explicitly solicit information about the applicant's own activities, as well as the applicant's knowledge of real-world prior art created by others.

Such an approach could elicit information within the patentee's own knowledge that is highly relevant to patentability. For example, in *Quest Integrity USA v. Cokebusters USA*, some of the claims at issue—related to methods for inspecting commercial furnaces—were anticipated based on the original patent applicant's own commercial use of the invention more than one year before filing a patent.[260] Similarly, in *FutureLogic, Inc. v. Nanoptix, Inc.*, the claims were anticipated by the applicant's own commercial sale of vending machine coupon printers embodying the invention to Coca-Cola.[261] The high

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TRADEMARK OFF., https://www.uspto.gov/help/patent-help#type-browse-faqs_1903 (encouraging applicants to search patents and printed publications to determine if their idea is patentable).

[258] *See Inventor and Entrepreneur Resources*, U.S. PATENT & TRADEMARK OFF., https://www.uspto.gov/learning-and-resources/inventors-entrepreneurs-resources (last modified Dec. 15, 2022).

[259] *See* MPEP, *supra* note 223, § 609; 37 C.F.R. § 1.98.

[260] 924 F.3d 1220, 1225 (Fed. Cir. 2019).

[261] No. CV-10-7678-JFW, 2011 WL 13193422, at *5 (C.D. Cal. Nov. 2, 2011), *aff'd*, 484 F. App'x 564 (Fed. Cir. 2012).

cost[262] of litigating these and many other cases[263] in the federal courts would have been avoided if information about the patentee's activities had been elicited earlier in the patenting process.

2. Improving Databases of Real-World Prior Art with AI

The USPTO could also do more to improve examiners' awareness of real-world prior art beyond information disclosed by applicants. As noted above, examiners currently focus their searches for relevant prior art on earlier patent applications, which are in easily searchable databases that are categorized by technology.[264] Examiners also have access to databases of non-patent printed publications, including scientific journal articles and conference proceedings, and about six percent of references added by examiners come from these sources.[265] But examiners do not have access to databases of real-world prior art.[266] Unless prior art uses and sales are disclosed by applicants, examiners are blind to these broad and growing prior art categories.

To be sure, some real-world prior art can be uncovered by a Google search. Currently, guides for conducting prior art searches suggest looking at Amazon, other websites, and brick-and-mortar stores of companies that might

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[262] On litigation costs, see *infra* note 288 and accompanying text.

[263] *See, e.g.*, NYKO Techs. v. Energizer Holdings, No. CV-12-3001, 2013 WL 11232100 (C.D. Cal. Oct. 22, 2013), *aff'd*, 589 F. App'x 987 (Fed. Cir. 2015) (invalidating video game controller charging system claims because the patentee put the invention on sale and in public use); Orbis Corp. v. Rehrig Pacific Co., 970 F. Supp. 2d 875, 879–84 (E.D. Wis. 2013) (granting summary judgment of invalidity based on patentee's commercial offers for sale); Hamilton Beach Brands, Inc. v. Sunbeam Prods., Inc., No. 3:11-CV-345, 2012 WL 6562220, at *18 (E.D. Va. Aug. 13, 2012) (same); Pure Fishing, Inc. v. Normark Corp., No. 3:10-CV-2140, 2012 WL 6138216, at *18–21 (D.S.C. Dec. 11, 2012), *aff'd*, 564 F. App'x 601 (Fed. Cir. 2014); *In re* Method of Processing Ethanol Byproducts and Related Subsystems ('858) Patent Litigation, 303 F. Supp. 3d 791, 885–90 (S.D. Ind. 2014); Zodiac Pool Care, Inc. v. Red Leopard LLC, No. 2:10-cv-04747-SVW-RC, 2011 WL 13217210, at *1–2 (C.D. Cal. Aug. 16, 2011); Supermarket Energy Techs., LLC v. Supermarket Energy Sols., Inc., No. CV-10-2288-PHX-SMM, 2014 WL 1202945, at *4–10 (D. Ariz. Mar. 20, 2014); Lab. Skin Care, Inc. v. Ltd. Brands, Inc., No. 06-601-LPS, 2012 WL 11016, at *3 (D. Del. Jan. 2, 2012) (pursuant to a jury verdict, entering judgment of invalidity of numerous claims under the on-sale bar); Illinois Tool Works, Inc. v. MOC Prods. Co., 856 F. Supp. 2d 1156, 1178–85 (S.D. Cal. 2012); Small v. Nobel Biocare USA, LLC, No. 05 Civ. 3225, 2013 WL 3972459, at *11–12 (S.D.N.Y. Aug. 1, 2013) (granting summary judgment of invalidity based on patentee's public use); Worlds, Inc. v. Activision Blizzard Inc., No. 12-10576-DJC, 2014 WL 972135, at *3, 10 (D. Mass. Mar. 13, 2014), *aff'd*, No. 2021-1990, 2022 WL 726969 (Fed. Cir. 2022) (same).

[264] *See supra* note 216 and accompanying text; *cf.* Laura G. Pedraza-Fariña & Ryan Whalen, *A Network Theory of Patentability*, 87 U. CHI. L. REV. 63 (2020) (analyzing patents across technology class using computer modeling).

[265] *See* U.S. DEP'T OF COMMERCE, *supra* note 216, at 2-15 to -16.

[266] *See id.*

have similar products to the innovation at issue.[267] But these sources are not categorized by technology or designed for prior art searching, and they do not make it easy to determine *when* a product became available—a critical question when evaluating patent claims filed before the prior art search date. Building a useable database of real-world products and services should thus be an important policy priority. Such a database would be useful not only to examiners at the USPTO and foreign patent offices, but also to private parties interested in assessing patent validity, including firms, nonprofits, and academics concerned about "patent trolls" and other patent quality problems.

One approach to building a real-world prior art database would be to take advantage of developments in artificial intelligence and machine learning. The USPTO is already investing in AI-based prior art searching,[268] including with an August 2022 request for information from potential commercial vendors that could improve existing search capabilities.[269] Academics are also investigating ways to improve the prior art search process with AI.[270] But like existing search tools, these developments are focused on *patent* prior art, with limited attention to non-patent printed publications—and no attention to real-world prior art.

A technology-categorized real-world prior art database could be built using a supervised learning approach, in which training data that already matches product features with technology classifications is used to train a machine learning model that can predict classifications for unlabeled data.[271] One potential training dataset is Gaétan de Rassenfosse's IPRoduct database, which links products to patents based on "virtual patent marking" websites maintained by many product owners.[272] Because patents are already classified by technology, these classifications could be linked to the corresponding

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[267] *See, e.g.*, Michael K. Henry, *How to do a Prior Art Search Yourself*, HENRY PATENT LAW FIRM (Dec. 21, 2017), https://henry.law/blog/how-to-do-prior-art-search-yourself; Malia Stokes, *Conducting an Effective Prior Art Search*, GEORGIA PATENTS (Aug. 13, 2020), https://gapatents.org/2020/08/13/conducting-an-effective-prior-art-search.

[268] *See* U.S. DEP'T OF COMMERCE, *supra* note 216, at 2-15; DAVID FREEMAN ENGSTROM, DANIEL E. HO, CATHERINE M. SHARKEY & MARIANO-FLORENTINO CUÉLLAR, GOVERNMENT BY ALGORITHM: ARTIFICIAL INTELLIGENCE IN FEDERAL ADMINISTRATIVE AGENCIES 48 (2020), https://www.acus.gov/sites/default/files/documents/Government%20by%20Algorithm.pdf; Arti K. Rai, *Machine Learning at the Patent Office: Lessons for Patents and Administrative Law*, 104 IOWA L. REV. 2617, 2620 (2019).

[269] U.S. PATENT & TRADEMARK OFF., PATENT-END-TO-END SEARCH ARTIFICIAL INTELLIGENCE CAPABILITY: REQUEST FOR INFORMATION & NOTICE OF VENDOR ENGAGEMENT (2022), https://sam.gov/opp/c565db110b8e43aaa715d5dd6ec4b70d/view.

[270] *See, e.g.*, Lea Helmers et al., *Automating the Search for a Patent's Prior Art with a Full Text Similarity Search*, 14 PLOS ONE e0212103.

[271] *See generally* ENGSTROM ET AL., *supra* note 268, at 12.

[272] *See* IPRODUCT, https://iproduct.io (last visited Jan. 26, 2023).

products. Adoption of standards for virtual patent marking[273] or requiring better patent-product linkage[274] would improve this data going forward. The USPTO could also cross-reference product data with trademark filings, which are required to note the date of first use in commerce.[275]

3. Engagement with FDA on Pharmaceutical Patents

A third approach to surfacing more real-world prior art during the patent examination process is through greater engagement with counterpart agencies. In particular, we think the Food and Drug Administration (FDA) is well positioned to improve examination of pharmaceutical patents.[276] The FDA is the agency with the most information about how pharmaceutical products are used and sold in the United States because new pharmaceuticals cannot be marketed without FDA approval.[277]

Patents on pharmaceuticals are among the most valuable to firms,[278] and they have correspondingly large social costs when they are improperly granted. Given the social importance of pharmaceutical patents, numerous legal scholars have argued that these patents should be given additional scrutiny when they pass through the USPTO.[279] This scrutiny could include time spent soliciting information from the FDA, either during the regular

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[273] *See* Gaétan de Rassenfosse & Kyle Higham, *Wanted: A Standard for Virtual Patent Marking*, 15 J. INTELL. PROP. L. & PRAC. 545, 546–47 (2020).

[274] Jeanne C. Fromer, *Dynamic Patent Disclosure*, 69 VAND. L. REV. 1715 (2016).

[275] *Application Filing Basis*, U.S. PATENT & TRADEMARK OFF., https://www.uspto.gov/trademarks/basics/application-filing-basis (last modified June 13, 2022) ("To register your trademark, you'll need to provide evidence that you're using it in commerce. . . . You'll also need to provide the date you first used your trademark in commerce and the date you first used it anywhere.").

[276] We use "pharmaceutical" to refer broadly to both "small-molecule" drugs, which have simple chemical structures that can be well characterized by researchers, and "biologic" products, which have more complex structures that are often derived from living material. The FDA regulatory regime differs depending on whether the product is a small-molecule or biologic drug, but these differences are not important for our purposes. For an overview, see MASUR & OUELLETTE, *supra* note 4, at 406–11.

[277] *See* 21 U.S.C. § 355(a); 42 U.S.C. § 262(a).

[278] *See* JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK 108–09 (2008); Wesley M. Cohen et al., *Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent (or Not)* 12 (Nat'l Bureau of Econ. Research, Working Paper No. 7552, 2000), http://www.nber.org/papers/w7552; Benjamin N. Roin, *Unpatentable Drugs and the Standards of Patentability*, 87 TEX. L. REV. 503, 545 (2009).

[279] *See* Michael D. Frakes & Melissa F. Wasserman, *Investing in Ex Ante Regulation: Evidence from Pharmaceutical Patent Examination*, AM. ECON. J.: ECON. POL'Y (forthcoming), https://www.aeaweb.org/articles?id=10.1257/pol.20200703; Dmitry Karshtedt, *Pharmaceutical Patents and Adversarial Examination*, 91 GEO. WASH. L. REV. (forthcoming 2023); S. Sean Tu & Mark A. Lemley, *What Litigators Can Teach the Patent Office About Pharmaceutical Patents*, 99 WASH. L. REV. 1673 (2022).

examination process or, as Sean Tu argues, during a new reexamination process for patents related to newly approved drugs.[280]

The FDA would likely be able to identify relevant real-world prior art that would prevent some pharmaceutical patents from being improperly granted. As Nicholson Price and Arti Rai have noted, some bestselling drugs are protected by patents filed more than one year after the drug is launched, even though patent doctrine is clear that the prior commercial use of these inventions should be invalidating prior art.[281] The problem is that patent examiners are generally not aware of how the invention is actually being used. And while some kinds of pharmaceutical patents are publicly listed in a database maintained by the FDA—making them at least easier for future competitors to identify—this does not include patents on biologic drugs[282] or on manufacturing processes, packaging, metabolites, and intermediates.[283]

The USPTO is already authorized to request information from the FDA. By statute, the Secretary of Health and Human Services—the FDA's parent agency—is directed to "furnish full and complete information with respect to such questions relating to drugs as the [USPTO] Director may submit concerning any patent application," and to conduct additional research if required.[284] And pursuant to an Executive Order issued by President Biden, the FDA has explicitly encouraged the USPTO to take advantage of the FDA's resources to identify patents that should not be granted.[285] The USPTO recently requested comments on this issue,[286] and it should follow through on this invitation by considering the FDA's expertise on real-world prior art.

C. Real-World Prior Art in Inter Partes Review

Even with the above efforts to surface more real-world prior art before a patent is granted, the USPTO will inevitably continue to grant numerous patent applications that should have been rejected on the basis of uses or sales

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[280] S. Sean Tu, *FDA Reexamination: Increased Communication Between the FDA and USPTO to Improve Patent Quality*, 60 HOUS. L. REV. 403 (2022).

[281] W. Nicholson Price II & Arti K. Rai, *How Logically Impossible Patents Block Biosimilars*, 37 NATURE BIOTECHNOLOGY 862 (2019).

[282] Recent legislation has increased transparency requirements for biologic patents, but firms need not list related patents before the first competitor seeks to market a similar product. *See* Jacqueline R. Berman et al., *Patent Transparency for Biologics & Biosimilars: The Revamped Purple Book*, BIOPROCESS ONLINE (July 12, 2021), https://www.bioprocessonline.com/doc/patent-transparency-for-biologics-biosimilars-the-revamped-purple-book-0001.

[283] *See* 21 C.F.R. § 314.53(b)(1).

[284] 21 U.S.C. § 372(d).

[285] Letter from Janet Woodcock, Acting Commissioner, U.S. Food & Drug Admin., to Andrew Hirshfeld, Acting Director, U.S. Patent & Trademark Off. (Sept. 10, 2021), https://www.fda.gov/media/152086/download.

[286] *See* Joint USPTO–FDA Collaboration Initiatives; Notice of Public Listening Session and Request for Comments, 87 Fed. Reg. 67,019 (Nov. 7, 2022).

that were not apparent to the patent examiner. These invalid patents can lead to substantial social costs, including by deterring firms from using a patented technology that should have been in the public domain.[287] And firms that *are* using the technology face the choice of paying for an unnecessary license or invalidating the patent through costly litigation. In 2020, litigating a patent case through appeal with over $25 million at risk had a median cost of over $4 million.[288]

In response to concerns about the high costs of federal judicial litigation over patents that should not have been granted in the first place, the 2011 America Invents Act created less expensive administrative procedures at the USPTO for invalidating granted patents.[289] The most popular of these procedures is inter partes review, or IPR, which allows any third party to challenge granted patents as invalid for lack of novelty or for obviousness.[290] The median legal fees of litigating an IPR petition through appeal are around $500,000[291]—far from cheap, but less expensive than the millions of dollars it might take to litigate in court.

But if a patent examiner improperly grants a patent because she was unaware of invalidating real-world prior art, IPR cannot be used to correct the mistake. The IPR statute limits these proceedings to validity challenges "on the basis of prior art consisting of patents or printed publications."[292]

This has led to awkward situations in which challengers submit paper prior art in IPR proceedings as a type of work-around, even under circumstances where real-world prior art—the patented device itself, put on sale or into public use—might have been much more informative.[293] That, in turn, has led to complex questions regarding whether the challenger is estopped under 35 U.S.C. § 315(e)(2) from using the real-world prior art to invalidate the patent in the course of later district court litigation.[294]

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[287] *See* Jonathan S. Masur, *CBA at the PTO*, 65 DUKE L.J. 1701 (2016) (describing some of the social costs of issuing invalid patents).

[288] AM. INTELLECTUAL PROP. L. ASS'N, REPORT OF THE ECONOMIC SURVEY 60 (2021).

[289] *See* MASUR & OUELLETTE, *supra* note 4, at 515–16.

[290] *See id.*

[291] AM. INTELLECTUAL PROP. L. ASS'N, *supra* note 288, at 62.

[292] 35 U.S.C. § 311(b).

[293] *See, e.g.*, GoPro, Inc. v. Contour IP Holding LLC, 908 F.3d 690 (Fed. Cir. 2018); Cal. Inst. of Tech v. Broadcom Ltd., 2019 WL 8192255 (C.D. Cal. Aug. 9, 2019), *aff'd*, 25 F.4th 976 (Fed. Cir. 2022); DMF, Inc. v. AMP Plus, Inc., 2021 WL 6499980 (C.D. Cal. 2021); Wasica Fin. GmbH v. Schrader Int'l, Inc., 432 F. Supp. 3d 448 (D. Del. 2020); Star Envirotech, Inc. v. Redline Detection, LLC, 2015 WL 4744394 (C.D. Cal. 2015); Clearlamp, LLC v. LKQ Corp., 2016 WL 4734389 (N.D. Ill. 2016); Chemours Co. FC, LLC v. Daikin Indus., Ltd., 2022 WL 2643517 (D. Del. 2022); CliniComp Int'l, Inc. v. Athenahealth, Inc., 2020 WL 7011768 (W.D. Tex. 2020); Medline Indus., Inc. v. C.R. Bard, Inc., 2020 WL 5512132 (N.D. Ill. 2020).

[294] *See* Tanvi Antoo, Redundant Prior Art and Estoppel in the District Courts (2022) (unpublished manuscript) (on file with authors).

These problems could be avoided if IPR were simply expanded to allow real-world prior art. It is hardly beyond the PTAB's competence to evaluate real-world prior art—PTAB judges already must consider that type of prior art during post-grant review proceedings.[295] It is past time for real-world prior art to take its proper seat at the table alongside all of that paper.

Conclusion

Patent law has been one of the key U.S. policy tools for promoting innovation since the Founding Era, and patents remain the backbone of the international innovation policy today.[296] Given this history, one might imagine that the basic rules for obtaining a patent would be well settled. But as we have shown throughout this article, the courts have failed to provide this clarity for many straightforward questions about the fundamental requirement that patented inventions be *new*. We have also argued that this confusion stems from a failure to attend to the different policy objectives served by different prior art doctrines, and that embracing these distinctions would elucidate this area of law.

The key policy goal underlying the public-use bar is to protect the reliance interests of members of the public—persons without an obligation of confidentiality to an inventor. It thus makes sense to extend this doctrine to situations of public use without the public using, but only where the public who observed the inventor's use obtained sufficient information about how to make and use the invention to form reliance interests. But it doesn't make sense to use public use doctrine to resolve questions of secret commercial use in which no member of the public has formed reliance interests. In contrast, the key policy goal underlying the on-sale bar is to prevent an inventor from commercially exploiting her invention for longer than the patent term. This goal aligns well with the principle that secret commercial use creates prior art against the inventor—but also suggests that the on-sale bar is best understood as party-specific, in that it does not create prior art against third parties.

Embracing these policy distinctions could help courts make sense of other challenging patent doctrines in addition to facilitating increased use of real-world prior art, both of which could decrease some of the administrative costs of the patent system. And these costs are staggering. The costs of legal fees for patent litigation and for patent examination are likely on the order of

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[295] 35 U.S.C. § 321(b).

[296] For an early history of U.S. patent laws, see Edward C. Walterscheid, *The Early Evolution of the United States Patent Law: Antecedents (Part 1)*, 76 J. PATENT & TRADEMARK OFF. SOC'Y 697 (1994). For a comparison of patents and other innovation policy mechanisms and a discussion of how international treaties have chosen patent law as a coordination point, see generally Daniel J. Hemel & Lisa Larrimore Ouellette, *Innovation Policy Pluralism*, 128 YALE L.J. 544 (2019).

$10 *billion* per year,[297] which does not include the costs for firms of conducting freedom-to-operate searches, determining whether to file their own patents, or negotiating licenses for patents owned by others. Additional time spent on clarifying the rules for real-world prior art would rapidly pay for itself. The many stakeholders who depend upon the patent system—including inventors, consumers, and competitors seeking freedom to operate—deserve nothing less.

[297] *See* Daniel J. Hemel & Lisa Larrimore Ouellette, *Beyond the Patents–Prizes Debate*, 92 TEX. L. REV. 303, 365 (2013).