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## Fifty Years of Patent Remedies Case Law: Two Steps Forward, One Step Back

Thomas F. Cotter

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FIFTY YEARS OF PATENT REMEDIES CASE LAW:  
TWO STEPS FORWARD, ONE STEP BACK

*Thomas F. Cotter\**

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## I. INTRODUCTION

Over the past fifty years, courts have developed a body of case law on patent remedies that is, in many respects, solidly grounded in economic reasoning. Among the high points are the courts' embrace, in various contexts, of the simple principle that patent damages should restore patent owners to the position they would have occupied, but for the infringement—and of an important corollary to that principle, namely the importance to damages calculations of the “noninfringing alternatives” concept. By contrast, certain other developments—including the confusing standards for determining when it is appropriate to use the “entire market value” of a product as the royalty base; the standards for awarding *total* profits for design patent infringement; and the intricacies of the patent marking statute—cry out for further judicial or legislative reform. Yet other developments, including the standards for granting injunctive relief (and, relatedly, for awarding ongoing royalties in lieu of injunctive relief); for calculating reasonable royalties; and for awarding enhanced damages, have in some respects been positive but could be further improved.

Part II below, titled “Two Steps Forward,” discusses the aforementioned high points. Part III (“One Step Back”) discusses the lows, and Part IV (“Running in Place”) the intermediate cases.

## II. TWO STEPS FORWARD

In many respects the law of patent remedies in the United States is the gold standard among the patent systems of the world.<sup>1</sup> By that I mean that U.S. law by and large applies rules and standards that are intended to preserve the

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<sup>1</sup> Which is not to say that it's perfect. It isn't, and there is much we can learn from other countries' patent systems. Moreover, some of the differences between the law of patent remedies in the United States and elsewhere are attributable to fundamental differences in legal cultures—for example, the lack of jury trials and extensive discovery elsewhere—which makes comparison among national systems difficult. *See, e.g., Introduction to PATENT REMEDIES AND COMPLEX PRODUCTS: TOWARD A GLOBAL CONSENSUS* 1, 3–4 (C. Bradford Biddle, Jorge L. Contreras, Brian J. Love & Norman V. Siebrasse eds. Cambridge Univ. Press 2019), available at [https://www.cambridge.org/core/books/patent-remedies-and-complex-products/9856A1DB614D1E4A155E0D7B1748384B?fbclid=IwAR3qAOVVcTTQwmVKq4x\\_U\\_vXQaMK2wX2VeIOZnVjpAUvIFUiG1RfL3Mi3ls](https://www.cambridge.org/core/books/patent-remedies-and-complex-products/9856A1DB614D1E4A155E0D7B1748384B?fbclid=IwAR3qAOVVcTTQwmVKq4x_U_vXQaMK2wX2VeIOZnVjpAUvIFUiG1RfL3Mi3ls) [<https://perma.cc/9GMG-RA97>] [hereinafter COMPLEX PRODUCTS]. *See generally* THOMAS F. COTTER, *COMPARATIVE PATENT REMEDIES: A LEGAL AND ECONOMIC ANALYSIS* (Oxford Univ. Press 2013).

patent incentive by ensuring that the patent owner is no worse off as a result of the infringement.<sup>2</sup> In general, this means restoring the patentee to the position it would have occupied had the infringement not occurred.<sup>3</sup> In theory, the relevant legal doctrine, as well as the often sophisticated economic evidence parties are allowed to deploy, enables courts to accurately replicate this but-for world—though sometimes the very sophistication of the evidence can be a curse, given the cost of developing it.<sup>4</sup> The rules and standards that govern patent remedies therefore necessarily embody various tradeoffs between the desire for greater accuracy, on the one hand, and administrability, on the other.<sup>5</sup>

The principal illustration of the restorative principle in action—and, in my view, the most important concept in the entire law of patent remedies—is what I will refer to as the “noninfringing alternatives” concept. The U.S. Supreme Court first applied this concept to patent litigation in the nineteenth century, when it recognized in a series of cases that the infringer’s profit attributable to the infringement is only the increment above what the infringer would have earned, had it employed the next-best available noninfringing alternative.<sup>6</sup> Probably the most important modern case, however, in which a U.S. court applied the principle to an award of the patentee’s own *lost profit* is the Sixth Circuit’s 1978 decision in

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<sup>2</sup> See, e.g., COMPARATIVE PATENT REMEDIES, *supra* note 1, ch. 2; *Introduction*, *supra* note 1, at 2–3. The principle that patentees should be no worse off as a result of the infringement is consistent with § 284 of the Patent Act, which states that “[u]pon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement.” 35 U.S.C. § 284.

<sup>3</sup> See *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 377 U.S. 476, 507 (1964).

<sup>4</sup> See, e.g., Christopher B. Seaman et al., *Lost Profits and Disgorgement*, in COMPLEX PRODUCTS, *supra* note 1, at 50, 69.

<sup>5</sup> See *Introduction*, *supra* note 1, at 3. See generally Thomas F. Cotter, *Patent Damages Heuristics*, 25 TEX. INTELL. PROP. L.J. 159, 166–75 (2018).

<sup>6</sup> See *Westinghouse Elec. & Mfg. Co. v. Wagner Elec. & Mfg. Co.*, 225 U.S. 604, 614–15 (1912); *Yale Lock Mfg. Co. v. Sargent*, 117 U.S. 536, 548–53 (1886); *Black v. Thorne*, 111 U.S. 122, 123–24 (1884); *Mowry v. Whitney*, 81 U.S. 620, 651–53 (1871); *Suffolk Co. v. Hayden*, 70 U.S. 315, 320 (1865). A 1946 amendment to the Patent Act, later incorporated in substantially similar form into the 1952 Act, eliminated the option of recovering the infringer’s profit for utility patent infringement, though (as discussed *infra* at notes 46–57) it did not displace awards of the infringer’s profit for design patent infringement (which is now codified at 35 U.S.C. § 289).

*Panduit Corp. v. Stahlin Bros. Fibre Works Inc.*, which required the plaintiff to prove, among other things, the “absence of acceptable noninfringing substitutes.”<sup>7</sup> As I have noted elsewhere, the economic logic of the rule is twofold. First, “if the defendant could have avoided infringing by employing a noninfringing alternative, the infringement has not *caused* the plaintiff to suffer any actual harm because whatever losses it did suffer would have occurred anyway.”<sup>8</sup> Second, to award lost profits despite the defendant’s ability to have avoided infringing by deploying a noninfringing alternative “would overvalue the patented technology’s contribution to the art, because the economic value of a technology is its value over the next-best available noninfringing alternative.”<sup>9</sup> A high point of the law of patent remedies over the past fifty years therefore has been the Federal Circuit’s recognition of the importance of the noninfringing alternatives concept to the accurate calculation of lost profits.<sup>10</sup>

Further, if there is no lost profit because use of the noninfringing alternative would have enabled the defendant to make the same number of sales, it follows that the plaintiff is entitled to only a reasonable royalty reflecting some

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<sup>7</sup> See *Panduit Corp. v. Stahlin Bros. Fibre Works*, 575 F.2d 1152, 1156 (6th Cir. 1978). For citations to some earlier lost profits cases in which courts considered the availability of noninfringing alternatives, see 7 DONALD S. CHISUM, CHISUM ON PATENTS, § 20.05[2][e][v], at 20-1042 n.116 (rev. ed. 2021).

<sup>8</sup> Thomas F. Cotter, *Extraterritorial Damages in Patent Law*, 39 CARDOZO ARTS & ENT. L.J. 1, 35 (2021) (emphasis added).

<sup>9</sup> *Id.* at 36. See generally Stephen Yelderman, *Damages for Privileged Harm*, 106 VA. L. REV. 1569, 1582, 1602 (2020) (arguing that in some contexts, including patent law, courts reduce damages awards to reflect the amount by which the defendant lawfully could have caused the plaintiff to suffer harm).

<sup>10</sup> See, e.g., *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1329–32 (Fed. Cir. 2009) (applying the *Panduit* factors); *SmithKline Diagnostics, Inc. v. Helena Lab’ys Corp.*, 926 F.2d 1161, 1166 (Fed. Cir. 1991) (“[I]f the realities of the market are that others would likely have captured sales made by the infringer, despite a difference in the products, it follows that the ‘but for’ test is not met.”). Courts in France and Canada also have recognized the relevance of noninfringing alternatives, while the United Kingdom (so far) adheres to an 1888 House of Lords decision, *United Horse-Shoe & Nail Co. v. John Stewart & Co.* [1888] 13 App. Cas. 401 (HL) (appeal taken from Scot.), going the other way on this issue. See Seaman et al., *supra* note 4, at 60–61; see also *Anan Kasei Co. v. Neo Chems. & Oxides (Europe) Ltd.* [2022] EWHC (Pat) 708, 118–39 (Eng.) (Mar. 29, 2022) (adhering to *United Horse-Shoe*, while noting that “[t]hese issues may well merit further consideration by a higher court”).

portion of the value to the defendant of the infringing technology in comparison with that alternative. The Federal Circuit's opinion in *Grain Processing Corp. v. American Maize-Products Co.* illustrates this principle.<sup>11</sup> There, the court affirmed a judgment denying the plaintiff a lost profits recovery, because the defendant could have avoided infringing the plaintiff's patent for producing a food additive by using a noninfringing, but slightly higher-cost, process.<sup>12</sup> Instead, the plaintiff was entitled to a reasonable royalty, which the district court estimated based on, among other things, the cost advantage of using the patented process.<sup>13</sup>

Other applications of the principle that patentees are, in general, entitled to their "but-for" lost profits can be found in *Rite-Hite Corp. v. Kelley Co., Inc.*,<sup>14</sup> *Mentor Graphics Corp. v. EVE-USA, Inc.*,<sup>15</sup> and *WesternGeco LLC v. ION Geophysical Corp.*<sup>16</sup> In *Rite-Hite*, the Federal Circuit held that, where a defendant's infringing products compete with products sold by the patentee but not covered by the patent in suit, the patentee may recover its lost profit on lost sales of those uncovered products.<sup>17</sup> Contrary to the dissenting opinion in *Rite-Hite*,<sup>18</sup> this result does not grant the patentee rights over unpatented subject matter, but rather only ensures adequate compensation for harm caused by an initial act of infringement.<sup>19</sup>

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<sup>11</sup> See *Grain Processing Corp. v. Am. Maize-Prods. Co.*, 185 F.3d 1341 (Fed. Cir. 1999).

<sup>12</sup> See *id.* at 1353–55.

<sup>13</sup> See *Grain Processing Corp. v. Am. Maize-Prods. Co.*, 893 F. Supp. 1386, 1392–93 (N.D. Ind. 1995). Neither party appealed the amount of the reasonable royalty. See *Grain Processing*, 185 F.3d at 1353 n.5. The Federal Circuit reaffirmed this logic in *Aqua Shield v. Inter Pool Cover Team*, 774 F.3d 766, 770–71 (Fed. Cir. 2014) ("If a potential user of the patented technology would expect to earn X profits in the future without using the patented technology, and X + Y profits by using the patented technology, it would seem, as a prima facie matter, economically irrational to pay more than Y as a royalty—paying more would produce a loss compared to forgoing use of the patented technology.").

<sup>14</sup> *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538 (Fed. Cir. 1995) (en banc).

<sup>15</sup> *Mentor Graphics Corp. v. EVE-USA, Inc.*, 851 F.3d 1275 (Fed. Cir. 2017).

<sup>16</sup> *WesternGeco LLC v. ION Geophysical Corp.*, 138 S. Ct. 2129 (2018).

<sup>17</sup> See *Rite-Hite*, 56 F.3d at 1546–49.

<sup>18</sup> See *id.* at 1556 (Nies, J., dissenting).

<sup>19</sup> See *Rite-Hite*, 56 F.3d at 1546–49. Though it does raise a question why, if the plaintiff's uncovered products are competitive with the infringing products, the technology embodied in those uncovered products wouldn't qualify as a

Less persuasively, *Rite-Hite* also holds that, where the infringement causes the patentee to lose sales of unpatented complementary products that it normally would have sold along with its patented products, the patentee cannot recover lost profits on lost sales of these complementary products unless they “function together” with the patented product.<sup>20</sup>

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noninfringing alternative. In *Rite-Hite* itself, the majority credited the plaintiff’s representation that these products actually *were* covered by *other* patents it owned, which were not in suit. See *Rite-Hite*, 56 F.3d at 1543. But according to the dissent neither the majority nor the parties “discuss[ed] what inventions the one or more patents on [these products] cover.” See *id.* at 1572–73 (Nies, J., dissenting). For another case overlooking the question of whether the patentee’s own unpatented products might have been a noninfringing alternative, see *Presidio Components, Inc. v. Am. Tech. Ceramics Corp.*, 702 F.3d 1351 (Fed. Cir. 2012) (affirming an award of lost profits, without addressing the possibility that the plaintiff’s own product, which did not embody the patented technology, might have been an available noninfringing alternative). For further discussion of *Presidio*, see Thomas F. Cotter, *Two Recent U.S. Cases on Lost Profits*, COMPAR. PAT. REMEDIES BLOG (May 9, 2013), <http://comparativepatentremedies.blogspot.com/2013/05/two-recent-us-cases-on-lost-profits.html> [<https://perma.cc/M3QW-2X7U>], and for further discussion of competing views on the holding of *Rite-Hite*, see THOMAS F. COTTER, REMEDIES IN U.S. PATENT LAW 39 n.2 (3d ed. 2021), available at <https://app.livcarta.com/catalog/remedies-in-us-patent-law-3rd> [<https://perma.cc/HHG2-LMZ2>].

<sup>20</sup> See *Rite-Hite*, 56 F.3d at 1549–51 (“Our precedent has not extended liability to include items that have essentially no functional relationship to the patented invention and that may have been sold with an infringing device only as a matter of convenience or business advantage.”). In other work, Roger Blair and I have noted that this rule potentially limits the plaintiff’s ability to recover damages for losses that are caused-in-fact by the infringement, but that it might be justified on the ground that lost profits on lost sales of unpatented products that the patentee sells with its patented products solely as a matter of business convenience are sufficiently remote or indirect to be excluded on proximate cause grounds. See Roger D. Blair & Thomas F. Cotter, *Rethinking Patent Damages*, 10 TEX. INTELL. PROP. L.J. 1, 88–91 (2001). For another arguably questionable departure from the but-for principle, see *Integrated Tech. Corp. v. Rudolph Techs., Inc.*, 734 F.3d 1352, 1360 (Fed. Cir. 2013) (permitting the trier of fact to infer in a market characterized by only two suppliers that sales made by the defendant would have been made by the plaintiff, despite evidence of a noninfringing alternative).

More recently, the Federal Circuit in *Mentor Graphics v. EVA-USA* held that, where the patent in suit reads on a component of a complex end product, and both the plaintiff and (without authorization) the defendant sell such end products, the plaintiff may recover its entire lost profit on lost sales of the end product, even though the patent confers value on only a portion of the end product.<sup>21</sup> The dissent characterized the majority opinion as violating the principle that patent damages should be apportioned, that is, restricted to only the value the patented technology contributes to the end product.<sup>22</sup> As the majority recognized, however, as in *Rite-Hite* the recovery of the lost profit on sales the plaintiff would have made, but for the infringement, is necessary to ensure full compensation for the loss incurred as a result of the infringement.<sup>23</sup> That said, cases in which the infringement of a single patent incorporated into a complex, multipatent end product causes the plaintiff to lose substantial sales might be uncommon. In *Mentor Graphics* itself, the plaintiff and defendant were the only two firms competing for sales of emulators to a single customer; the functionality added by the patented technology apparently was essential to meet that customer's needs; and there was no noninfringing alternative to the patent in suit.<sup>24</sup> In other cases, in which the patented technology is essential to some but not all customers, the plaintiff would be entitled to a lost profit on the lost sales to those customers but only to a reasonable royalty on other infringing uses.<sup>25</sup>

A final case to consider is the Supreme Court's 2018 decision in *WesternGeco LLC v. ION Geophysical Corp.*, involving extraterritorial damages.<sup>26</sup> At issue was a relatively obscure provision of the Patent Act, § 271(f)(2), which in relevant part states that:

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<sup>21</sup> See *Mentor Graphics Corp. v. EVE-USA, Inc.*, 851 F.3d 1275, 1283–90 (Fed. Cir. 2017).

<sup>22</sup> See *Mentor Graphics Corp. v. EVE-USA, Inc.*, 870 F.3d 1298, 1300 (Fed. Cir. 2017) (Dyk, J., dissenting from denial of petition for rehearing en banc).

<sup>23</sup> See *Mentor Graphics*, 851 F.3d at 1283–90.

<sup>24</sup> See *id.* at 1286–88 (“Synopsys does not dispute that but for its infringement, Mentor would have made each of the infringing emulator sales to Intel . . . . [T]here was no . . . non-infringing alternative that Intel would have purchased.”).

<sup>25</sup> See generally Jason Reinecke, *Lost Profits Damages for Multicomponent Products: Clarifying the Debate*, 71 STAN. L. REV. 1621 (2019).

<sup>26</sup> *WesternGeco LLC v. ION Geophysical Corp.*, 138 S. Ct. 2129 (2018).

[w]hoever without authority supplies . . . in or from the United States any component of a patented invention that is especially made or especially adapted for use in the invention . . . knowing that such component is so made or adapted and intending that such component will be combined outside of the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.<sup>27</sup>

Defendant ION exported components used for practicing WesternGeco's patented system to customers outside the United States.<sup>28</sup> The customers then provided surveying services to oil companies outside the United States, in competition with WesternGeco itself.<sup>29</sup> The Federal Circuit held that WesternGeco could not recover the profit it would have made on service contracts it would have entered into, but for the infringement, because recovery for these extraterritorial losses would violate the general principle that U.S. patent law does not apply extraterritorially.<sup>30</sup> The Supreme Court reversed, however, holding that the "focus" of Patent Act § 284, which as noted above requires courts to award damages "adequate to compensate for the infringement," "in a case involving infringement under § 271(f)(2), is on the act of exporting components from the United States. . . . Thus, the lost-profits damages that were awarded to WesternGeco were a domestic application of § 284."<sup>31</sup> Although the Court did not offer its view on whether patentees can recover extraterritorial losses stemming from the (more common) predicate acts of making, using, or selling the patented invention within the United States, in violation of § 271(a), the logic of the Court's opinion points in that direction, as a few lower courts have recognized<sup>32</sup>—and as I have argued in other

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<sup>27</sup> 35 U.S.C. § 271(f)(2).

<sup>28</sup> See *WesternGeco*, 138 S. Ct. at 2135.

<sup>29</sup> See *id.*

<sup>30</sup> See *id.* at 2135–36 (discussing *WesternGeco LLC v. ION Geophysical Corp.*, 791 F.3d 1340 (Fed. Cir.2015)).

<sup>31</sup> See *id.* at 2138; see also 35 U.S.C. § 271(f)(2).

<sup>32</sup> See *Extraterritorial Damages in Patent Law*, *supra* note 8, at 18–20 (reviewing the post-*WesternGeco* case law through early 2021); see also *Anan Kasei Co. v. Neo Chems. & Oxides (Europe) Ltd.* [2022] EWHC (Ch) 708, 87–109 (Eng.) (Mar. 29, 2022) (holding that, under English law, a patent owner can recover lost profits on sales it would have made in another country, but for a defendant's predicate act of domestic infringement, subject to application of the doctrine of proximate cause).

work, albeit subject to some caveats.<sup>33</sup> Consistent with the other cases discussed above, the law in this area appears to be evolving toward the simple principle that courts should restore the prevailing patent owner to the position it would have occupied, but for the infringement.

Other positive developments in the law of patent remedies over the past fifty years, which are consistent with the restorative principle animating all of the above the cases, include the Supreme Court's 1983 decision in *GM Corp. v. Devex Corp.*, establishing a rebuttable presumption that the prevailing patent owner is entitled to recover prejudgment interest;<sup>34</sup> the Federal Circuit's embrace of "market share" damages, in appropriate cases, in *State Indus., Inc. v. Mor-Flo Indus.*,

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<sup>33</sup> See *Extraterritorial Damages in Patent Law*, *supra* note 8 (arguing that patentees should be able to recover damages for extraterritorial losses caused-in-fact by an initial act of domestic infringement, subject to the principle that outsourcing may qualify as a noninfringing alternative to domestic infringement, and subject to the doctrine of proximate cause and to the single-recovery rule). *But see* Timothy R. Holbrook, *Is There a New Extraterritoriality in Intellectual Property?*, 44 COLUM. J.L. & ARTS 457 (2021).

<sup>34</sup> See *Gen. Motors Corp. v. Devex Corp.*, 461 U.S. 648, 656–57 (1983) (holding that prejudgment interest accruing from the date of infringement is typically "necessary to ensure that the patent owner is placed in as good a position as he would have been in had the infringer entered into a reasonable royalty agreement," and "should ordinarily be awarded absent some justification for withholding such an award" such as "undue delay in prosecuting the lawsuit"); see also Colleen V. Chien et al., *Enhanced Damages, Litigation Cost Recovery, and Interest*, in *COMPLEX PRODUCTS*, *supra* note 1, at 90, 111 ("[D]amages awards should take into account the time value of money" to "ensure that the patent owner is no worse off than it would have been, absent the infringement."). Full compensation would require that interest be compounded, see *id.* at 112 & n.25, but I am not aware of any empirical evidence on whether courts typically award simple or compound interest. For a recent case reversing a district court's failure to award prejudgment interest, see *Kaufman v. Microsoft Corp.*, 34 F.4th 1360 (Fed. Cir. 2022).

*Inc.*;<sup>35</sup> and its rejection of the arbitrary “25% Rule of Thumb” in *Uniloc USA, Inc. v. Microsoft Corp.*<sup>36</sup>

### III. ONE STEP BACK

Other developments in the law of patent remedies over the past fifty years have been less successful. One of the principal areas that could benefit from greater clarity involves the determination of the appropriate royalty base from which to calculate reasonable royalties. In the real world, parties negotiating a license sometimes agree to a “running” royalty consisting of a royalty rate ( $x\%$ ) multiplied by a base, where the base is either the number of products the licensee sells, or the revenue the licensee earns from those sales.<sup>37</sup> The use of a similar methodology to calculate reasonable royalties, when a defendant is found liable for patent infringement, therefore might seem warranted, on the theory that court-awarded royalties should in some sense mimic the market.<sup>38</sup> As the Federal Circuit has recognized, however, where a patent reads on a component of a complex end product, there is some risk that use of the “entire market value” as the royalty base

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<sup>35</sup> *States Indus., Inc. v. Mor-Flo Indus., Inc.*, 883 F.2d 1573 (Fed. Cir. 1989) (holding that, when the patentee’s share of the relevant market is less than 100%, courts should presume that only a proportionate share, not 100%, of the defendant’s infringing sales would have gone to the patentee, absent the infringement). See generally COMPARATIVE PATENT REMEDIES, *supra* note 1, at 112–13.

<sup>36</sup> *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292 (Fed. Cir. 2011). The 25% Rule assumed that “the inventor will keep 25% of the profits from any infringing sales.” See *i4i Ltd. P’ship v. Microsoft Corp.*, 598 F.3d 831, 853–55 (Fed. Cir. 2010), *aff’d on other grounds*, 564 U.S. 91 (2011). In *Uniloc*, the Federal Circuit characterized the rule as “a fundamentally flawed tool for determining a baseline royalty rate in a hypothetical negotiation” and thus inadmissible under the Federal Rules of Evidence. See *Uniloc*, 632 F.3d at 1315. The court’s reluctance, however, to allow experts to rely on the Nash Bargaining construct to estimate how a hypothetical licensor and licensee would have divided the surplus arising from the licensee’s use of a patented technology, see *VirnetX, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1331–34 (Fed. Cir. 2014), is in my view less easily defended. See COMPARATIVE PATENT REMEDIES, *supra* note 1, at 197.

<sup>37</sup> See, e.g., Thomas F. Cotter, *Patent Holdup, Patent Remedies, and Antitrust Responses*, 34 J. CORP. L. 1151, 1186 (2009).

<sup>38</sup> See *id.* at 1186–87.

will tempt the jury to award an inappropriately large overall royalty.<sup>39</sup> On the other hand, one might argue that requiring the base to be the “smallest salable patent-practicing unit” (“SSPPU”)<sup>40</sup> might result in inappropriately *small* royalties, if for example the patented technology confers outsize value to the user in comparison with the specific component into which it is incorporated.<sup>41</sup>

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<sup>39</sup> See *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1227 (Fed. Cir. 2014) (interpreting *LaserDynamics, Inc. v. Quanta Comput., Inc.*, 694 F.3d 51, 67, 68 (Fed. Cir. 2012), as “barring the use of too high a royalty base—even if mathematically offset by a “low enough royalty rate” —because such a base ‘carries a considerable risk’ of misleading a jury into overcompensating,” and as “stating that such a base “cannot help but skew the damages horizon for the jury” and ‘make a patentee’s proffered damages amount appear modest by comparison””) (internal quotation omitted).

<sup>40</sup> See *LaserDynamics*, 694 F.3d 51, 67–68 (“In any case involving multi-component products, patentees may not calculate damages based on sales of the entire product, as opposed to the smallest salable patent-practicing unit, without showing that the demand for the entire product is attributable to the patented feature.”); see also *VirnetX*, 767 F.3d at 1327–28 (“[T]he fundamental concern about skewing the damages horizon—of using a base that misleadingly suggests an inappropriate range—does not disappear simply because the smallest salable unit is used;” rather, “the requirement that a patentee identify damages associated with the smallest salable patent-practicing unit is simply a step toward meeting the requirement of apportionment.”); *Ericsson*, 773 F.3d at 1226–28 (stating that restricting the use of the entire market value as the royalty base serves both a “substantive legal” purpose of ensuring apportionment, and an “evidentiary” purpose of not misleading the jury).

<sup>41</sup> See Nicolas Petit, *The Smallest Salable Patent-Practicing Unit* (“SSPPU”) *Experiment, General Purpose Technologies and the Coase Theorem* 3 (Feb. 18, 2016), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2734245](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2734245) [<https://perma.cc/T2HS-FXC2>]. A related debate arises in connection with the question of whether owners of FRAND-committed standard-essential patents (SEPs) must license those patents, upon request, to any entity within a supply chain, or alternatively may restrict licenses to end product manufacturers only. Market participants often assume that if component suppliers are the entities that pay royalties and they use component sales as the royalty base, royalties will be systematically lower than if end product manufacturers pay royalties and use end product sales as the base—even though in theory the royalties should be identical. See, e.g., Thomas F. Cotter, *License To All Should Prevail in FRAND Patent Wars*, LAW360 (June 4, 2020, 2:14 PM), <https://www.law360.com/articles/1277844/license-to-all-should-prevail-in-frand-patent-wars> [<https://perma.cc/YDD4-7RJS>].

For present purposes, suffice to say that there are reasoned arguments on both sides of this debate.<sup>42</sup> My point here is simply that it would be helpful to have a clearer idea about exactly what the rules *are*. Although cases such as *LaserDynamics, Inc. v. Quanta Computer, Inc.*<sup>43</sup> and *VirnetX, Inc. v. Cisco Systems, Inc.*<sup>44</sup> seem to embrace a strong version of the SSPPU rule,<sup>45</sup> *Ericsson, Inc. v. D-Link Systems, Inc.*<sup>46</sup> permits experts to refer to comparable licenses that themselves use the entire market value as the base,<sup>47</sup> and other cases appear to recognize certain exceptions.<sup>48</sup> To the extent these complications pose risks of both uncertainty and gamesmanship, a clearer statement of standards would be helpful.

Another problem area involves awards of the infringer's profits for design patent infringement. As noted above, awards of profits attributable to the

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<sup>42</sup> See, e.g., Thomas F. Cotter et al., *Reasonable Royalties*, in COMPLEX PRODUCTS, *supra* note 1, at 6, 41–46; INTELL. PROP. OWNERS ASS'N DAMAGES & INJUNCTIONS COMM., *Apportionment in Determining Reasonable Royalty Damages: Legal Principles, Practical Considerations and Countervailing Viewpoints* (Dec. 18, 2018), <https://ipo.org/wp-content/uploads/2019/01/Damages-committee-white-paper-1.pdf> [<https://perma.cc/Y6EF-877F>]; Anne Layne-Farrar, *The Patent Damages Gap: An Economist's Review of U.S. Patent Damages Apportionment Rules*, 26 TEX. INTELL. PROP. L.J. 31 (2018).

<sup>43</sup> See *LaserDynamics*, 694 F.3d 51 (Fed. Cir. 2012), discussed *supra* note 40.

<sup>44</sup> See *VirnetX*, 767 F.3d 1308 (Fed. Cir. 2014), discussed *supra* note 40.

<sup>45</sup> See *Petit*, *supra* note 41.

<sup>46</sup> See *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201 (Fed. Cir. 2014).

<sup>47</sup> See *id.* at 1228 (“Prior licenses . . . are almost never perfectly analogous” and “are generally negotiated without consideration of the EMVR . . . where expert testimony explains to the jury the need to discount reliance on a given license to account only for the value attributed to the licensed technology . . . the mere fact that licenses predicated on the value of a multi-component product are referenced in that analysis . . . is not reversible error.”).

<sup>48</sup> See, e.g., *Exmark Mfg. Co. v. Briggs & Stratton Power Prods. Grp.*, 879 F.3d 1332 (Fed. Cir. 2018) (affirming use of the entire market value as the royalty base where the patent claimed a lawnmower having improved “flow control baffles,” even though the only inventive feature of claimed invention was the baffle); *Commonwealth Sci. & Indus. Rsch. Org. v. Cisco Sys.*, 809 F.3d 1295 (Fed. Cir. 2015) (holding in an appeal from a bench trial that the district court “did not err in valuing the asserted patent with reference to end product licensing negotiations” contemplating a royalty of between \$0.90 and \$1.90 per end unit).

infringement were at one time a common remedy for utility patent infringement, until Congress eliminated this option in 1946.<sup>49</sup> A version of the remedy nevertheless lives on in the field of design patents, as set forth in Patent Act § 289. In relevant part, § 289 states:

Whoever during the term of a patent for a design, without license of the owner, (1) applies the patented design, or any colorable imitation thereof, to any article of manufacture for the purpose of sale, or (2) sells or exposes for sale any article of manufacture to which such design or colorable imitation has been applied shall be liable to the owner to the extent of his total profit, but not less than \$250, recoverable in any United States district court having jurisdiction of the parties.<sup>50</sup>

On its face, the statute appears to permit courts to award the prevailing design patent owner the “total profit” the defendant earns from sales of infringing “articles of manufacture,” regardless of whatever other features of the article stimulate consumer demand. Moreover, the relevant legislative history suggests that this was, in fact, Congress’ intent when it enacted the predecessor statute to § 289, in response to two 1880s-era decisions that had awarded only nominal damages to owners who were unable to prove that the infringement of their carpet designs actually caused them to lose sales.<sup>51</sup> The statute elicited relatively little notice until 2014, when a jury awarded Apple \$399 million for Samsung’s infringement of three iPhone-related design patents.<sup>52</sup> In 2016, the Supreme Court affirmed the principle that the prevailing design patent is entitled to recover the “total profit” the defendant earned from the infringing article, albeit subject to the possibility that the relevant article of manufacture might be something less than

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<sup>49</sup> See *supra* note 6.

<sup>50</sup> 35 U.S.C. § 289.

<sup>51</sup> See *Samsung Elecs. Co. v. Apple Inc.*, 137 S. Ct. 429, 432–33 (2016) (citing *Dobson v. Dornan*, 118 U.S. 10 (1886), and *Dobson v. Hartford Carpet Co.*, 114 U.S. 439 (1885), and stating that “in response to the *Dobson* cases, Congress enacted a specific damages remedy for design patent infringement. [See S. REP. NO. 49-206, at 1–2 (1886); H.R. REP. NO. 49-1966, at 1–2 (1886)].”).

<sup>52</sup> See *Samsung*, 137 S. Ct. at 433 (noting the amount of the jury award). The three design patents at issue in *Samsung* were for the front face, bezel, and graphical user interface (GUI) of an iPhone. See *Apple Inc. v. Samsung Elecs. Co.*, 786 F.3d 983, 996–97 (Fed. Cir. 2015), *rev’d*, 137 S. Ct. 429 (2016).

an entire end product.<sup>53</sup> The Court did not propose any specific test for identifying the relevant “article of manufacture,” however, or any methodology for determining the “total profit” attributable to that article.<sup>54</sup> The post-*Samsung* decisions nevertheless all

have applied, or instructed juries to consider, four factors initially proposed in an amicus brief the United States filed in *Samsung* for determining the article of manufacture; and in those that have proceeded to a jury verdict, the jury appears to have concluded that the relevant article was, in fact, the entire end product.<sup>55</sup>

Applying those factors on remand in *Samsung*, a second jury somehow managed to award Apple an even greater “total profit” amounting to \$533 million.<sup>56</sup>

Although it might be reasonable to assume, in cases similar to the 1880s-era carpet design disputes that inspired Congress to permit “total profits” awards in the first place, that all or most of a defendant’s profit from sales of infringing articles is attributable to the aesthetic appeal of the plaintiff’s design, such an inference is surely not universally true.<sup>57</sup> In fact, patented designs are often just

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<sup>53</sup> See *Samsung*, 137 S. Ct. at 434 (“First, identify the ‘article of manufacture’ to which the infringed design has been applied. Second, calculate the infringer’s total profit made on that article of manufacture.”).

<sup>54</sup> See *id.* at 436.

<sup>55</sup> Thomas F. Cotter, *Standing, Nominal Damages, and Nominal Damages “Workarounds” in Intellectual Property Law After TransUnion*, 56 UC DAVIS L. REV. (forthcoming 2023) (manuscript at 14–15), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4086988](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4086988) [<https://perma.cc/2P9J-5FPX>] (citations omitted). The four factors are (1) “the scope of the design claimed in the plaintiff’s patent;” (2) “the relative prominence of the design within the product as a whole;” (3) “whether the design is conceptually distinct from the product as a whole;” and (4) “the physical relationship between the patented design and the rest of the product.” Brief for the United States as Amicus Curiae Supporting Neither Party at 27–29, *Samsung Elecs. Co., Ltd. v. Apple Inc.*, 137 S. Ct. 429 (2016) (No. 15-777), 2016 WL 3194218.

<sup>56</sup> See Jury Verdict, *Apple Inc. v. Samsung Elecs. Co.*, Civil Action No. 5:11-cv-01846-LHK (May 24, 2018) (awarding, in total, \$533,316,606 for the three design patents at issue), [https://storage.courtlistener.com/recap/gov.uscourts.cand.239768/gov.uscourts.cand.239768.3806.0\\_1.pdf](https://storage.courtlistener.com/recap/gov.uscourts.cand.239768/gov.uscourts.cand.239768.3806.0_1.pdf) [<https://perma.cc/X395-ZM2D>].

<sup>57</sup> See *Standing, Nominal Damages*, *supra* note 55, at 35–36.

one of many features incorporated into a commercial product, as for example in the *Samsung* case itself.<sup>58</sup> It stands to reason, therefore, that in the typical design patent dispute today the design contributes only a portion of the value of the relevant “article,” whatever that is—particularly where (again as in *Samsung*) there are multiple design patents incorporated into the same devices. Awards of the infringer’s total profit therefore threaten both to overcompensate plaintiffs in comparison with their contribution to the art, and to overdeter defendants (that is, to discourage them from lawfully designing around for fear of an erroneous imposition of outsize liability). Moreover, in other bodies of IP law where courts sometimes award the infringer’s profits, such awards are either limited, as they once were in utility patent law, to the profit attributable to the infringement, or at least often conditioned on proof of intentional infringement.<sup>59</sup>

All that said, given the statutory text, legislative action would appear to be necessary to abolish the total profit rule. Barring that, however, courts could perhaps improve the law by developing more predictable tests for defining the article of manufacture,<sup>60</sup> and giving serious consideration to the question of whether determining the amount of the award is a jury issue at all.<sup>61</sup>

A third set of issues that are ripe for reform relate to the patent marking statute, § 287(a), which states:

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- <sup>58</sup> See Pamela Samuelson & Mark Gergen, *The Disgorgement Remedy of Design Patent Law*, 108 CALIF. L. REV. 183, 184–85 (2020) (citing Sarah Burstein, *The “Article of Manufacture” Today*, 31 HARV. J.L. & TECH. 781 (2018)) (“[I]n the modern era, it has become quite common for design patents to issue on small parts, features, or components of complex products and on designs that are more functional than ornamental.”).
- <sup>59</sup> See Pamela Samuelson et al., *Recalibrating the Disgorgement Remedy in Intellectual Property Cases*, 100 B.U. L. REV. 1999, 2006 (2020) (stating that, design patent law aside, the risk of overdeterrence “is mitigated by the substantial factor rule in trademark law and apportionment rules in other IP regimes, by limitations on the disgorgement remedy to cases of conscious wrongdoing, and by application of equitable safety valves such as laches defenses”).
- <sup>60</sup> See Burstein, *supra* note 58 (critiquing the four-factor test and proposing an alternative based on the original meaning of the term “article of manufacture”).
- <sup>61</sup> See *Red Carpet Studios v. Midwest Trading Grp.*, No. 1:12cv501, 2021 WL 1172218, at \*2–3 (S.D. Ohio Mar. 29, 2021) (concluding that disgorgement of profits in a design patent case is an equitable remedy, and therefore that there is no constitutional right to trial by jury on this issue).

Patentees, and persons making, offering for sale, or selling within the United States any patented article for or under them, or importing any patented article into the United States, may give notice to the public that the same is patented, either by fixing thereon the word “patent” or the abbreviation “pat.,” together with the number of the patent, or by fixing thereon the word “patent” or the abbreviation “pat.” together with an address of a posting on the Internet, accessible to the public without charge for accessing the address, that associates the patented article with the number of the patent, or when, from the character of the article, this cannot be done, by fixing to it, or to the package wherein one or more of them is contained, a label containing a like notice. In the event of failure so to mark, no damages shall be recovered by the patentee in any action for infringement, except on proof that the infringer was notified of the infringement and continued to infringe thereafter, in which event damages may be recovered only for infringement occurring after such notice. Filing of an action for infringement shall constitute such notice.<sup>62</sup>

In accordance with this provision, a patentee who makes or sells products embodying its patents can recover damages only for infringing conduct occurring after the earliest of the following events: (1) the patentee provides the alleged infringer with “actual notice,” that is, an “affirmative communication of a specific charge of infringement by a specific accused product or device”;<sup>63</sup> or (2) it provides “constructive notice” by marking its products;<sup>64</sup> or (3) it files the complaint.<sup>65</sup> The purpose of the marking requirement is said to be “(1) helping to avoid innocent infringement; (2) encouraging patentees to give public notice that the article is patented; and (3) aiding the public to identify whether an article is patented.”<sup>66</sup>

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<sup>62</sup> 35 U.S.C. § 287(a).

<sup>63</sup> *Arctic Cat Inc. v. Bombardier Recreational Prods. Inc.*, 950 F.3d 860, 864 (Fed. Cir. 2020) (citations omitted); *see also* *SRI Int’l, Inc. v. Advanced Tech. Lab’ys, Inc.*, 127 F.3d 1462, 1470 (Fed. Cir. 1997) (elaborating on what constitutes “actual notice”).

<sup>64</sup> *See Arctic Cat*, 950 F.3d at 864.

<sup>65</sup> *See id.* at 866 (stating that the plaintiff “never complied with the notice requirement of § 287 and thus cannot recover damages for any period prior to the filing of its complaint.”).

<sup>66</sup> *Id.* at 865 (citations omitted).

All of this may sound reasonable, but in practice marking does not necessarily further the above policies,<sup>67</sup> and the manner in which the statute has been interpreted produces some strange results. In particular, absent compliance with the marking requirement damages will not begin to accrue until the owner provides the infringer with *actual notice*, even if the infringer has acquired *actual knowledge* of the patent prior to that date.<sup>68</sup> That seems bad enough, but now consider what happens if the owner has failed to mark but the defendant, with actual knowledge of the owner's patent, knowingly induces a third party to infringe that patent. Under the law of induced infringement, the defendant is *liable* from the moment the third party takes the bait and begins infringing,<sup>69</sup> precisely *because* the defendant had actual knowledge of the patent; and yet damages cannot accrue until the date on which the owner provides actual notice, even though

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<sup>67</sup> See Roger D. Blair & Thomas F. Cotter, *Strict Liability and Its Alternatives in Patent Law*, 17 BERKELEY TECH. L.J. 799, 806, 835 (2002) (stating that “[s]ince constructive notice does not necessarily imply actual knowledge, an ‘innocent’ defendant may still be liable for damages, as under a true strict liability regime”; and that “a literal reading of the statute would allow a patent owner who uses the patented product solely in his own business, and does not sell it to third parties, to recover damages from the beginning of the infringement, as long as he properly marks the patented product, even though the product never makes its way to the marketplace and the infringer has no way of encountering it”).

<sup>68</sup> See *Nike, Inc. v. Wal-Mart Stores, Inc.*, 138 F.3d 1437, 1446 (Fed. Cir. 1998) (stating that “the focus is not on what the infringer actually knew, but on whether the patentee's actions were sufficient, in the circumstances, to provide notice *in rem*”). By contrast, under Patent Act § 154(d)(1)(B), a patentee is entitled to recover a reasonable royalty for the unauthorized use of an invention claimed in a published application that subsequently issues, if *inter alia*, the defendant “had actual notice of the published patent application.” In *this* context, the Federal Circuit has held, “actual notice” means only that the defendant has actual knowledge and does not require any affirmative act by the applicant to notify the defendant. See *Rosebud LMS Inc. v. Adobe Sys., Inc.*, 812 F.3d 1070, 1073–74 (Fed. Cir. 2016).

<sup>69</sup> See, e.g., *Global-Tech Appliances, Inc. v. SEB S.A.*, 563 U.S. 754, 766 (2011) (holding that liability for active inducement requires proof of actual knowledge, or at least willful blindness, to the fact that the induced “acts constitute patent infringement”); cf. *Commil USA, LLC v. Cisco Sys., Inc.*, 575 U.S. 632 (2015) (holding that a good-faith belief of noninfringement defeats a claim for active inducement, but not a good-faith belief of invalidity).

common sense would suggest that such notice is superfluous.<sup>70</sup> Similarly, a defendant may be adjudicated a willful infringer, and thus be on the hook for enhanced damages, based on evidence that it knowingly infringed prior to the owner's having put the defendant on actual notice; but if the owner failed to mark its products, no damages (enhanced or otherwise) will accrue until the date of actual notice.<sup>71</sup> On the other hand, if the owner successfully asserts a process patent instead of a product patent, damages accrue from the moment of infringement regardless of whether the owner provides actual notice or the defendant has actual knowledge, because there is nothing to mark.<sup>72</sup> Nevertheless, if the owner asserts both a product and a process claim of a patent containing both, and sells unmarked goods covered by the product claim and made in accordance with the process claim, a defendant who infringes both product and process claims is probably not liable for damages until the owner provides actual notice.<sup>73</sup> The outcome is the same if the owner asserts both claims but only prevails on the process claim.<sup>74</sup> If the owner *asserts* only the process claim, however, it can recover damages from the date the infringement began;<sup>75</sup> similarly, if the owner has two separate patents, one reciting product and the other process claims, it can recover damages for the infringement of the process patent from the date that infringement began, and

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<sup>70</sup> See *Fujitsu Ltd. v. Netgear Inc.*, 620 F.3d 1321, 1332 (Fed. Cir. 2010).

<sup>71</sup> This was, essentially, the fact pattern in *Arctic Cat*, see 950 F.3d at 866 (stating that “willfulness, as an indication that an infringer knew of a patent and of its infringement, does not serve as actual notice as contemplated by § 287”), the only difference being that it was the owner's licensee who failed to mark, see *id.* at 864 (noting that “[a] patentee's licensees must also comply with § 287,” though “courts may consider whether the patentee made reasonable efforts to ensure” a licensee's compliance). Further problems can arise when a patent owner grants a license in settlement of litigation, but the licensee doesn't really believe that the licensed patent is valid. For discussion, see Bernard Cryan, *Not All Licensees Are the Same: 35 U.S.C. § 287 Should Not Require Marking by Licensees that Deny Infringement*, 101 J. PAT. & TRADEMARK OFF. SOC'Y 531 (2021).

<sup>72</sup> See, e.g., *Am. Med. Sys. v. Med. Eng'g Corp.*, 6 F.3d 1523, 1538 (Fed. Cir. 1993).

<sup>73</sup> See *Soverain Software LLC v. Amazon.com, Inc.*, 383 F. Supp. 2d 904 (E.D. Tex. 2005).

<sup>74</sup> See *Mformation Techs., Inc. v. Rsch. in Motion Ltd.*, 830 F. Supp. 2d 815, 836–38 (N.D. Cal. 2011).

<sup>75</sup> See *Crown Packaging Tech., Inc. v. Rexam Beverage Can Co.*, 559 F.3d 1308, 1316–17 (Fed. Cir. 2009).

damages for infringement of the product patent from the date on which it puts the infringer on actual notice.<sup>76</sup>

The cases establishing the preceding rules may well be correctly decided, under the plain meaning of § 287(a).<sup>77</sup> Nonetheless, it is hard to perceive how a marking requirement, much less the extremely fine distinctions embodied in the contemporary case law, make any policy sense in a world in which one can readily assume that many, perhaps most, commercial products embody some patented technology. Many other countries seem to get along reasonably well without a marking requirement, moreover—though in some, damages may accrue only if the defendant is put on actual or (by marking) constructive notice, *or* knows or should know of the patent's existence,<sup>78</sup> while in others courts have equitable discretion to deny an award of infringer's profits in view of factors such as the infringer's good faith.<sup>79</sup> On balance, it seems doubtful that the benefits of the United States' anomalous marking statute outweigh its costs, though outright abolition would of course require congressional action.

#### IV. RUNNING IN PLACE

I close with three areas of the law of patent remedies that, in my view, are in reasonably sound shape today, but which could be further improved: reasonable royalties, injunctions, and enhanced damages.

As for the first of these, anyone who's gotten this far into the essay might be surprised that, so far, none of my carping about the state of the law has touched on the oft-criticized use of the *Georgia-Pacific* factors<sup>80</sup> or the "hypothetical

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<sup>76</sup> See *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1333–35 (Fed. Cir. 2012).

<sup>77</sup> Then again, maybe not. See Michael J. McKeon, *The Patent Marking and Notice Statute: A Question of "Fact" or "Act"?*, 9 HARV. J.L. & TECH. 429 (1996) (arguing that the Federal Circuit's current interpretation of the statute is incorrect, and that actual knowledge suffices).

<sup>78</sup> See *Seaman et al.*, *supra* note 4, at 56 (noting that this is the rule in the U.K.).

<sup>79</sup> See *COMPARATIVE PATENT REMEDIES*, *supra* note 1, at 198 n.129 (discussing Canadian law).

<sup>80</sup> That is, the fifteen factors set out in *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *modified*, 446 F.2d 295 (2d Cir. 1971), which parties, experts, and courts sometimes use to calculate the reasonable royalty an infringer must pay.

negotiation” framework<sup>81</sup> to calculate reasonable royalties.<sup>82</sup> The reason is that those criticisms sometimes miss the bigger picture. The way we calculate reasonable royalties under current law certainly isn’t perfect, but in broad contours, at least, it’s actually pretty rational. As I recently observed:

Viewed in their best light, the *Georgia-Pacific* factors that tend to be the most important in practice—including comparable licenses, evidence of the value the defendant derives from the invention, and apportionment—really *are* the most relevant, if the purpose of the endeavor is to isolate the value of the invention in comparison with alternatives; and the hypothetical bargain construct, awkward though it may seem, rightly focuses on estimating that value before the defendant has become “locked in” and therefore potentially vulnerable to the extraction of “holdup” rents.<sup>83</sup>

Instead of junking the factors altogether, therefore, I and others have argued that courts should emphasize the most economically relevant of them—comparable

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<sup>81</sup> As described in *Lucent Technologies, Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1325 (Fed. Cir. 2009):

The hypothetical negotiation tries . . . to recreate the ex ante licensing negotiation scenario and to describe the resulting agreement. In other words, if infringement had not occurred, willing parties would have executed a license agreement specifying a certain royalty payment scheme. The hypothetical negotiation also assumes that the asserted patent claims are valid and infringed.

This hypothetical negotiation framework is itself a restatement of *Georgia-Pacific* factor fifteen, see *Georgia-Pacific*, 318 F. Supp. at 1120, with the addition of the third sentence quoted above, the assumption that the parties negotiated on the assumption “that the asserted patent claims are valid and infringed.” This counterfactual assumption, which is necessary to avoid a “double discounting” problem, see Cotter et al., *supra* note 42, at 22–23, demonstrates that the hypothetical negotiation framework is more economically sophisticated than it might at first appear (though the assumption can be difficult to apply in practice, see *id.* at 37–39).

<sup>82</sup> For a summary of criticism directed against the *Georgia-Pacific* factors, see Cotter et al., *supra* note 42, at 14–15 (noting, among other things, that application of the factors can be costly, unpredictable, and manipulable).

<sup>83</sup> *Standing, Nominal Damages*, *supra* note 55, at 29.

licenses, evidence of the value the defendant derives from the invention, and apportionment<sup>84</sup>—and ensure that these are properly used (for example, that purported “comparables” really are, in fact, comparable to the hypothetical license a willing licensor and licensee would have negotiated).<sup>85</sup> Other problems, I have argued, such as “the sometimes extreme gaps between competing experts’ damages estimates”<sup>86</sup> might be reduced through procedural reforms such as early disclosure of damages theories and more frequent bifurcation of liability and damages determinations.<sup>87</sup> A few other substantive modifications to existing law, such as greater use of the so-called “book of wisdom” to increase or decrease reasonable royalty estimates, also would be worth considering;<sup>88</sup> and courts will need to be vigilant over the proper use of alternative methodologies for proving patent value that parties increasingly are turning to, including conjoint analysis, citation count analysis, and hedonic regression.<sup>89</sup>

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<sup>84</sup> See Cotter et al., *supra* note 42, at 15–19, and sources cited therein.

<sup>85</sup> See *id.* at 33–41. Some recent Federal Circuit cases have imposed substantial gatekeeping requirements over the use of purported comparables. See, e.g., *Apple Inc. v. Wi-LAN Inc.*, 25 F.4th 960 (Fed. Cir. 2022).

<sup>86</sup> *Standing, Nominal Damages*, *supra* note 55, at 29 (citation omitted).

<sup>87</sup> See *id.* at 29 n.165, and sources cited therein.

<sup>88</sup> See *COMPLEX PRODUCTS*, *supra* note 1, at 31–33 (recommending use of a “contingent ex ante approach’ under which the hypothetical negotiation is generally assumed (subject to the caveats noted in the preceding section) to take place before any sunk costs are incurred, but with the benefit of ex post information”).

<sup>89</sup> For discussion of some of these, see, e.g., Bernard Chao & Sydney Donovan, *Does Conjoint Analysis Reliably Value Patents*, 58 AM. BUS. L.J. 225 (2021); Alan Cox, *The Damages Testimony in VLSI Technologies v. Intel*, *PATENTLY-O*, Mar. 19, 2021, <https://patentlyo.com/patent/2021/03/damages-testimony-technologies.html> [<https://perma.cc/M2B5-QXT4>].

In view of space constraints, this essay will not discuss the calculation of the “fair, reasonable, and nondiscriminatory” (FRAND) royalties that may be at issue in cases involving FRAND-committed standard-essential patents (SEPs), other than to note that courts thus far have tended to use either a subset of the *Georgia-Pacific* factors for this purpose, or an alternative methodology known as the “top-down” approach. For detailed discussion in other work, see, e.g., Jorge L. Contreras et al., *The Effect of FRAND Commitments on Patent Remedies*, in *COMPLEX PRODUCTS*, *supra* note 1, at 160, 162–63; Norman V. Siebrasse & Thomas F. Cotter, *Judicially-Determined*

As for injunctions, the most significant development over the past fifty years has been the U.S. Supreme Court's 2006 decision in *eBay Inc. v. MercExchange, L.L.C.*<sup>90</sup> In *eBay*, the Supreme Court overturned the Federal Circuit's understanding that courts should award the prevailing patent owner a permanent injunction, absent exceptional circumstances,<sup>91</sup> and instead held that

[a] plaintiff must demonstrate: (1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.<sup>92</sup>

In my experience, few patent practitioners are lukewarm about the *eBay* decision; people tend either to love it or hate it. My own view, expressed at length elsewhere, is that the *eBay* standard is an improvement, principally because it enables courts to reduce the risk that patent owners (especially patent assertion entities and owners of FRAND-committed SEPs) can exercise “holdup” — that is, can use the threat of injunctive relief to extract royalties that reflect not only the ex ante value of the patented technology over alternatives, but also some portion of an implementer's non-redeployable sunk costs (or other differential costs of switching to an alternative technology ex post).<sup>93</sup> Empirical studies thus far also

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*FRAND Royalties*, in *THE CAMBRIDGE HANDBOOK OF TECHNICAL STANDARDIZATION LAW* 365 (Jorge L. Contreras ed., 2018).

<sup>90</sup> *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006).

<sup>91</sup> *See MercExchange, L.L.C. v. eBay, Inc.*, 401 F.3d 1323, 1339 (Fed. Cir. 2005), *rev'd*, 547 U.S. 388 (2006).

<sup>92</sup> *eBay*, 547 U.S. at 391.

<sup>93</sup> For detailed discussion of holdup, see Thomas F. Cotter et al., *Demystifying Patent Holdup*, 76 WASH. & LEE L. REV. 1501 (2019). For my views on the law and economics of injunctions in patent litigation, see Thomas F. Cotter, *On the Economics of Injunctions in Patent Cases*, 11 ZEITSCHRIFT FÜR GEISTIGES EIGENTUM 293 (2019) [hereinafter *On the Economics of Injunctions in Patent Cases*], [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3413225](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3413225) [<https://perma.cc/NN8V-KHFR>].

have not found that *eBay* hindered innovation<sup>94</sup>— if anything, just the opposite<sup>95</sup>— and courts have continued to grant injunctions in the majority of cases to prevailing patent owners who request them.<sup>96</sup>

There are, nevertheless, a few aspects of contemporary practice that could be further improved. First, some opinions treat the four *eBay* factors as elements of cause of action, all of which must be satisfied to merit injunctive relief, rather than (consistent with traditional equitable practice) as relevant factors.<sup>97</sup> More generally, if a principal (economic) purpose of denying injunctive relief in some patent cases is to avoid holdup, it would make sense for courts to consider, explicitly, whether such a risk is actually present, or could have been avoided by ex ante bargaining, rather than to apply the factors in isolation from their underlying economic function. Second, although courts sometimes achieve a sort of intermediate solution by granting injunctive relief subject to a stay—which permits the defendant a period of time to design around, while paying an interim royalty—it may be worthwhile to consider this solution more frequently, insofar

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<sup>94</sup> See Filippo Mezzanotti & Timothy Simcoe, *Patent Policy and American Innovation After eBay: An Empirical Examination*, 48 RSCH. POL'Y 1271 (2019).

<sup>95</sup> See Filippo Mezzanotti, *Roadblock to Innovation: The Role of Patent Litigation in Corporate R&D*, 67 MGMT. SCI. 7362 (2021) (concluding that *eBay* has had a positive impact on R&D spending by established firms).

<sup>96</sup> See GENEVA CLARK, LEX MACHINA, PATENT LITIGATION REPORT 21 (2021); Christopher B. Seaman, *Permanent Injunctions in Patent Litigation After eBay: An Empirical Study*, 101 IOWA L. REV. 1949, 1983 (2016). That said, there may be something of a selection effect, with plaintiffs who don't expect to obtain injunctive relief not bothering to request it. Seaman's research reports, for example, that practicing entities are much more likely to obtain permanent injunctions than are nonpracticing entities (NPEs)—which arguably makes sense, given that practicing entities often have a substantial interest in exclusion, whereas NPEs (ultimately) are interested in licensing. Note, moreover, that the argument one sometimes hears, that denying injunctions and granting ongoing royalties in their place means that the defendant is never any worse off for infringing, ignores the risk such a defendant incurs of being hit with enhanced damages, *see infra* notes 101–108 and accompanying text, as well as prejudgment interest, *see supra* note 35. Nevertheless, courts should consider awarding injunctions when the evidence shows that a defendant has engaged in “holdout” for strategic advantage. *See Cotter et al., supra* note 93, at 1523, 1550–51.

<sup>97</sup> *See Amgen, Inc. v. Sanofi*, 872 F.3d 1367 (Fed. Cir. 2017); *Nichia Corp. v. Everlight Ams., Inc.*, 855 F.3d 1328 (Fed. Cir. 2017).

as it preserves some of the benefits of injunctive relief<sup>98</sup> while reducing the risk of holdup.<sup>99</sup> Third, when U.S. courts deny or stay injunctions and grant some form of ongoing royalty, they often increase the royalty rate above the prejudgment rate, on the theory that it is appropriate to “take into account the change in the parties’ bargaining positions, and the resulting change in economic circumstances, resulting from the determination of liability.”<sup>100</sup> Such increases don’t make a lot of economic sense, however. Given that the trier of fact has already calculated a reasonable royalty that is supposed to replicate the royalty the parties would have negotiated *ex ante knowing the patent to be valid and infringed*,<sup>101</sup> there generally aren’t any changed conditions *ex post* that would necessitate an increase.<sup>102</sup> Moreover, if the economic justification for denying an injunction is to reduce the risk of an excessive royalty negotiated under the threat of injunctive relief, it seems odd to turn around and award that higher royalty *ex post*.<sup>103</sup>

Finally, a word on enhanced damages. Section 284 of the Patent Act permits courts to “increase the damages up to three times the amount found or assessed,”<sup>104</sup> but it specifies no criteria for doing so. Over the decades, courts generally have exercised their discretion to enhance damages only for “willful” (or some other scary-sounding adjective) infringement,<sup>105</sup> though for a period of time the Federal Circuit imposed some additional glosses—initially by requiring “a

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<sup>98</sup> *I.e.*, reducing the potential error costs resulting from judicial royalty setting. See *On the Economics of Injunctions in Patent Cases*, *supra* note 93, at 295–96.

<sup>99</sup> See Norman V. Siebrasse et al., *Injunctive Relief*, in *COMPLEX PRODUCTS*, *supra* note 1, at 133, 155–56.

<sup>100</sup> *ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1343 (Fed. Cir. 2012) (quoting *Amado v. Microsoft Corp.*, 517 F.3d 1353, 1362 (Fed. Cir. 2008)). See also Christopher B. Seaman, *Ongoing Royalties in Patent Cases After eBay: An Empirical Assessment and Proposed Framework*, 23 *TEX. INTELL. PROP. L.J.* 203, 239 (2015) (reporting, based on awards of ongoing royalties from the date of *eBay* through January 2015, that the mean and median postjudgment royalty rates were 1.84 and 1.34 times the mean and median prejudgment royalty rates, respectively).

<sup>101</sup> See *Lucent Technologies*, 580 F.3d at 1325.

<sup>102</sup> Mark A. Lemley, *The Ongoing Confusion Over Ongoing Royalties*, 76 *MO. L. REV.* 695 (2011).

<sup>103</sup> See *Patent Holdup, Patent Remedies, and Antitrust Responses*, *supra* note 37, at 1181–82, 1188 n.172.

<sup>104</sup> 35 U.S.C. § 284.

<sup>105</sup> See *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 579 U.S. 93, 97–100 (2016).

potential infringer [with] actual notice of another's patent rights" to exercise "an affirmative duty to exercise due care to determine whether or not he is infringing,"<sup>106</sup> then later abandoning this requirement and adopting several conditions more favorable to defendants.<sup>107</sup> In 2016, however, the Supreme Court restored the traditional standard that courts have discretion to enhance damages for conduct "variously described in our cases as willful, wanton, malicious, bad-faith, deliberate, consciously wrongful, flagrant, or—indeed—characteristic of a pirate."<sup>108</sup> The Court further held that this standard focuses on the defendant's subjective state of mind at the time of the infringement,<sup>109</sup> and that the plaintiff need only prove willfulness by a preponderance of the evidence.<sup>110</sup> Empirical evidence reveals, not surprisingly, that awards of enhanced damages have increased since *Halo*.<sup>111</sup> Moreover, for the most part courts continue to rely on the *Read v. Portec* factors to determine whether to enhance damages upon a finding of willfulness, and if so by how much.<sup>112</sup>

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<sup>106</sup> *Underwater Devices Inc. v. Morrison-Knudson, Inc.*, 717 F.2d 1380, 1389–90 (Fed. Cir. 1983).

<sup>107</sup> *See Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs.*, 682 F.3d 1003, 1007 (Fed. Cir. 2012) (holding that willfulness is a question of law, subject to de novo review on appeal); *In re Seagate Tech., LLC*, 497 F.3d 1360, 1371 (Fed. Cir. 2007) (en banc) (abandoning the affirmative duty of due care, and holding that (1) "to establish willful infringement, a patentee must show by clear and convincing evidence that the infringer acted despite an objectively high likelihood that its actions constituted infringement of a valid patent," and (2) only if this "threshold objective standard is satisfied" would the court consider the defendant's subjective state of mind); *Knorr-Bremse Systeme fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 383 F.3d 1337, 1347 (Fed. Cir. 2004) (en banc) (eliminating the "adverse inference" from failure to obtain an exculpatory opinion of counsel).

<sup>108</sup> *Halo*, 579 U.S. at 103–04.

<sup>109</sup> *Id.* at 105–06.

<sup>110</sup> *Id.* at 107. Willfulness is therefore a question of fact, though the ultimate decision whether to enhance damages is a matter entrusted to the district court's discretion (and reviewable on appeal for abuse of discretion). *See id.* at 107–08.

<sup>111</sup> *See* Karen E. Sandrik, *An Empirical Study: Willful Infringement & Enhanced Damages in Patent Law After Halo*, 28 MICH. TECH. L. REV. 61, 92–94, 104–05 (2021).

<sup>112</sup> *See id.* at 94. The factors are (1) "whether the infringer deliberately copied the ideas of another"; (2) "whether the infringer, when he knew of the other's patent protection, investigated the scope of the patent and formed a good-

From a purely economic perspective, awards of enhanced damages are justified only under narrow circumstances, specifically when compensatory damages alone would leave the plaintiff worse off than it would have been but for the infringement; or would leave the defendant better off than a willing licensee; or would not achieve adequate deterrence because the infringing act is of a type that often goes undetected, or the defendant deliberately drove up enforcement costs to discourage suit.<sup>113</sup> That said, in practice the accurate application of such an “optimal deterrence” policy would be difficult, if not impossible, to achieve;<sup>114</sup> and perhaps there is something to be said for using damages enhancements to express communal outrage in response to bad behavior.<sup>115</sup> At any rate, the *Halo* standard is probably more consistent with historic practice, and therefore with the intent behind the 1952 Act, than was the Federal Circuit’s 2000s-era case law on enhanced damages. Nevertheless, in coming years the Federal Circuit and/or the Supreme Court may need to provide further guidance on enhancement issues that continue to confound the lower courts, including the questions of whether a showing of “egregiousness,” as distinct from “willfulness,” is a prerequisite to an award of enhanced damages;<sup>116</sup> whether willfulness must be based, exclusively, on conduct

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faith belief that it was invalid or that it was not infringed”; (3) “the infringer’s behavior as a party to the litigation”; (4) the “[d]efendant’s size and financial condition”; (5) the “[c]loseness of the case”; (6) the “[d]uration of the defendant’s misconduct”; (7) “[r]emedial action by the defendant”; (8) the “[d]efendant’s motivation for harm”; and (9) “whether the defendant attempted to conceal its misconduct.” *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 826–27 (Fed. Cir. 1992).

<sup>113</sup> See Chien et al., *supra* note 34, at 97–99.

<sup>114</sup> See *id.* at 100.

<sup>115</sup> See *Halo*, 539 U.S. at 103 (stating that enhanced damages “are not to be meted out in a typical infringement case, but are instead designed as a ‘punitive’ or ‘vindictive’ sanction for egregious infringement behavior”). Interestingly, *Halo* doesn’t expressly mention deterrence at all.

<sup>116</sup> See *Välinge Innovation AB v. Halstead New England Corp.*, No. 16-1082-LPS-CJB, 2018 WL 2411218, at \*6–9 (D. Del. May 29, 2018) (discussing conflicting decisions). The Federal Circuit appears now to have embraced this distinction, see *Eko Brands, LLC v. Adrian Rivera Maynez Enters.*, 946 F.3d 1367, 1378 (Fed. Cir. 2020), though the court’s application of it is sometimes disputed. See Matthew Bultman, *Paying More in Patent Damages a Puzzle Ready for High Court*, BLOOMBERG L. (Apr. 27, 2022), <https://news.bloomberglaw.com/ip-law/paying-more-in-patent-damages-a-puzzle-ready-for-high-court> [<https://perma.cc/X2GZ-LM2L>].

prior to the filing of a complaint;<sup>117</sup> and whether “willful blindness” (or even some lesser state of mind) may render a defendant vulnerable to an award of enhanced damages.<sup>118</sup> The manner in which these issues play out may determine whether the law of enhanced damages eventually moves into the “two steps forward” or the “one step back” category.

## V. CONCLUSION

As discussed above, in many respects the U.S. law of patent remedies has become more economically rational over past fifty years, though the courts’ handling of certain matters could be improved and, in a few instances, the courts or Congress arguably have dropped the ball. Here’s hoping that the next fifty years will solidify the progress that has been made, correct those matters that remain problematic, and successfully address whatever new challenges emerge.

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<sup>117</sup> See *Sonos, Inc. v. Google LLC*, No. C 21-07559 WHA, 2022 WL 799367, at \*1–5 (N.D. Cal. Mar. 16, 2022) (reviewing the conflicting case law).

<sup>118</sup> See Sandrik, *supra* note 111, at 105–07, and sources cited therein.

