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USING APPORTIONMENT TO REIN IN THE *GEORGIA-PACIFIC* FACTORS

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In a dramatic departure from well-established patent damages law, which would confine a reasonable royalty to a *portion* of the profit contributed by the infringed patent, current Federal Circuit precedent permits a reasonable royalty on an even relatively insignificant component to exceed not only the profit attributable to that component, but, in some cases, the entire profit on the product. That precedent ignores the history of the reasonable royalty award, which originated as merely a substitute for an "established" or market rate royalty for the patent. Just as the real-life negotiations leading to an established royalty would result in the licensor and licensee *splitting* the profit attributable to the licensed patent, a reasonable royalty should leave the infringer with a portion of the profit attributable to the patented invention as compensation for its labor, risk, and investment. The Federal Circuit's precedent also ignores long-standing apportionment principles, which, if properly applied, would not permit a patentee to derive a reasonable royalty from the unpatented features of an infringing product. Unbound as they are from their economic and legal foundations, royalty awards have, not surprisingly, become arbitrary and often punitive.

This article argues that to rein in reasonable royalty awards, restore them to their historical role, and ensure that they are consistent with long-standing principles of patent damages law, (i) apportionment should be the *threshold* question in every reasonable royalty analysis, and (ii) only factors relevant to approximating a fair *market* price for the patent should

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be used to determine the "reasonable" royalty. By treating apportionment as a threshold question, courts can ensure that the resulting reasonable royalty award is properly confined to a *portion* of the profit attributable to the patent. By looking only to factors relevant to approximating a fair market price, as opposed to an individually negotiated price, courts can ensure that reasonable royalties stay true to their original purpose and avoid reliance on the more subjective *Georgia-Pacific* factors that give experts so much opportunity for obfuscation. While reasonable people will still be able to disagree about the merits of any particular award, following the steps we describe will ensure that reasonable royalty awards are not punitive, but rather, well-grounded in economic and legal reality.

INTRODUCTION

Application of the venerable *Georgia-Pacific* factors,[2] which for so long have guided courts in the determination of reasonable royalties for patent infringement, has evolved over time to a point where reasonable royalty awards have become completely unmoored from their original purpose of affording the patentee fair compensation under licensing principles for the use of its invention. Specifically, current Federal Circuit precedent allows a patentee to recover the infringer's entire profit or more as a royalty[3] and thereby permits the patentee to extract from the infringer far more than, and perhaps multiples of, what it could have realized in an arm's length negotiation for its patent. In fact, under Federal Circuit precedent, a patentee can recover more than it could recover historically in terms of an infringer's profits and, by comparison, what it could recover as

[2] *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970).

[3] *See, e.g.*, *Monsanto Co. v. Ralph*, 382 F.3d 1374, 1384 (Fed. Cir. 2004) ("[A]lthough an infringer's anticipated profit from use of the patented invention is '[a]mong the factors to be considered in determining' a reasonable royalty, the law does not require that an infringer be permitted to make a profit." (citation omitted)); *State Indus., Inc. v. Mor-Flo Indus., Inc.*, 883 F.2d 1573, 1580 (Fed. Cir. 1989) ("There is no rule that a royalty be no higher than the infringer's net profit margin.").

To appreciate how far things have come, one only needs to consider the historical curiosity that the royalty awarded in the *Georgia-Pacific* decision that set forth the famous factors was overturned on appeal precisely because it did not leave the infringer with a profit. *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 446 F.2d 295, 299 (2d Cir. 1971) ("Thus, although we affirm the other findings, we feel that despite the trial court's professed intention to do so, it did not allow [Georgia Pacific] a reasonable profit after paying the suppositious royalty. *This is a basic error which should be corrected*." (emphasis added)).

lost profits, were it able to make out such a claim.[4] As a result, reasonable royalties have too often become the kind of punitive measure that patent law generally eschews.[5]

How far out of line with well-established patent damages law is the contemporary treatment of reasonable royalties? To understand, it is helpful to first appreciate both (i) apportionment, a fundamental, but often ignored, tenant of patent damages law, and (ii) how reasonable royalties originated.

Apportionment is the requirement that a patentee's recovery be based on the economic value contributed by the patent.[6] Thus, back in the day when a patentee could still recover an infringer's profits,[7] its recovery was limited to the profits attributable to

[4] As will be discussed *infra*, a patentee's right to recover an infringer's profits (when infringer's profits were an available form of recovery) and lost profits has always been circumscribed by principles of apportionment which limit the patentee's recovery to the value contributed by the patent.

[5] *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1223 (Fed. Cir. 1995) ("[T]he purpose of compensatory damages is not to punish the infringer, but to make the patentee whole."). In describing the 1836 change to the Patent Act of 1800, ch. 25, 2 Stat. 37 (repealed 1836), which provided that the infringer would "forfeit and pay to the patentee a sum equal to three times the actual damage sustained by such patentee," *id.* at 38, the Court explained:

> Experience had shown the very great injustice of a horizontal rule equally affecting all cases, without regard to their peculiar merits. The defendant who acted in ignorance or good faith, claiming under a junior patent, was made liable to the same penalty with the wanton and malicious pirate. This rule was manifestly unjust. For there is no good reason why taking a man's property in an invention should be trebly punished, while the measure of damages as to other property is single and actual damages. It is true, where the injury is wanton or malicious, a jury may inflict vindictive or exemplary damages, not to recompense the plaintiff, but to punish the defendant.

Seymour v. McCormick, 57 U.S. 480, 488-89 (1853).

[6] *See generally* Eric E. Bensen, *Apportionment of Lost Profits in Contemporary Patent Damages Cases*, 10 Va. J.L. & Tech 8 (2005).

[7] Historically, infringers' profits were a common form of recovery for patent infringement. *See* Bensen, *supra* note 6, ¶¶ 46-89 (reviewing historical patent damages statutes and apportionment cases that were instrumental in the development of the apportionment doctrine). In 1964, however, the Supreme Court in *Aro Mfg. Co. v. Convertible Top Replacement Co.* construed the patent damages statute to eliminate infringers' profits as a form of recovery. 377 U.S. 476, 506–07 (1964). The Court's holding was plainly dictum, *id.* at 502 ("It is true that the lower courts have not yet expressly addressed themselves to the damages issue, and that the parties have not argued it here."), and joined by only four justices, *id.* at 502 n.18. Yet, lower courts have adhered to the Court's construction. *See, e.g., Nike, Inc. v. Wal-Mart Stores, Inc.*, 138 F.3d 1437, 1442 (Fed. Cir. 1998) ("The Court [in *Aro*] interpreted [the Patent Act's damages provision] as meaning that only the patentee's losses can be recovered, 'without regard to the

the patent.[8] Similarly, when seeking lost profits, a patentee can only recover the portion of its lost profits attributable to the patent.[9] Permitting a patentee to recover a reasonable royalty *greater* than the infringer's profits stands in stark contrast to these bedrock principles of patent damages law.[10]

Reasonable royalties originated as an approximation of an "established" royalty, that is, an approximation of what the licensing fee for the patent would have been had it been regularly licensed by the patentee.[11] It is standard licensing practice for the licensor and licensee to share the profit attributable to the patent so that the licensor gets compensation for the use of the patent and the licensee gets compensation for business risk, labor, and investment,[12] with the *licensee* typically getting the lion's share.[13] No

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question whether the defendant has gained or lost by his unlawful acts,' thus removing the equitable remedy of the infringer's profits from recovery . . . ." (quoting *Aro*, 377 U.S. at 507)).

Notably, in every other major area of intellectual property law, the profits of the infringer/misappropriator *are* recoverable. 17 U.S.C. § 504(a)-(b) (2006) (copyright infringer's profits recoverable to the extent they exceed the copyright holder's damages); 15 U.S.C. § 1117 (2006) (plaintiff in a trademark suit shall be entitled to recover "(1) defendant's profits, (2) any damages sustained by plaintiff, and (3) the costs of the action"); Unif. Trade Secrets Act § 3 (1985) ("Damages can include both the actual loss caused by misappropriation and the unjust enrichment caused by misappropriation that is not taken into account in computing actual loss."). There is no principled reason to preclude the recovery of profits for patent infringement while allowing it for the violation of other intellectual property rights.

Additionally, infringer's profits are recoverable for infringement of intellectual property rights under Article 13 (Damages) of the Directive 2004/48/EC of the European Parliament and of the Council of 29 April 2004 on the Enforcement of Intellectual Property Rights, 2004 O.J. (L 157) 45, which is in the process of being implemented by Member States of the European Union.

[8] *See* Bensen, *supra* note 6, ¶¶ 56-77 (reviewing the cases influential in developing the apportionment doctrine).

[9] *See id.* ¶ 95 (discussing apportionment of the patentee's lost profits).

[10] This is not to say that royalty *rate* cannot be stated as a percent of the selling price of the product.

[11] *See infra* Part I.

[12] Actual license negotiations are, of course, confidential. The principle that the licensor and licensee will share the benefits attributable to the licensed patent is nevertheless reflected in the cases holding that a reasonable royalty will leave the infringer/licensee with a profit. *See Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1122 (S.D.N.Y. 1970) ("[T]he very definition of a reasonable royalty assumes that, after payment, 'the infringer will be left with a profit.' It is necessary to consider, as an element in determining the amount of the reasonable royalty, the fact that GP would be willing hypothetically to pay a royalty which would produce 'a reasonable profit' for GP." (quoting *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 243 F. Supp. 500, 539 (S.D.N.Y. 1965))); *see also Wang Labs., Inc. v. Toshiba Corp.*, 993 F.2d 858, 870 (Fed.

patentee/licensor could maintain an established royalty that exceeded the profit contributed by the patent because there would be no economic incentive for the licensee to use the patent under such terms. Thus, to be "reasonable," a royalty must be limited to a portion of the infringer's profit attributable to the patent.

To rein in the *Georgia-Pacific* factors and to ensure that reasonable royalties are consonant with the principle of apportionment and its intended purpose, the consideration of the 15 factors *en masse*, as is the usual practice, needs to give way to a process where (i) apportionment is determined as a threshold question and (ii) only those factors truly pertinent to the considered question are used. That is, the *first* question in the analysis should be: What portion of the infringer's profit is attributable to the patent?[14] It is *this*

Cir. 1993) ("'A reasonable royalty is the amount that 'a person, desiring to manufacture [, use, or] sell a patented article, as a business proposition, would be willing to pay as a royalty and yet be able to make [, use, or] sell the patented article, in the market, at a reasonable profit.'" (quoting *Trans-World Mfg. Corp. v. Al Nyman & Sons, Inc.*, 750 F.2d 1552, 1568 (Fed. Cir. 1984)) (brackets in original)); *Standard Mfg. Co. v. United States*, 42 Fed. Cl. 748, 759 (1999) ("A reasonable royalty is the amount that a person who desires to manufacture, use, or sell a patented article would be willing to pay as a royalty and yet still be able to make a reasonable profit." (citing *Trans-World Mfg. Corp. v. Al Nyman & Sons, Inc.*, 750 F.2d 1552, 1568 (Fed. Cir. 1984)). *But see supra* note 3 (citing cases in which the Federal Circuit has held that the infringer is not necessarily entitled to be left with a profit).

[13] This principle is reflected in the so-called licensing "rule of thumb," which generally provides that the licensor is entitled to 25–50% of the profit attributable to the patent (or, in some incarnations, 25–50% of the profit on the product). The proper form of the licensing rule of thumb and value of its application are often the subject of debate, but courts have used the rule of thumb to guide their consideration of the *Georgia-Pacific* factors. *See Standard Mfg. Co.*, 42 Fed. Cl. at 766 ("The 25% rule is a shorthand phrase for a method of dividing expected profit between a licensor and licensee. It divides net pretax profit with normally 25% of that profit being paid to the licensor as a reasonable royalty, while 75% is reserved to the licensee as its profit for the risks attendant manufacturing and marketing. Normally, the net profit that is divided is . . . that of the licensee. Sometimes the licensor's net profit rate may be used, however, where the licensee's profit rate is not known." (citing Defendant's brief) (alteration in original)); *Ajinomoto Co., Inc. v. Archer-Daniels-Midland Co.*, No. 95-218-SLR, 1998 WL 151411, at *52 n.46 (D. Del. Mar. 13, 1998) ("[T]he 'licensing rule of thumb' dictates that only one-quarter to one-third of the benefit should go to the owner of the technology . . . ."); *W.L. Gore & Assocs., Inc. v. Int'l Med. Prosthetics Research Assocs., Inc.*, No. CIV 84-559 PHX CLH, 1990 WL 180490, at *23 (D. Ariz. July 9, 1990) ("As a general rule of thumb, a royalty of 25 percent of net profits is used in license negotiations."). In *Standard Manufacturing*, the court started with 25% of the profits as royalty and then determined whether each factor justified an increase or decrease (or no change) in the royalty. *Standard Mfg, Co.*, 42 Fed. Cl. at 776. Other courts have used this principle only in connection with their analysis under *Georgia-Pacific* factor No. 12, *Gargoyles, Inc. v. United States*, 37 Fed. Cl. 95, 108 (1997), or as a "reality check" on the royalty reached under the *Georgia-Pacific* analysis, *Procter & Gamble Co. v. Paragon Trade Brands, Inc.*, 989 F. Supp. 547, 614 (D. Del. 1997).

[14] At the time of the writing of this article, Congress is considering the Patent Reform Act of 2007, S. 1145, 110th Cong. (2007); H.R. 1908, 110th Cong. (2007), which, among other things,

addresses the way reasonable royalties are determined. On September, 7, 2007, the House passed its version of the bill, including Section 5 regarding damages.

SEC. 5. RIGHT OF THE INVENTOR TO OBTAIN DAMAGES.

(a) DAMAGES. Section 284 is amended

(1) in the first paragraph, by striking ''Upon'' and inserting ''(a) IN GENERAL. Upon'';

(2) by designating the second undesignated 20 paragraph as subsection (c);

(3) by inserting after subsection (a) (as designated by paragraph (1) of this subsection) the following:

(b) REASONABLE ROYALTY.

(1) IN GENERAL. An award pursuant to 2 subsection (a) that is based upon a reasonable royalty shall be determined in accordance with this subsection. Based on the facts of the case, the court shall determine whether paragraph (2), (3), or (4) will be used by the court or the jury in calculating a reasonable royalty. The court shall identify the factors that are relevant to the determination of a reasonable royalty under the applicable paragraph, and the court or jury, as the case may be, shall consider only those factors in making the determination.

(2) RELATIONSHIP OF DAMAGES TO CONTRIBUTIONS OVER PRIOR ART. Upon a showing to the satisfaction of the court that a reasonable royalty should be based on a portion of the value of the infringing product or process, the court shall conduct an analysis to ensure that a reasonable royalty under subsection (a) is applied only to that economic value properly attributable to the patent's specific contribution over the prior art. The court shall exclude from the analysis the economic value properly attributable to the prior art, and other features or improvements, whether or not themselves patented, that contribute economic value to the infringing product or process.

(3) ENTIRE MARKET VALUE. Upon a showing to the satisfaction of the court that the patent's specific contribution over the prior art is the predominant basis for market demand for an infringing product or process, damages may be based upon the entire market value of the products or processes involved that satisfy that demand.

(4) OTHER FACTORS. If neither paragraph (2) or (3) is appropriate for determining a reason able royalty, the court may consider, or direct the jury to consider, the terms of any nonexclusive marketplace licensing of the invention, where appropriate, as well as any other relevant factors under applicable law.

(5) COMBINATION INVENTIONS. For purposes of paragraphs (2) and (3), in the case of a combination invention the elements of which are present individually in the prior art, the patentee may show that the contribution over the prior art may include the value of the additional function resulting from the combination, as well as the enhanced value, if any, of some or all of the prior art elements resulting from the combination.

portion that the patentee/licensor and infringer/licensee will divide by way of a royalty. Resolving the apportionment question first ensures that *only* the portion of the profit that is attributable to the patent will be split between the patentee and the infringer.

With respect to the pertinent factors, courts have most often started the royalty analysis by asking, "What would a willing licensor and willing licensee have agreed to?" However, that is the wrong question. A reasonable royalty is intended to approximate an established royalty, that is, a *market* price for the patent; it is not intended to approximate an individually negotiated price reached between the patentee and infringer. The right question is, "Had the patentee regularly licensed the patent, what royalty would it have received from the *market*?" Only a handful of the nonapportionment-related *Georgia-Pacific* factors are pertinent to this question: (i) other licenses for the patent-in-suit, (ii) the effect of any derivative and convoyed sales, (iii) the duration of the patent term, and (iv) customary royalties in the industry.

Part I of this article provides a summary discussion of apportionment including its origins and purposes, the burden of proof for apportionment, and the current state of apportionment law. Part II examines the development of reasonable royalties as a form of recovery for patent infringement and, in particular, the relationship of reasonable royalties to established royalties. Part II also provides an overview of the hypothetical negotiation process currently used to determine reasonable royalties. Part III illustrates how the use of apportionment as a threshold question in the reasonable royalty analysis is consonant with well-established damages law and sound licensing practices and discusses the "market price" concept of a reasonable royalty and the factors pertinent to that approach. The article concludes by arguing that, while not required by current decisional law, using apportionment as a threshold question in the reasonable royalty analysis and then focusing only on those factors pertinent to approximating a patent's *market* price to reach a reasonable royalty would bring the reasonable royalty analysis back into line with historically-rooted principles of patent damages law and prevent punitive damages awards.

H.R. 1908, 110th Cong. (2007). The Senate version under consideration is substantively similar.

Although the methodology for determining reasonable royalties set forth herein is consistent with that set forth in the House and Senate versions of Section 5 of the Patent Reform Act, it is not our intent to address the policy arguments that have been offered in support of or in opposition to Section 5 or to discuss individual damages awards that would underscore the need for reform in this area. Such matters were adroitly addressed by Professor John Thomas in his April 26, 2007 Congressional testimony. *The Patent Reform Act of 2007: Hearing on H.R. 1908 Before the House Subcomm. on Courts, the Internet, and Intellectual Property*, 110th Cong. (2007) (statement of John R. Thomas, Professor of Law, Georgetown University). Our intent is solely to set out the legal underpinnings for the kind of approach to reasonable royalties that Section 5 would require if enacted and, in doing so, illustrate that such an approach, far from being the radical change to the patent laws that some suggest, would be entirely consistent with historical law.

I. A Brief History of Apportionment in the Patent Context

To fully understand the role that apportionment should play in a reasonable royalty analysis, it is helpful to understand apportionment itself, its origins and purpose, the individual rules governing apportionment and the impact of those rules on the burden of proof, and the status of apportionment today.

A. Origins of Apportionment

Apportionment, the requirement that a patentee's recovery be based on the economic contribution of the infringed patent, can be traced back to two cases decided by the Supreme Court in its 1853 term: *Livingston v. Woodworth*,[15] a case in equity, and *Seymour v. McCormick*,[16] a case at law.[17] Strictly speaking, *Livingston* was not an apportionment case, but it provided an important foundation for apportionment. In *Livingston*, the master below had awarded the patentee an amount based on what the infringers *could* have earned "with due diligence and prudence" from their use of the patented invention instead of what they actually earned.[18] The Supreme Court rejected the award holding that, in a suit in equity, the patentee was entitled to recover only the actual gains and profits of the defendant.[19]

In *Seymour*, where the patentee had two patents for improvements to the device at issue, but proceeded to trial on only one of them, the lower court instructed the jury that in calculating damages, it made no difference whether the one patent was for a whole machine or only for an improvement.[20] The Court held this instruction to be in error because it permitted the patentee to recover the same amount for the infringement of one patent as it would have had it proceeded on both patents.[21] The Court explained that, while a patent on an entire device permits the patentee to retain the exclusive right to manufacture and sell the device, thereby justifying an award of the patentee's entire lost profit on lost sales of the device, a patent on an improvement to a device does not give

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[15] *Livingston v. Woodworth,* 56 U.S. 546 (1854).

[16] *Seymour v. McCormick*, 57 U.S. 480 (1854).

[17] Eric E. Bensen, *Apportionment of Lost Profits in Contemporary Patent Damages Cases*, 10 Va. J.L. & Tech 8, ¶ 8 (2005).

[18] *Livingston*, 56 U.S. at 555-56.

[19] *Id.* at 560.

[20] *Seymour*, 57 U.S. at 485-86.

[21] *Id.* at 488.

the patentee such exclusive control over sales.[22] Thus, it was "grave error to instruct a jury 'that as to the measure of damages the same rule is to govern, whether the patent covers an entire machine or an improvement on a machine.'"[23]

In the ensuing 30 years, the Supreme Court revisited apportionment many times,[24] frequently attempting to restate a basic rule. Finally, in 1884 the court in *Garretson v. Clark* held:

> "The patentee . . . must in every case give evidence tending to separate or apportion the defendant's profits and the patentee's damages between the patented feature and the unpatented features, and such evidence must be reliable and tangible, and not conjectural or speculative; or the [sic] must show, by equally reliable and satisfactory evidence, that the profits and damages are to be calculated on the whole machine, for the reason that the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature."[25]

The holding in *Garretson* is considered to be the general rule concerning apportionment.[26]

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[22] *Id.* at 489-90.

[23] *Id.* at 491.

[24] Interestingly, between 1853 and 1915, the Court addressed apportionment more than 35 times, sometimes two or three times in the same year. Eric E. Bensen, *Apportionment of Lost Profits in Contemporary Patent Damages Cases*, 10 Va. J.L. & Tech 8, ¶ 3 (2005). Among the more significant of those Supreme Court decisions are: *Livingston v. Woodworth*, 56 U.S. 546 (1854); *Seymour v. McCormick*, 57 U.S. 480 (1854); *Suffolk Co. v. Hayden*, 70 U.S. 315 (1866); *Mowry v. Whitney*, 81 U.S. 620 (1872); *Philp v. Nock*, 84 U.S. 460 (1873); *Littlefield v. Perry*, 88 U.S. 205 (1875); *Burdell v. Denig*, 92 U.S. 716 (1876); *Birdsall v. Coolidge*, 93 U.S. 64 (1876); *In re Cawood Patent*, 94 U.S. 695 (1877); *Blake v. Robertson*, 94 U.S. 728 (1877); *Elizabeth v. Pavement Co.*, 97 U.S. 126 (1878); *Marsh v. Seymour*, 97 U.S. 348 (1878); *Root v. Railway Co.*, 105 U.S. 189 (1882); *Garretson v. Clark*, 111 U.S. 120 (1884); *Black v. Thorne*, 111 U.S. 122 (1884); *Dobson v. Hartford Carpet Co.*, 114 U.S. 439 (1885); *Yale Lock Manufacturing Co. v. Sargent*, 117 U.S. 536 (1886); *Tilghman v. Proctor*, 125 U.S. 136 (1888); *Hurlbut v. Schillinger*, 130 U.S. 456 (1889); *Rude v. Westcott*, 130 U.S. 152 (1889); *Sessions v. Romadka*, 145 U.S. 29 (1892); *Keystone Manufacturing Co. v. Adams*, 151 U.S. 139 (1894); *Warren v. Keep*, 155 U.S. 265 (1894); *Coupe v. Royer*, 155 U.S. 565 (1895); *Westinghouse Electric & Manufacturing Co. v. Wagner Electric and Manufacturing Co.*, 225 U.S. 604 (1912); and *Dowagiac Manufacturing Co. v. Minnesota Moline Plow Co.*, 235 U.S. 641 (1915).

[25] *Garretson v. Clark*, 111 U.S. 120, 121 (1884) (quoting *Garretson v. Clark*, 10 F. Cas. 40, 44 (C.C.N.D.N.Y. 1878) (No. 5,428)).

[26] *Westinghouse v. N.Y. Air Brake Co.*, 140 F. 545, 549 (2d Cir. 1905) ("The general rule governing recoveries in infringement cases is stated . . . in *Garretson* . . . ."); *Dobson v. Hartford Carpet Co.*, 114 U.S. 439, 445 (1885) (noting that the "true rule" for apportionment was

B. The Purpose Served by Apportionment

In essence, the purpose served by apportionment was to ensure that recoveries for patent infringement were consistent with the general principle that damages are awarded to compensate a specific harm and to put the injured party in the same position it would have occupied had the harm never occurred.[27] A patent gives its holder only the right to prevent others from practicing the patented *invention* – it does not necessarily give the holder a right to prevent anyone from selling any particular *product*.[28] The injury from patent infringement, therefore, is the trespass of the patentee's right to exclude others from practicing the invention. Apportionment generally kept patent damages awards in line with traditional damages principles by focusing the damages inquiry on the value of the *invention* rather than the value of the patented product.

To that end, apportionment more specifically served two purposes unique to patent law: (i) preventing an infringer from having to pay in total more than its total profits on an infringing product where the product incorporated two or more patented inventions, and (ii) preventing the patentee from expanding the scope of its exclusive rights beyond those granted by the patent.[29] With respect to the first purpose, the Supreme Court observed in *Seymour* that, but for apportionment

> [E]ach one who has patented an improvement in any portion of a [machine] may recover the whole profits arising from the skill, labor, material, and capital employed in making the whole machine, and the unfortunate mechanic may be compelled to pay treble his whole profits to each of a dozen or more several inventors of some small improvement in the [machine] he has built.[30]

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formulated in *Garretson*).

[27] *See, e.g.*, 1 Jerome H. Nates et al., Damages in Tort Actions § 1.01 (2007). *Cf., e.g.*, *Mowry*, 81 U.S. at 653 ("The profits which are recoverable against an infringer of a patent are in fact a compensation for the injury the patentee has sustained from the invasion of his right. They are the measure of his damages.").

[28] 35 U.S.C. § 287 (1999).

[29] *See* Bensen, *supra* note 6, ¶¶ 14-20 (discussing the two purposes the courts had in mind in developing the apportionment doctrine).

[30] *Seymour v. McCormick*, 57 U.S. 480, 490 (1854); *see also Dobson v. Hartford Carpet Co.*, 114 U.S. 439, 444 (1885) ("The carpet with the infringing design may be made on an infringing loom, and various infringing processes or mechanisms for carding, spinning, or dyeing may be used in making it, and, if the entire profit in making and selling it is necessarily to be attributed to the pattern, so it may as well, on principle, be attributed to each of the other infringements, and a defendant might be called on to respond many times over for the same amount. There is but one safe rule: to require the actual damages or profits to be established by trustworthy legal proof."); *Garretson v. Clark*, 10 F. Cas. 40, 43-44 (C.C.N.D.N.Y. 1878) (No. 5,428) ("In the case of a

Given that an infringer's profits are not recoverable as such[31] and the sale of one infringing item will, in most circumstances, cause a lost sale to only one competitor, there is little likelihood that the concern about an infringer paying more than its profits on the infringing item over to two different patentees will arise in the profits context alone. The concern addressed in *Seymour*, however, is still valid: where an infringing product infringes several patents, the infringer can easily wind up paying lost profits to one patentee and a reasonable royalty to the others, such that the total payments exceed the combined value contributed by the patents.[32]

Even where the infringing product infringed only one patent, there remained a concern about the patentee attempting to unlawfully expand the scope of its patent.[33]

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machine embodying several patented improvements, in infringement of several patents belonging to several different persons, each patentee would claim that it was his particular patented improvement which caused the machine to dominate the market, and each would claim the profits of the manufacture and sale of the entire machine, and damages based on the same principle.").

The Court provided a more detailed illustration of the rule in *Mowry v. Whitney*:

> If the wheels made by the defendant would have had no market value above that of cast iron had they not been [made by the patented process], the same may be said if they had been cast without a chill. The same principle, therefore, which gives to the complainants the aggregate profits of the entire manufacture would give the same profits to a patentee of the process of chilling, if there were one, and as there are many processes in the manufacture, for each of which it is conceivable there might be a patent, and as every one of the processes is necessary to make a marketable wheel, an infringer might be mulcted in several times the profits he had made from the whole manufacture. We cannot assent to such a rule.

81 U.S. 620, 650-51 (1872).

[31] *See supra* note 7.

[32] For a detailed hypothetical illustrating this scenario, see Bensen, *supra* note 6, ¶ 56 n.209.

[33] The scope of a patent's protection is limited in many respects. One, of course, is time – patents expire. Other limits include the "exhaustion doctrine," which provides that a patentee cannot exercise patent rights in a product after the product has been sold. *Jazz Photo Corp. v. Int'l Trade Comm'n*, 264 F.3d 1094, 1105 (Fed. Cir. 2001) ("The unrestricted sale of a patented article, by or with the authority of the patentee, 'exhausts' the patentee's right to control further sale and use of that article by enforcing the patent under which it was first sold."). Accordingly, under the related "permissible repair doctrine," a patentee cannot use the patent to prevent the purchaser from making reasonable repairs to the patented product. *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 342-43 (1961), *aff'd in part, rev'd in part*, 377 U.S. 476, 484–85 (1964). A patent does not give the patentee the right to control the sales of unpatented items that may be used in connection with the patented item. *See, e.g.*, *Leitch Mfg. Co. v. Barber Co.*, 302 U.S. 458, 463 (1938) (rejecting argument by patentee that a competitor contributorily infringed the patent by selling unpatented raw materials to licensees of the patented method who were required under their licenses to purchase those raw materials from patentee). Thus, for

Apportionment enforces a limit on the patent's scope by limiting a patentee's recovery to the value contributed by the patent, thereby preventing the patentee from recovering damages in connection with the unpatented portions of a product. As the Court explained in *Dowagiac Manufacturing Co. v. Minnesota Moline Plow Co.*:

> [T]he evidence, although showing that the invention was meritorious and materially contributed to the value of the [machines], made it clear that their value was not entirely attributable to the invention, but was due in a substantial degree to the unpatented parts or features. . . .
>
> In so far as the profits from the infringing sales were attributable to the patented improvements they belonged to the plaintiff, and in so far as they were due to other parts or features they belonged to the defendants.[34]

Similarly, a patentee seeking lost profits could not recover lost profits attributable to the unpatented portions of its product.[35]

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example, even though a patentee may expect to make the most of its profits from the sales of unpatented spare parts for the patented product, the patentee has no right to stop competitors from manufacturing and selling those spare parts. *See generally* Eric E. Bensen, *Understanding the Federal Circuit on Patent Damages for Unpatented Spare Parts*, 12 Fed. Cir. B.J. 57 (2002).

[34] 235 U.S. 641, 646 (1915).

[35] *Yale Lock Manufacturing Co. v. Sargent*, 117 U.S. 536, 552-53 (1886), is illustrative of this proposition even though the "unpatented" portion there was "unpatented" in the sense that it was not patented by the patentee, but rather by a third party. As explained in Bensen, *supra* note 6:

> The patent in Yale Lock was for an improvement to, not surprisingly, a lock. Specifically, the patent concerned the use of a turning bolt, instead of a sliding bolt, in a lock. The infringer's lock, in addition to incorporating the turning bolt, also incorporated another component that allegedly infringed the "Rosner Patent," a patent owned by a third party that was suing the defendant in separate action. The master was unable to determine the infringer's profit on its lock and, therefore, was limited to determining the patentee's lost profits, which were in the form of reductions in price the patentee undertook in order to compete with the infringing locks. The master, however, proportionately reduced the patentee's lost profits by the value of the Rosner Patent, which the patentee conceded accounted for one-third of the defendant's profit on its lock. The Supreme Court affirmed the master's apportionment of the patentee's lost profits.

Id. ¶ 95 (footnotes omitted).

C. The Burden of Proof for Apportionment[36]

Generally, the burden of establishing the existence and extent of damages rests with the person seeking those damages.[37] It was (and continues to be) no different in the patent context: the patentee had the burden of proof on damages and, therefore, has always had the burden of apportioning profits to the economic value contributed by the patented invention. However, the patentee's burden was not the subject of a singular rule, but rather, a *series* of rules that varied depending on the type of infringement, *i.e.*, whether the infringement was by manufacture and sale or by use, and the type of invention, *i.e.*, whether it was an entire device or process or an improvement to an existing device or process. The impact of those factors on the patentee's burden is described below.

To understand the individual apportionment rules, however, it is helpful to further discuss the historical legal framework against which they were developed and how that framework impacted the nature of the cases available to illustrate apportionment. After 1819, when federal courts were given original jurisdiction in equity and at law over cases arising under the patent laws, a patentee could bring either an infringement action at law to recover damages, or it could bring an action in equity to obtain injunctive relief.[38] By the 1850s, when the Supreme Court first addressed apportionment,[39] courts in equity, to permit patentees to recover a monetary award without having to resort to a second action at law, had begun awarding to patentees the infringer's wrongful gains from the infringement using an analogy to trustees who wrongfully used trust property for their benefit.[40] Thus, in that time period, patentees could seek damages in a suit at law or the infringer's profits in a suit in equity.

However, the patent damages statute was changed in 1870 to provide that, in equity, a patentee could recover *both* the infringer's profits *and* its damages to the extent

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[36] For a comprehensive guide to apportionment of *lost profits*, see Bensen, *supra* note 6, ¶¶ 56-96, which details the current state of apportionment, provides a succinct statement of the apportionment rules for modern cases, refutes authorities that suggest apportionment is no longer required, and analyzes the individual cases and statutes from which the apportionment rules were derived.

[37] 1 Jenner & Block, Federal Litigation Guide § 43.16 (2007).

[38] *Root v. Railway Co.*, 105 U.S. 189, 206-07 (1882).

[39] *See infra* Part III.A.

[40] *Tilghman v. Proctor*, 125 U.S. 136, 148 (1888) ("[A] court of equity, which has acquired, upon some equitable ground, jurisdiction of a suit for the infringement of a patent, will not send the plaintiff to a court of law to recover damages, but will itself administer full relief, by awarding, as an equivalent or a substitute for legal damages, a compensation computed and measured by the same rule that courts of equity apply to the case of a trustee who has wrongfully used the trust property for his own advantage.").

they exceeded the infringer's profits.[41] Thus, after 1870, a patentee could obtain (i) injunctive relief, (ii) the infringer's profits and (iii) its damages to the extent they exceeded the infringer's profits in a suit in equity, but only damages at law. Not surprisingly, most infringement suits brought after 1870 were brought in equity.[42]

It was also after 1870 that the Supreme Court handed down a vast majority of the decisions that were critical to defining apportionment law.[43] Thus, most of the Court's decisions on apportionment were in suits that arose in equity where an infringer's profits, which are no longer recoverable as such,[44] were sought. On the other side of the coin, contemporary infringement cases, where damages are the sole form of monetary recovery very rarely, for reasons discussed below, address apportionment.[45] Thus, while apportionment continues to be applicable to the recovery of damages for patent infringement,[46] it is nonetheless inescapable that the most illustrative apportionment cases available address the recovery of infringer's profits.

There is virtually no question, however, that the apportionment rules developed in those cases were equally applicable to the recovery of damages at law. Although cases arising in equity were the vast majority, there were apportionment cases decided at law[47] and there is no indication in those cases that apportionment applied differently in law than it did in equity. In fact, in post-1870 cases in equity where both profits and damages

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[41] Some years later, the Supreme Court summarized the post-1870 state of the law:

> In equity, the complainant is entitled to recover such gains and profits as have been made by the infringer from the unlawful use of the invention; and since the act of July 8, 1870, in cases where the injury sustained by the infringement is plainly greater than the aggregate of what was made by the defendant, the complainant is entitled to recover the damages he has sustained in addition to the profits received. At law, the plaintiff is entitled to recover, as damages, compensation for the pecuniary loss he has suffered from the infringement, without regard to the question whether the defendant has gained or lost by his unlawful acts; the measure of recovery in such cases being, not what the defendant has gained, but what plaintiff has lost.

Coupe v. Royer, 155 U.S. 565, 582 (1895).

[42] *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1567 (Fed. Cir. 1995) (en banc) (Nies, J., dissenting) (noting that, after the 1870 Amendment, jury trials "virtually disappeared" in patent cases), *rev'd*, 520 U.S. 17 (1997).

[43] *See supra* note 24.

[44] *See* Bensen, *supra* note 6.

[45] *See id.*

[46] *Id.*

[47] *Yale Lock Mfg. Co. v. Sargent*, 117 U.S. 536, 552-53 (1886); *Blake v. Robertson*, 94 U.S. 728, 733 (1877); *Philp v. Nock*, 84 U.S. 460, 461 (1873); *Seymour v. McCormick*, 57 U.S. 480, 486 (1854).

were sought, there is no indication that courts applied apportionment any differently to the two forms of recovery.[48] The general apportionment rule set forth in *Garretson*, of course, expressly applied to both damages and infringer's profits.[49]

To simplify matters as much as possible, therefore, the discussion below of the apportionment rules is largely presented in the context of the infringer's profits (and, where applicable, nominal damages, even though nominal damages have been supplanted in modern law by reasonable royalties). It should be understood, however, that, as will be further developed, the apportionment rules, although discussed primarily in the infringer's profits context, are equally applicable to damages for patent infringement.

1. *Infringement By Manufacture and Sale*

i. *Entire Device Patent*

Where an infringer manufactures and sells a device patented in its entirety, the entire profit on the device was presumed to be attributable to the patent, thus entitling the patentee to recover the entire profit on the device.[50] As long as the disclosed invention was separately marketable, a patent could, for apportionment purposes, be for an "entire" device even where the disclosed invention was commonly viewed as a component of a

[48] *Westinghouse v. N.Y. Air Brake Co.*, 140 F. 545, 550, 552 (2d Cir. 1905) (directing award of nominal damages where patentee failed to apportion either its lost profits or the infringer's profits).

[49] *Garretson v. Clark*, 111 U.S. 120, 121 (1884) ("The patentee . . . must in every case give evidence tending to separate or apportion the *defendant's profits and the patentee's damages* between the patented feature and the unpatented features . . . ." (emphasis added)).

[50] *See, e.g.*, *Warren v. Keep*, 155 U.S. 265, 268 (1894) ("[W]here the patented invention is for a new article of manufacture, which is sold separately, the patentee is entitled to damages arising from the manufacture and sale of the entire article."); *Elizabeth v. Pavement Co.*, 97 U.S. 126 (1878). The product at issue in Elizabeth was a "new and improved wooden pavement." *Id.* at 127-29. The defendant argued that because the patented pavement represented only a small improvement over other available pavements, it should be liable for only a small portion of its profit. *Id*. at 139-41. The Court rejected the defendant's argument on the ground that the patentee's pavement was not an existing pavement with a patented improvement, but rather, "a complete combination in itself" like a "new chemical compound," and therefore, the patentee was entitled to recover the infringer's entire profit. *Id*. at 141-42.

While a patentee of an entire device would still be entitled to recover its entire lost profit on the device, it is questionable, especially in technological fields, how much utility the "entire device" portion of the apportionment rules has today given the multitude of patents that typically cover a single product.

larger product.[51] The logic behind awarding the patentee the entire profit on the patented device, as explained by the Court in *Seymour v. McCormick*, was that, in contrast to where a patent discloses only an improvement to an existing device, where the patentee discloses an entire device, the patentee can choose to retain the exclusive right to manufacture and sell the device at its own price.[52]

If the defendant added an improvement to the patentee's device, the defendant had the initial burden of showing that the improvement contributed to the profitability of the infringing product.[53] If the defendant did not meet this burden, there was no apportionment—the plaintiff was entitled to the entire profit on the patented product.[54] If the defendant met that burden, the apportionment process was not over—the burden was on the patentee to show what portion of the profit on the defendant's product was attributable to the patented invention and what portion was attributable to the

[51] *Warren*, 155 U.S. at 266-70 (patent disclosed grate for ordinary stove; because "every feature" of the grate was patented and the grates were an "independent marketable article," patentee was entitled to the defendant's entire profit on sales of infringing grates).

[52] *Seymour v. McCormick*, 57 U.S. 480, 488 (1854); *see also Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1132 (S.D.N.Y. 1970) ("This case does not permit application of the principle of apportionment inasmuch as the Deskey patent was not one for an improvement on an article nor was [Georgia Pacific's] infringement of a patented feature sold together with unpatented parts. Decisions illustrating the rule applicable to patented improvements or to patented parts of articles also embodying unpatented parts are not apposite for the reason that the Deskey patent covered and Weldtex represented a marketable article—a panel of striated fir plywood—as an entirety.").

[53] *Elizabeth v. Pavement Co.*, 97 U.S. 126, 141 (1878).

[54] *See, e.g.*, *Morss v. Union Form Co.*, 39 F. 468, 472-73 (C.C.D. Conn. 1889). The patent at issue in *Morss* was for an adjustable dress form. *Id.* at 469. The defendant's version included the patented features, but added an "improvement": a simple device for operating the expansion mechanism. *Id.* Because the patent was for an entire device, the burden fell on the defendant to show that some portion of its profits were attributable to the "improvement." *Elizabeth*, 97 U.S. at 141. The device added by the defendant improved the operation of the form, but any additional profits attributable to the device were outweighed by the additional costs associated with it. 39 F. at 469-70. Accordingly, the defendant had to pay its entire profit over to the patentee. *Id.* at 472-73.

improvement.[55] If the patentee failed to meet this burden, the patentee was only entitled to nominal damages.[56]

Although it appears that the Supreme Court has not directly addressed the issue, it stands to reason that (i) the patentee had the burden of showing that patent covers an entire device and (ii) the patentee's choice of particular claim language would not be dispositive of the issue. That the burden showing that patent covers an entire device rested with the plaintiff should be self-evident: the burden of establishing a right to recover damages rested with the patentee and if it wanted 100% of the profits, it had to show that it was so entitled.

That a patentee's choice of claim language should not have governed can be easily illustrated. Assume for the moment that a patentee invented grates for an ordinary stove that improved the stove.[57] Instead of simply claiming the grates, however, the patentee claimed as the invention an improved *stove*, the improvement being the addition of the grate. Arguably, the patent would have been for an entire device—a stove with grates. However, affording the patentee a presumption that it was entitled to 100% of the profits on the infringing product would have flown in the face of the rationale of *Seymour* because the patentee obviously could not have controlled the sales of stoves generally.[58] For apportionment purposes, therefore, notwithstanding the fact that the claim language superficially claimed an entire device, the patent would have been properly viewed as a patent for an improvement to a stove or, if viewed as a patent for an entire device, a patent for the grate. Either way, as a practical matter, the patentee would have had the burden of showing the profit attributable to the *grate*. Put another way, regardless of the patentee's choice of claim language, the patentee had the burden of showing the profit attributable to the patented improvement over the prior art.

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[55] *Westinghouse Elec. & Mfr. Co. v. Wagner Elec. & Mfg. Co.*, 225 U.S. 604, 617 (1912) ("[I]f it be assumed . . . that the spaces [added by the defendant] were non-infringing and valuable improvements, it may then have prima facie appeared that these changes had contributed to the profits. If so, the burden of apportionment was then logically on the plaintiff, since it was only entitled to recover such part of the commingled profits as was attributable to the use of its invention.").

[56] *Morss*, 39 F. 468. In *Morss*, the court found that the infringer's added improvements to a second infringing product—a full-figure form—added value to the device and the burden shifted to the patentee to apportion the profit. *Id.* at 470. However, as the plaintiff provided no evidence that would permit the court to separate the profits attributable to the patented device from the improvement, the plaintiff was only entitled to nominal damages. *Id.*

[57] This was the invention at issue in *Warren v. Keep*, 155 U.S. 265, 266 (1894).

[58] The Court did not address this specific issue in *Warren* because the patent was in fact for just the grate. 155 U.S. at 266; U.S. Patent No. 139,583 (filed Apr. 4, 1873).

ii. *Improvement/Component Patent*

Where an infringer manufactures and sells a device containing a patented improvement or component, the patentee had the initial burden of apportioning the value of the product to the patented improvement or component.[59] Typically, the patentee would accomplish this by comparing the profits on the product containing the patented improvement to the same or comparable product that did not include the improvement.[60] On occasion, patentees would take a more creative approach, such as arguing for a "pro rata" apportionment.[61] A patentee who failed to meet its burden of apportionment would be entitled to only nominal damages.[62]

iii. *Entire Market Value Rule*

Where the patent was for an improvement or component, patentees could satisfy their apportionment burden by showing that the entire market value of the infringing product was attributable to the patented invention.[63] It was not sufficient for the patentee to show that the product with the patented improvement displaced unimproved versions of the product in the market. The problem with so construing the rule was illustrated by

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[59] *Garretson v. Clark*, 111 U.S. 120, 121 (1884).

[60] *See, e.g.*, *Metallic Rubber Tire Co. v. Hartford Rubber Works Co.*, 275 F. 315, 322-23 (2d Cir. 1921). The patent in *Metallic Rubber Tire Co*. concerned an improved tire tread. *Id.* at 317. The defendant manufactured both an infringing tire with the improved tread and the same tire without the tread. *Id.* at 322-23. Using the difference in the defendant's profits on the two tires, the patentee was able to show (and recover) the amount of the defendant's profits that were attributable to the invention. *Id.*

[61] *See, e.g.*, *Herman v. Youngstown Car Mfg. Co.*, 216 F. 604, 607 (6th Cir. 1914). The patent at issue in *Herman* concerned an improved lamp-controlling means for a blueprint making structure. *Id.* at 607. Defendant had no data concerning the amount of profits attributable to the patented component, but suggested that the product could be divided into four components and that damages could be apportioned to the patented component accordingly. *Id.* The court thought that the defendant's approach was arbitrary, but reasonable, although it concluded that there were only two component parts and awarded one half of defendant's profits to the patentee. *Id.* at 609.

Such attempts at "pro rata" apportionment did not always meet with success. *See, e.g.*, *Calkins v. Bertrand*, 8 F. 755, 759-60 (C.C.N.D. Ill. 1881) (rejecting plaintiff's attempt to apportion defendant's profits using a "pro rata" method and awarding nominal damages).

[62] *Westinghouse v. N.Y. Air Brake Co.*, 140 F. 545, 552 (2d Cir. 1905).

[63] *Garretson*, 111 U.S. at 121 (holding that patentee must apportion defendant's profits "between the patented feature and the unpatented features . . . or they must show . . . that the profits and damages are to be calculated on the whole machine, for the reason that the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature" (quoting *Garretson v. Clark*, 10 F. Cas. 40, 44 (C.C.N.D.N.Y. 1878) (No. 5,428)).

the lower court in the case that subsequently became *Mowry v. Whitney*,[64] a significant apportionment decision:

> Suppose, in further illustration of this view of the subject, it be a railroad car, the cost of which is thousands of dollars, and some little invention is made in regard to the interior structure of the car, or in its ornamentation, which is patentable under the act of 1861; yet the slight, the simple thing is such as to strike the public taste and judgment, and have such an effect in the commercial world that nobody will buy the article without that invention; yet it would seem to be a pretty hard measure of justice in a court of equity, to say that the entire profits made on that large article should go into the pockets of the inventor and patentee of this small thing, which had been used without license or authority in connection with it.[65]

Properly applied, the entire market value rule required showing that the improvement permitted the product to be sold in a market in which it could not have otherwise been sold such that the entire market value of the product could truly be said to be attributable to the patented improvement.[66]

2. *Infringement By Use*

As in infringement by manufacture and sale cases, where infringement was by use, the patentee had the burden of establishing the benefit attributable to the patent. However, whereas in infringement by manufacture and sale cases, the "benefit" was usually the profit attributable to the invention; in infringement by use cases, the "benefit" was typically the cost savings attributable to the use of the patented invention.[67]

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[64] 81 U.S. 620, 650-51 (1871) (refusing to hold that an infringer could owe many times the amount of profit where the invention infringed was one of many improvements that contributed to the product's success).

[65] *Whitney v. Mowry*, 29 F. Cas. 1102, 1104 (S.D. Ohio 1868) (No. 17,593).

[66] *Manufacturing Co. v. Cowing*, 105 U.S. 253, 254 (1881). The patent at issue in *Cowing* was for an improvement to a gas pump. *Id.* Significantly, the improved gas pump could be sold in markets where an unimproved version for the pump could not have been sold. *Id.* at 256. Accordingly, because the entire market value of the pump was attributable to the improvement, the patentee was entitled to recover the defendant's entire profit on its sales of infringing pumps. *Id.*

[67] *See, e.g.*, *Columbia Wire Co. v. Kokomo Steel & Wire Co.*, 194 F. 108, 109 (7th Cir. 1911) ("[A]n infringer is only to pay for the advantages of the patented machine over machines that were open to his use at the time of the unlawful appropriation . . . ."); *Williams v. Rome, Watertown & Ogdensburgh R.R. Co.*, 2 F. 702, 704-06 (C.C.N.D.N.Y. 1880) (awarding infringer's profits measured by the cost savings the infringer enjoyed from using an infringing locomotive lamp that could burn kerosene instead of more expensive oils).

Typically, the patentee would show that the infringer's use of the patented process reduced the infringer's costs.[68] The same principle also applied in situations where the benefit from using the patent was merely to reduce losses.[69] In addition, the principle of "benefit" by cost savings applied where the patentee, rather than using a patented process, used a patented *device* in its product to reduce manufacturing costs.[70] A patentee who failed to establish that the infringer enjoyed some cost savings from use of the patented device or process was only entitled to nominal damages.[71]

3. *Nominal Damages/Reasonable Royalty*

As noted in the preceding sections, a patentee that failed to meets its burden with respect to apportionment would have, historically, received only nominal damages. Under current law, however, a patentee is entitled to at least a reasonable royalty.[72] *Query*: What happens under modern law if the patentee fails to meet its burden of proof with respect to damages? The question rarely arises in case law. Typically, each side in an infringement action will submit a report from an expert. The patentee's expert will opine that every penny the infringer ever made was due to the patent. The infringer's expert will opine that since the infringer did not really need the patent anyway a

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[68] *See, e.g.*, *Tilghman v. Proctor*, 125 U.S. 136 (1888). The patent at issue in *Tilghman* disclosed a process for manufacturing fatty acids and glycerine from fatty bodies. *Id.* at 137. Rather than looking to a portion of the profit margin on the sale of the product produced by the process, the Court upheld the master's determination that the patentee could recover the cost savings the defendant enjoyed from its use of the patented process. *Id.* at 159-60.

[69] *In re Cawood Patent*, 94 U.S. 695, 710 (1877) ("If [the defendant's] general business was unprofitable, it was the less so in consequence of their use of the plaintiff's property. They gained, therefore, to the extent that they saved themselves from loss.").

[70] *See, e.g.*, *Sessions v. Romadka*, 145 U.S. 29 (1892). The patent at issue in *Sessions* disclosed a fastener for securing trunk lids. *Id.* at 31. The fastener was an "inconsiderable" part of the overall trunk's value, but using the fastener instead of straps and dowels, which was common at the time, reduced the manufacturing costs of the trunk. *Id.* at 44-45. The proper measure of recovery was the cost savings the defendant enjoyed from the "use" of the patented invention instead of the commonly used strap and dowels. *Id.* at 48.

[71] *See, e.g.*, *Black v. Thorne,* 111 U.S. 122, 124 (1884) ("If other methods in common use produce the same results, with equal facility and cost, the use of the patented invention cannot add to the gains of the infringer, or impair the just rewards of the inventor. The inventor may indeed prohibit the use, or exact a license fee for it, and if such license fee has been generally paid, its amount may be taken as the criterion of damage to him when his rights are infringed. In the absence of such criterion, the damages must necessarily be nominal.").

[72] 35 U.S.C. § 284 (2006) ("Upon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer . . . .").

reasonable royalty would be a flat fee somewhere in the neighborhood of pocket change. The fact-finder will likely then split the difference. Because of the deference given on appeal to the fact-finder on reasonable royalty determinations,[73] the award is typically upheld. However, although uncommon, a patentee can be denied even a reasonable royalty where it completely fails to meet its burden with respect to damages.[74] In such cases the "reasonable" royalty is essentially 0%.

D. The Current State of Apportionment Law

The current state of apportionment law is peculiar because despite its long history and central role in patent damages law, contemporary cases rarely address apportionment. This state of affairs results largely from four factors. First, apportionment rules were developed against a legal backdrop very different than today's. As a result, it is not readily apparent how a vast majority of apportionment cases would apply in modern patent cases. Second, a single, but unduly influential, contemporary district court case, *W. L. Gore & Assocs., Inc. v. Carlisle Corp.,* incorrectly – in an alternative holding no less – concluded that apportionment did not apply where lost profits were sought.[75] Third, the Federal Circuit's decision in *Rite-Hite Corp. v. Kelley Co.* has been misinterpreted to hold that the recovery of patent damages requires a simple "but for" test limited only by foreseeability. This interpretation is inconsistent with the limitations

[73] *Monsanto Co. v. Ralph*, 382 F.3d 1374, 1383 (Fed. Cir. 2004) ("The jury's award of damages is entitled to deference. Specifically, the jury's damages award 'must be upheld unless the amount is grossly excessive or monstrous, clearly not supported by the evidence, or based only on speculation or guesswork.'" (quoting *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1580 (Fed. Cir. 1992))).

[74] *See, e.g.*, *Minco, Inc. v. Combustion Eng'g, Inc.*, 95 F.3d 1109, 1121 (Fed. Cir. 1996) ("Viewed another way, the trial court determined that, under a hypothetical royalty negotiation in 1986, [the defendant] might have paid a high royalty to Minco for its use of the kilns in exchange for Minco's agreement to receive no additional royalty should [the defendant] sell its business."); *Devex Corp. v. Gen. Motors Corp.*, 667 F.2d 347, 362-63 (3d Cir. 1981) (no royalty award for infringement of a method patent where patentee failed to provide a reasonable basis of comparison); *see also Lindemann Maschinenfabrik GmbH v. Am. Hoist & Derrick Co.*, 895 F.2d 1403, 1407 (Fed. Cir. 1990) ("As above indicated, the statute obviates the need to show the fact of damage when infringement is admitted or proven, but that does not mean that a patentee who puts on little or no satisfactory evidence of a reasonable royalty can successfully appeal on the ground that the amount awarded by the court is not 'reasonable' and therefore contravenes section 284.").

[75] 198 U.S.P.Q. 353, 364 (D. Del. 1978). The court's holding was premised on its conclusion that apportionment was only required where infringer's profits were being sought and was thus not applicable to the patentee's claim for lost profits, 198 U.S.P.Q. at 365. As discussed *infra* Part III.A, this limited use of apportionment simply should not be the case. For a more thorough analysis of this decision, see Bensen, *supra* note 6, ¶¶ 25-29.

prescribed by apportionment.[76] Lastly, the Federal Circuit's approval of reasonable royalties in excess of an infringer's profits, although not given in the apportionment context, would appear to preclude the application of apportionment principles.[77] A detailed discussion of the current status of apportionment is beyond the scope of this article.[78] Suffice it to say that the wealth of Supreme Court precedent requiring apportionment has not been overturned and the very notion of apportionment is implicitly required by the plain language of the patent damages statute, which permits recovery for unlawful use of the patentee's *invention* and not the unlawful sale of a *product*.[79]

II. Reasonable Royalties for Patent Infringement

A. History of Reasonable Royalties as a Form of Recovery for Patent Infringement

To understand the role of a reasonable royalty in the patent damages context, it will be helpful to first understand the role that "established" royalties have played historically. The second patent statute,[80] passed in 1793, provided that "[T]he infringer should forfeit and pay to the patentee a sum equal to three times the price for which the patentee has usually sold or licensed to other persons the use of said invention."[81] This proved problematic for patentees who chose to practice their invention exclusively rather than to license it. Thus, in 1800, the statute was changed again to provide that the

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[76] *See, e.g.*, *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1546 ("If a particular injury was or should have been reasonably foreseeable by an infringing competitor in the relevant market, broadly defined, that injury is generally compensable absent a persuasive reason to the contrary.").

Rite-Hite should not be read as broadly as the quoted language would suggest and certainly should not be read as a rejection of apportionment. *See* Bensen, *supra* note, 6 ¶¶ 30-44 (noting that although apportionment was addressed in the parties' briefs, the Federal Circuit at no point addressed apportionment in that decision or in later cases; the Federal Circuit has slowly migrated towards apportionment principles).

[77] *See supra* note 3.

[78] A detailed discussion of the current status of apportionment is provided in Eric E. Bensen, *Apportionment of Lost Profits in Contemporary Patent Damages Cases*, 10 Va. J.L. & Tech 8 (2005).

[79] 35 U.S.C. § 284 (2006).

[80] Congress passed the first patent act in 1790, Patent Act of 1790, ch. 7, 1 Stat. 109, 111, which provided that an infringer would "forfeit and pay to the patentee such damages as should be assessed by a jury" and "forfeit to the person aggrieved the infringing machine." *Seymour v. McCormick*, 57 U.S. 480, 488 (1853).

[81] *Seymour*, 57 U.S. at 488; Patent Act of 1793, ch. 11, 1 Stat. 318, 322 (repealed 1836).

infringer would "forfeit and pay to the patentee a sum equal to three times the actual damage sustained by such patentee."[82]

However, established royalties for the patented invention continued to be considered the "primary and true criterion of damages in the action at law."[83] This was because an established royalty was a measure of the of the patent's market value.[84] The damage to the patentee from infringement was essentially the loss of that value.[85]

Notwithstanding their role as the "true criteria of damages," established royalties tended to be difficult to prove. In 1889, the Supreme Court articulated the applicable standard:

> In order that a royalty may be accepted as a measure of damages against an infringer, who is a stranger to the license establishing it, it must be paid or secured before the infringement complained of; it must be paid by such a number of persons as to indicate a general acquiescence in its reasonableness by those who have occasion to use the invention; and it must be uniform at the places where the licenses are issued.[86]

Not surprisingly, established royalties were not frequently awarded.[87]

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[82] *Seymour*, 57 U.S. at 488; Patent Act of 1800, ch. 25, 2 Stat. 37, 38 (repealed 1836).

[83] *Burdell v. Denig*, 92 U.S. 716, 720 (1876); *see also Mobil Oil Corp. v. Amoco Chem. Corp.*, 915 F. Supp. 1333, 1342 (D. Del. 1994) (citing cases).

[84] *U.S. Frumentum Co. v. Lauhoff*, 216 F. 610, 615 (6th Cir. 1914) ("From *Seymour v. McCormick*, it appears that the use of a license fee as the measure of damages in a patent case is only adopting the ordinary rule of market value universally applied as to other property; and, though this thought is not often repeated, it remains the logical basis for this first, 'primary' criterion of damages." (citation omitted)).

[85] *Dowagiac Mfg. Co. v. Minn. Moline Plow Co.*, 235 U.S. 641, 648 (1915) ("As the exclusive right conferred by the patent was property and the infringement was a tortious taking of a part of that property, the normal measure of damages was the value of what was taken. So, had the plaintiff pursued a course of granting licenses to others to deal in articles embodying the invention, the established royalty could have been proved as indicative of the value of what was taken, and therefore as affording a basis for measuring the damages.").

[86] *Rude v. Wescott*, 130 U.S. 152, 165 (1889). The standard remains essentially the same today as in *Mobil Oil Corp.*, 915 F. Supp. 1333, 1342 (D. Del. 1994) ("In order for a patentee's negotiated royalties to constitute an 'established' royalty they must meet five criteria: (1) they must be paid or secured before the infringement began; (2) they must be paid by a sufficient number of persons to indicate the reasonableness of the rate; (3) they must be uniform in amount; (4) they must not have been paid under threat of suit or in settlement of litigation; and (5) they must be for comparable rights or activity under the patent.").

[87] *Mobil Oil Corp.*, 915 F. Supp. at 1342 ("Because of these stringent criteria, few courts have actually found an established royalty.").

In 1866, in *Suffolk Co. v. Hayden*, a case that was well before its time, the Supreme Court approved an award of what would later be commonly referred to as a "reasonable royalty."[88] There, because the patentee had no evidence of an established royalty, the lower court permitted the patentee to present to the jury "general evidence" of the patent's value.[89] Specifically, the Court permitted the patentee to present evidence concerning "the utility and advantage of the invention over the old modes or devices that had been used for working out similar results."[90] The Court, affirming the decision below,[91] approved the use of evidence that would approximate an established royalty, *i.e.*, evidence of a "reasonable royalty" as that term is currently understood. The Court even appeared to *require* such evidence where evidence of an established royalty was not available.

Suffolk Co. was "ahead of its time" because it would be nearly half a century before the issue of whether a reasonable royalty was an available form of relief for patent infringement was finally resolved. This may sound surprising given the Supreme Court's apparent endorsement of a reasonable royalty in *Suffolk Co.*, but there was in fact a delay in the acceptance of a reasonable royalty, largely due to two factors. First, because royalties, established or reasonable, were a form of damages, they were available only in a suit at law.[92] At the time *Suffolk Co.* was decided, patent suits could be brought either in a suit at law, where the patentee could obtain damages, but not an injunction, or in equity, where it could obtain an injunction but not damages, although courts in equity by this time could award the infringer's profits.[93] Just a few years after *Suffolk Co.* was decided, however, the patent statute, as discussed above, was changed to provide that a patentee could receive damages in a suit at equity to the extent they were "plainly" exceeded by the infringer's profits,[94] making courts of equity the preferred choice for patentees. The availability of damages in equity did not make damages a central feature

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[88] *Suffolk Co. v. Hayden*, 70 U.S. 315, 320 (1866).

[89] *Hayden v. Suffolk Mfg. Co.*, 11 F. Cas. 900, 907-08 (C.C.D. Mass. 1862); *see Hayden*, 70 U.S. at 320 ("There being no established patent or license fee in the case, in order to get at a fair measure of damages, or even an approximation to it, general evidence must necessarily be resorted to.").

[90] *Hayden*, 70 U.S. at 320. The reader may recognize the quoted language as *Georgia-Pacific* Factor No. 9. *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970).

[91] *Hayden*, 70 U.S. at 320.

[92] *See* Eric E. Bensen, *Apportionment of Lost Profits in Contemporary Patent Damages Cases*, 10 Va. J.L. & Tech 8, ¶ 48; *see also Burdell v. Denig*, 92 U.S. 716, 720 (1876) (royalties charged on licenses of the patent to other parties consider the "primary and true criterion of damages in an action at law").

[93] *See id.* ¶¶ 48-49.

[94] *See id.* ¶ 50 (quoting *Birdsall v. Coolidge*, 93 U.S. 64, 69 (1876)).

in suits in equity,[95] however, because damages were only recoverable to the extent they exceeded the infringer's profits, which, had to be proven as an initial matter.[96] Accordingly, there were few cases in which the reasonable royalty theory of recovery could be further developed.

The other factor was the 1895 Supreme Court decision in *Coupe v. Royer*.[97] The patented invention in *Coupe* was a machine that converted raw hides into leather.[98] The only evidence presented by the patentee regarding damages was that the defendant had treated 66,000 hides and that, according to the testimony of one of the plaintiffs, using the patented machine would result in a savings of four or five dollars a hide.[99] The lower court instructed the jury that, if it credited the plaintiff's testimony and found infringement, it could award damages based on the cost savings provided by use of the patented invention.[100]

In the Supreme Court's view, the lower court's jury instruction "overlooked the established law on the subject."[101] The Court viewed the plaintiff's recovery of the savings that the defendant enjoyed from the use of the patented machine as a recovery of the defendant's profits, which were only recoverable in a suit in equity, and even then, only upon a showing that the defendant actually made the profits.[102] The Court held:

> Upon this state of facts, the evidence disclosing the existence of no license fee, no impairment of the plaintiffs' market – in short, no damages of any kind – we think the court should have instructed the jury that, if they found for the plaintiffs at all, to find nominal damages only.[103]

Certainly, under *Suffolk Co.*, the plaintiff should have been able to recover a royalty based on the advantage of the patented machine over "the old modes or devices that had

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[95] *See Root v. Railway Co.*, 105 U.S. 189, 194 (1882) ("The right to an account of profits is incident to the right to an injunction in copy and patent right cases." (quoting *Stevens v. Gladding*, 58 U.S. 447, 455 (1855))).

[96] *Root v. Railway Co.*, 105 U.S. 189, 202 (1882) (the right to damages in a suit at equity was "incident to the right to an account" for profits).

[97] *Coupe v. Royer*, 155 U.S. 565 (1895).

[98] *Id.* at 566.

[99] *Id.* at 581.

[100] *Id.*

[101] *Id.*

[102] *Id.* at 582-83. Courts of law were given the power to award the infringer's profits two years later in 1897. *Nike, Inc. v. Wal-Mart Stores, Inc.*, 138 F.3d 1437, 1442 (Fed. Cir. 1998).

[103] *Coupe v. Royer*, 155 U.S. 565, 583 (1895).

been used for working out similar results."[104] However, there is no indication in the decision that the plaintiff raised that argument. Accordingly, there was no reason to believe that *Coupe* and *Suffolk Co.* were inconsistent with each other.

Nonetheless, *Coupe* was viewed by some courts as holding that a reasonable royalty was not a proper form of recovery.[105] The uncertainty regarding reasonable royalties was not resolved until 1915, when the Supreme Court decided *Dowagiac Mfg. Co. v. Minn. Moline Plow Co*.[106] There, the patent at issue was for improvements to a grain drill.[107] Both the plaintiff and defendant sold grain drills incorporating the improvement.[108] The plaintiff was awarded only nominal damages because it could show neither the portion of the defendant's profits that were attributable to the patented improvement nor its own lost sales resulting from the defendant's infringement.[109]

The Supreme Court agreed that there was no basis for awarding damages based on lost sales and that, because the patentee kept a close monopoly, there were no established royalties upon which a recovery could be based.[110] Relying on *Suffolk Co.*, however, the Court held that, in the absence of an established royalty, the patentee should have been permitted to show the value of the patent by offering evidence of what a reasonable royalty would have been considering "the nature of the invention, its utility and advantages, and the extent of the use involved."[111] Such evidence, while more difficult to produce, "was quite as admissible as that of an established royalty."[112] Accordingly, the award of nominal damages was reversed.[113]

Reasonable royalties first found a statutory home in 1922 when revisions to the patent statute were made to permit an award of "a reasonable sum as profits or general

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[104] *Suffolk Co. v. Hayden*, 70 U.S. 315, 320 (1866).

[105] *Dowagiac Mfg. Co. v. Minn. Moline Plow Co.*, 235 U.S. 641 (1915).

[106] *Id.* The Court noted that *Coupe* had been viewed by some courts as holding that a reasonable royalty was not a proper form of recovery. *Id.* at 649.

[107] *Id.* at 643.

[108] *Id.*

[109] *Id.*

[110] *Id.*

[111] *Id.* The reader may recognize the quoted language as *Georgia-Pacific* factors 9, 10, and 11. *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1121 (S.D.N.Y. 1970).

[112] *Dowagiac Mfg. Co.*, 235 U.S. at 648.

[113] *Id.* at 651.

damages for the infringement."[114] This statutory phrase was construed to provide for the availability of a reasonable royalty as a form of recovery for infringement.[115] In 1946, the statute was amended again to provide for "general damages which shall be due compensation for making, using, or selling the invention, not less than a reasonable royalty therefor."[116] In its pertinent part, the current damages statute provides: "Upon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court."[117]

B. The Current *Georgia-Pacific* Framework for Determining a Reasonable Royalty

A reasonable royalty is not defined by statute. It is generally understood by courts and commentators to be an amount a person desiring to make, use, or sell a patented invention would, as a business proposition, be willing to pay as a royalty to the patent owner.[118] The most common approach taken by courts in determining a reasonable royalty is a "hypothetical negotiation[] between willing licensor and willing licensee."[119] Using that approach, courts will determine a reasonable royalty by looking

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[114] Act of February 18, 1922, ch. 58, § 8, 42 Stat. 389, 392; *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 243 F. Supp. 500, 518 (S.D.N.Y. 1965).

[115] *Georgia-Pacific Corp.*, 243 F. Supp. at 518.

[116] Act of August 1, 1946, ch. 726, § 1, 60 Stat. 778, 778; *Georgia-Pacific Corp.*, 243 F. Supp. at 520.

[117] 35 U.S.C. § 284 (2000). This provision, adopted in 1952, did not effect a substantive change to existing law. *King Instruments Corp. v. Perego*, 65 F.3d 941, 947 (Fed. Cir. 1995) ("[T]he Patent Act of 1952 consolidated the existing provisions relating to damages into section 284. The 1952 Act effected no substantive change other than the addition of an attorney fees clause.").

[118] *Armco, Inc. v. Republic Steel Corp.*, 707 F.2d 886, 891 (6th Cir. 1983); *see Maxwell v. J. Baker, Inc.*, 86 F.3d 1098, 1108-09 (Fed. Cir. 1996) (affirming the district court's instruction to the jury to imagine a hypothetical negotiation between patentee and infringer); *see also* William Choi & Roy Weinstein, *An Analytical Solution to Reasonable Royalty Rate Calculations*, 41 IDEA 49, 56 (2001) ("A reasonable royalty rate is one 'that a licensee would be willing to pay the inventor while still making a reasonable profit from use of the patented invention.'" (quoting Black's Law Dictionary 1330 (7th ed. 1999))).

[119] *Wang Labs., Inc. v. Toshiba Corp.*, 993 F.2d 858, 870 (Fed. Cir. 1993) (citing *Fromson v. W. Litho Plate & Supply Co.*, 853 F.2d 1568, 1574 (Fed. Cir. 1988), *overruled on other grounds by Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 383 F.3d 1337, 1342 (Fed. Cir. 2004)); *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1121 (S.D.N.Y. 1970) ("'In fixing damages on a royalty basis against an infringer, the sum allowed should be

to the individually negotiated rate that two free and uncoerced bargainers would have agreed upon as of the date when the alleged infringement began.[120]

Although "hypothetical," the negotiation is subject to certain ground rules. Among the more significant are:

1. The patent is assumed to be valid and infringed for the purposes of the negotiation.[121]

2. The hypothetical negotiation must take place on the date when the infringement began, even if the accounting period for damages begins on a later date due to the patentee's failure to comply with the "marking" statute.[122]

3. Although the hypothetical negotiation takes place on the date of first infringement, if significant time has passed between the date of the infringement and the determination of the royalty, events occurring after the date of first infringement need not be ignored and may be used to evaluate the reasonableness of the assumptions that may have been made at the time.[123]

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reasonable and that which would be accepted by a prudent licensee who wished to obtain a license but was not so compelled and a prudent patentee, who wished to grant a license but was not so compelled.'" (quoting *Horvath v. McCord Radiator & Mfg. Co.*, 100 F.2d 326, 335 (6th Cir. 1938))); *Austin-Western Road Machinery Co. v. Disc Grader & Plow Co.*, 291 F. 301, 304 (8th Cir. 1923), *cert. denied*, 263 U.S. 717 (1924) ("The purpose in view in any particular case is to determine what amount a person desiring to manufacture and sell the patented article would, as a business proposition, be willing to pay as a royalty; that is, what amount could he fairly pay . . . and be able to make and sell in the market the patented article at a reasonable profit to himself.").

[120] *Medtronic, Inc. v. Catalyst Research Corp.*, 547 F. Supp. 401, 414 (D. Minn. 1982); *see Maxwell*, 86 F.3d at 1108-09 (analyzing a hypothetical negotiation between patentee and infringer).

[121] *Schneider (Eur.) AG v. Scimed Life Sys., Inc.*, 852 F. Supp. 813, 847 (D. Minn. 1994).

[122] *Wang Labs., Inc.*, 993 F.2d at 870; *Panduit Corp. v. Stahlin Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1158 (6th Cir. 1978) ("The key element in setting a reasonable royalty after determination of validity and infringement is the necessity for return to the date when the infringement began.").

[123] *Fromson*, 853 F.2d at 1575 (referring to the "book of wisdom" that may be used in the hypothetical negotiation); *Georgia-Pacific Corp.*, 318 F. Supp. at 1122 ("Moreover, the Court as [sic] taken into account the modifying effect of the facts developed subsequent to 1955 and has assessed them together with all other probative evidence so far as they bear upon the reasonablenss [sic] of the assumptions and expectations of the parties in their hypothetical negotiations in 1955.").

4. The hypothetical negotiation must result in a royalty that is reasonable under the circumstances, *i.e.*, adequate to compensate the patentee for the use made of the invention.[124]

5. The licensee should be left with a profit,[125] though that profit could come from convoyed or derivative sales rather than the licensed products.[126]

6. Each side knows all of the facts available to the other side, *i.e.*, the "cards [are] dealt face up."[127]

Within that framework, courts, in determining the reasonable royalty that would result from a hypothetical negotiation, typically consider some or all of the fifteen factors set forth in *Georgia-Pacific Corp. v. United States Plywood Corp.*:

1. The royalties received by the patentee for the licensing of the patent in suit, proving or tending to prove an established royalty.

2. The rates paid by the licensee for the use of other patents comparable to the patent in suit.

3. The nature and scope of the license, as exclusive or non-exclusive; or as restricted or non-restricted in terms of territory or with respect to whom the manufactured product may be sold.

4. The licensor's established policy and marketing program to maintain his patent monopoly by not licensing others to use the invention or by

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[124] *Fromson*, 853 F.2d at 1575.

[125] As set forth more fully above, see *supra* notes 12 and 13, the principle that the licensor and licensee will share the benefit attributable to the licensed patent is reflected in the cases holding that a reasonable royalty will leave the infringer/licensee with a profit. *See, e.g.*, *Georgia-Pacific Corp.*, 318 F. Supp. at 1122 ("[T]he very definition of a reasonable royalty assumes that, after payment, the infringer will be left with a profit. It is necessary to consider, as an element in determining the amount of the reasonable royalty, the fact that GP would be willing hypothetically to pay a royalty which would produce 'a reasonable profit' for GP." (citations omitted)).

[126] *Trans-World Mfg. Corp. v. Al Nyman & Sons, Inc.*, 750 F.2d 1552, 1568 (Fed. Cir. 1984) (where a patented eyeglass rack was supplied free of charge to customers, profit on sale of eyeglasses could be relevant to a reasonable royalty).

[127] *Georgia-Pacific Corp.*, 318 F. Supp. at 1122 ("The 'willing seller' rule does not contemplate a confrontation between adverse negotiators and the use of their campaign slogans as evidence. It does contemplate a marshaling of all of the pertinent facts which, like cards dealt face up, are for all to *see*." (emphasis added)).

granting licenses under special conditions designed to preserve that monopoly.

5. The commercial relationship between the licensor and licensee, such as, whether they are competitors in the same territory in the same line of business; or whether they are inventor and promoter.

6. The effect of selling the patented specialty in promoting sales of other products of the licensee; that existing value of the invention to the licensor as a generator of sales of his non-patented items; and the extent of such derivative or convoyed sales.

7. The duration of the patent and the term of the license.

8. The established profitability of the product made under the patent; its commercial success; and its current popularity.

9. The utility and advantages of the patent property over the old modes or devices, if any, that had been used for working out similar results.

10. The nature of the patented invention; the character of the commercial embodiment of it as owned and produced by the licensor; and the benefits to those who have used the invention.

11. The extent to which the infringer has made use of the invention; and any evidence probative of the value of that use.

12. The portion of the profit or of the selling price that may be customary in the particular business or in comparable businesses to allow for the use of the invention or analogous inventions.

13. The portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer.

14. The opinion testimony of qualified experts.

15. The amount that a licensor (such as the patentee) and a licensee (such as the infringer) would have agreed upon (at the time the infringement began) if both had been reasonably and voluntarily trying to reach an agreement; that is, the amount which a prudent licensee—who desired, as a business proposition, to obtain a license to manufacture and sell a particular article embodying the patented invention—would have been willing to pay as a royalty and yet be able to make a reasonable profit and which amount would have been acceptable by a prudent patentee

who was willing to grant a license.[128]

In addition to the foregoing, the hypothetical negotiation may take into account any economic factor that the parties would have taken into consideration had an actual negotiation occurred,[129] such as the profits the licensee expects to lose[130] and the cost the defendant would have had to incur to design around the invention.[131]

III. A NEW, HISTORICALLY-GROUNDED APPROACH TO CALCULATING REASONABLE ROYALTY

A. Apportionment as a Threshold Question in the Reasonable Royalty Analysis

Not surprisingly, given the paucity of reasonable royalty cases decided during the time in which apportionment was regularly addressed by the Supreme Court and the relative dearth of contemporary cases addressing apportionment,[132] there appears to be few cases in which the interplay between apportionment and reasonable royalties is

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[128] *Id.* at 1121; *see also Standard Mfg. Co. v. United States*, 42 Fed. Cl. 748, 763-64 (1999) ("The *Georgia-Pacific* factors have been recognized and utilized by the United States Court of Appeals for the Federal Circuit on numerous occasions." (citing *Unisplay S.A. v. Am. Elec. Sign Co.*, 69 F.3d 512, 517 n.7 (Fed. Cir. 1995) ("A comprehensive list of relevant factors in determining a reasonable royalty is set out in *Georgia-Pacific* . . . ."))); *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1555 (Fed. Cir. 1995); *SmithKline Diagnostics, Inc. v. Helena Labs. Corp.*, 926 F.2d 1161, 1168 (Fed. Cir. 1991) ("The district court correctly considered the factors enumerated in . . . *Georgia-Pacific* . . . .").

[129] *Georgia-Pacific Corp.*, 318 F. Supp. at 1121 ("Where a willing licensor and a willing licensee are negotiating for a royalty, the hypothetical negotiations would not occur in a vacuum of pure logic. They would involve a market place confrontation of the parties, the outcome of which would depend upon such factors as their relative bargaining strength; the anticipated amount of profits that the prospective licensor reasonably thinks he would lose as a result of licensing the patent as compared to the anticipated royalty income; the anticipated amount of net profits that the prospective licensee reasonably thinks he will make; the commercial past performance of the invention in terms of public acceptance and profits; the market to be tapped; and any other economic factor that normally prudent businessmen would, under similar circumstances, take into consideration in negotiating the hypothetical license.").

[130] *Id.*

[131] *Grain Processing Corp. v. Am. Maize-Prods. Co.*, 185 F.3d 1341, 1347 (Fed. Cir. 1999) (noting that the "district court also found that American Maize's production cost difference between infringing and noninfringing Lo-Dex 10 effectively capped the reasonable royalty award"); *id*. at 1353 n.5 (noting that the "district court appears to have conducted a thorough royalty analysis" and that "the appropriateness of the rate is perhaps reflected in the decision of the parties to forego an appeal on this issue").

[132] *See* Bensen, *supra* note 6, ¶¶ 23-44 (discussing contemporary apportionment cases).

thoughtfully analyzed. Apportionment is, of course, expressly reflected in *Georgia-Pacific* Factor No. 13: "The portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer."[133]

It should be clear in view of the foregoing discussion, however, that treating apportionment merely as a factor in the reasonable royalty analysis, where it may be given more or less weight or ignored altogether, is insufficient to meet long-standing apportionment requirements. Simply put, if a patentee could not, historically, at least, collect the infringer's profits attributable to the nonpatented portions of the infringer's product and cannot recover lost profits on the nonpatented portions of its product, then it stands to reason that a patentee should not be able to collect a reasonable royalty representing profits attributable to the nonpatented portions of an infringing product. Thus, apportionment should be a required part of every reasonable royalty analysis, not just a factor that may or may not be given any weight.

Moreover, apportionment should be a *threshold* determination in every reasonable royalty analysis. To understand why, it will be helpful to first understand a significant difference between the recovery of a reasonable royalty and the recovery of profit-based damages. This will be easier to illustrate in the context of recovering an infringer's profits in equity, to which the recovery of reasonable royalties is somewhat akin.[134] Historically, an infringer could be required to turn over its entire profit attributable to the patent to the patentee.[135] However, a hypothetical negotiation, like a real license negotiation, should not result in the infringer/licensee giving up the entire profit it receives from its use of the patent to the patentee/licensor as a license fee. Rather, it should result in the infringer/licensee giving up just a portion of that profit.[136] This is so because the purpose of a hypothetical negotiation, like a real negotiation, is to determine how the patentee/licensor and infringer/licensee will *divide* the profit attributable to the patent so that the patentee/licensor receives a compensation for the use of its patent and the infringer receives compensation for its business risk, labor and investment.[137] Thus, in the reasonable royalty context, the patentee's recovery should not just be limited to the infringer's profits attributable to the patent, as it would have been historically under

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[133] *Georgia-Pacific Corp. v. U. S. Plywood Corp.*, 318 F. Supp. 1116, 1121 (S.D.N.Y. 1970). Additionally, factors 8-11 embody apportionment principles.

[134] Although a reasonable royalty is a form of damages, it is nonetheless a portion of the infringer's profits. *See Standard Mfg. Co. v. United States*, 42 Fed. Cl. 748, 765-66 (1999) (stating in reference to the determination of a reasonable royalty that "[n]ormally, the net profit that is divided is . . . that of the licensee").

[135] *See* Bensen, *supra* note 6, ¶¶ 24-25.

[136] *See supra* notes 12, 13.

[137] *See supra* notes 12, 13.

apportionment principles, it should be *further* limited to recovering just a *portion*—and likely the *smaller* portion—of those profits under licensing principles.[138]

Because the hypothetical licensor and licensee will *divide* the profit attributable to the patent, determining that profit as a threshold matter is critical if the resulting royalty is to be reasonable. A simple illustration will suffice. Assume that, in a $100 product, the infringed patent contributes $1 of profit. A 2% reasonable royalty may sound low; that is, it may sound very “reasonable.” Yet it would represent *twice* the contribution of the patent. Such a royalty would never be “established” in the market and would not have been sanctioned by the Supreme Court in its long line of apportionment decisions. Moreover, no individual licensee would agree to pay $2 per product for a patent that contributes only $1 of profit. Thus, a 2% royalty, while superficially reasonable, would in fact be excessive. Identifying the portion of the profit attributable to a patent as an initial step would avoid such a result by confining the hypothetical negotiation to the question of how to appropriately divide that $1 of profit attributable to the patent between the patentee and infringer. The result of that negotiation, even if not entirely satisfactory to both parties, would be at least well-grounded in patent damages law and sound licensing practices.

The question of what portion of the profit on the product is attributable to the patented invention can be answered by reference to the traditional rules of apportionment. That is, if the patented invention, independent of how it is claimed, is truly a separately marketable entire device, the entire profit on the product would be subject to a royalty.[139] If the patent is for an improvement, only the profit attributable to the improvement would be subject to the royalty,[140] unless the improvement permits the device to be sold in a new market, in which case the entire profit on the device in the new market would be subject to the royalty.[141] If the patent is for a process or for a device used in a product to reduce manufacturing costs, the cost savings enjoyed from practicing the patent would be subject to the royalty. In all circumstances, the burden is on the patentee to show that some or all of the infringer’s profit is attributable to the patented improvement over the prior art.[142] Once the portion of the profit attributable to the patent is identified, it can

[138] This is not at all unfair to the patentee—historically, a patentee that could not meet its burden of proof would be entitled to only a nominal recovery. *See* Bensen, *supra* note 6, ¶ 62. Thus, a reasonable royalty, by ensuring at least some recovery for a patentee that cannot otherwise establish a claim for damages, ensures more for the patentee than it would have gotten historically, even if the patentee must share with the infringer.

[139] *See supra* Part C.1.i.

[140] *See supra* Part C.1.ii.

[141] *See supra* Part C.2.

[142] *See supra* Part C.1.i.

then be divided between the patentee and infringer by reference to the *Georgia-Pacific* factors in the hypothetical negotiation.[143]

B. Applying the Licensing Factors to the Apportioned Value

It would be tempting, once the portion of the profit on the infringing device attributable to the patent is determined, to simply resort to the *Georgia-Pacific* factors to determine what portion of the profit is due to the patentee as compensation for the use of its invention. However, although the *Georgia-Pacific* factors are inevitably invoked by courts and litigants in patent disputes, they frequently fail to provide any objective, workable mechanism to calculate a reasonable royalty. This is partly because the fact-finder[144] is usually presented with the testimony of two experts applying the *Georgia-Pacific* factors in such divergent ways that their respective proposed royalties provide nothing more than the outer limits for what becomes a "split-the-difference" decision.[145]

[143] It is typically easier for parties to state the royalty *rate* in reference to the selling price of the article. In the example above concerning the $100 product, for instance, were the fact-finder to conclude that the patentee was entitled to 25% of the profit attributable to the patent, a 0.25% royalty on the infringer's sales would be customary.

[144] The amount of a reasonable royalty has long been recognized as an issue of fact. *U.S. Frumentum Co. v. Lauhoff*, 216 F. 610, 625 (6th Cir. 1914) ("The amount of plaintiff's loss by the infringement, or, more specifically and in certain cases, the amount of a 'reasonable royalty,' is a question of fact. It may be determined by a master just as by a jury.").

[145] *See, e.g.*, *Schneider (Eur.) AG v. Scimed Life Sys., Inc.*, 852 F. Supp. 813, 860 (D. Minn. 1994) (holding 15% as a reasonable royalty and "well within the royalty rates" advocated by the experts where plaintiff's expert opined that 30% was a reasonable royalty and defendant's expert opined that 6% was a reasonable royalty); *Paymaster Techs., Inc. v. United States*, 61 Fed. Cl. 593, 614 (2004) (holding 3.5% as a reasonable royalty where plaintiff's expert opined that 6% was a reasonable royalty and defendant's expert opined that 1.5% was a reasonable royalty), *rev'd and remanded on other grounds*, 180 Fed. App'x 942 (Fed. Cir. 2006); *Wright v. United States*, 53 Fed. Cl. 466, 475-76 (2002) (finding no change to the baseline after applying relevant *Georgia-Pacific* factors and expressly acknowledging choice of a 4.5% royalty as the midpoint between the experts' proffered rates); *Bose Corp. v. JBL, Inc.*, 112 F. Supp. 2d 138 (D. Mass. 2000) (holding 7% as a reasonable royalty where plaintiff's expert opined that 9% was a reasonable royalty (with a negotiation starting point of 5%) and defendant's expert opined that 4% was a reasonable royalty (with a negotiation starting point of 0%)).

Some courts have recognized that expert testimony "is generally of small help." *See, e.g.*, *Cincinnati Car Co. v. N.Y. Rapid Transit Corp.*, 66 F.2d 592, 595 (2d Cir. 1933). This is, in part, because experts (1) typically downplay negative factors as neutral or irrelevant, *see, e.g.*, *Paymaster Techs.*, 61 Fed. Cl. at 613 (criticizing defendant's expert for failing "to account for several of the relevant factors which would have increased the royalty"), *see also Gargoyles, Inc. v. United States*, 37 Fed. Cl. 95, 108 (1997) (finding expert minimized "any factors that favored a higher royalty and emphasiz[ed] those factors that did not"), (2) group dissimilar factors, and/or (3) rely upon industry licenses that are not, in fact, probative of the value of the hypothetical

It is also because the royalty determination is often made by a jury, whose deliberations are not public and therefore not subject to meaningful appellate review, which hinders the development over time of a more thorough body of law concerning the proper application of the various *Georgia-Pacific* factors.[146] Contributing to the problem is the fact that *Georgia-Pacific* cites very little precedent to support the fifteen-factor test.[147]

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license, *see, e.g.*, *Paymaster Techs.*, 61 Fed. Cl. at 613 (criticizing plaintiff's expert for relying on a third-party settlement agreement of minimal relevance); *Procter & Gamble Co. v. Paragon Trade Brands, Inc.*, 989 F. Supp. 547, 607 (D. Del. 1997) (dismissing defendant's expert opinion as to the relevance and impact of four licenses because "none of them involved licenses between competitors in the disposable diaper industry," and finding the royalty would be "significantly higher" than the rate contained in the four licenses).

[146] Some, but clearly not enough guidance is provided by the handful of decisions in which courts have analyzed the application of each *Georgia-Pacific* factor individually. *See, e.g.*, *Ball Aerosol and Specialty Container, Inc. v. Limited Brands, Inc.*, 514 F. Supp 2d 1051 (N.D. Ill. 2007); *Bose Corp. v. JBL, Inc.*, 112 F. Supp. 2d 138 (D. Mass. 2000); *Procter & Gamble Co. v. Paragon Trade Brands, Inc.*, 989 F. Supp. 547 (D. Del. 1997); *Mobil Oil Corp. v. Amoco Chems. Corp.*, 915 F. Supp. 1333 (D. Del. 1995); *Schneider (Eur.) AG v. Scimed Life Sys., Inc.*, 852 F. Supp. 813 (D. Minn. 1994); *Wright v. United States*, 53 Fed. Cl. 466 (2002); *Gargoyles, Inc. v. United States*, 37 Fed. Cl. 95 (1997).

[147] *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970). Indeed, the 1970 decision only cites to the following twelve cases: *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 377 U.S. 476, 508-09 (1964) (finding by four justices that "actual damages" could not "properly be based on a royalty on sales" of unpatented replacement fabric components for patented convertible automobile structures); *Dowagiac Mfg. Co. v. Minn. Moline Plow Co.*, 235 U.S. 641, 651 (1915) (reversing and remanding where no proof of a reasonable royalty was presented on improvements to well-known grain-drill); *Westinghouse Elec. & Mfg. Co. v. Wagner Elec. & Mfg. Co.*, 225 U.S. 604, 622-23 (1912) (reversing an award of nominal damages where defendant-respondent infringed plaintiff-appellant's patent "in the manufacture of several thousand transformers" and remanding for hearing where infringer has burden to prove profit apportionment); *Union Carbide Corp. v. Graver Tank & Mfg. Co.*, 282 F.2d 653, 671-72 (7th Cir. 1960), *cert. denied*, 365 U.S. 812 (1961) (affirming special master's application of willing licensor/willing license rule in determining reasonable royalty of five cents per pound of rod deposited for infringement of a patented welding flux based, in part, on collateral sales of "non-infringing machines, equipment and supplies"); *Faulkner v. Gibbs*, 199 F.2d 635, 640 (9th Cir. 1952) (affirming special master's finding of a $3000 annual royalty for infringement of patented pinball machine based on written licenses that were entered into in anticipation of litigation, four oral licenses, and patentee's testimony on per unit profits); *Horvath v. McCord Radiator & Mfg. Co.*, 100 F.2d 326, 333, 336 (6th Cir. 1938) (criticizing special master's report for failure to make factual findings on the nature of the invention involved, its utility and advantages, and the value and extent of its use; awarding reasonable royalty of three-fourths of a cent per lineal foot of spiral fin tubing); *Gen. Motors Corp. v. Dailey*, 93 F.2d 938, 941-42 & n.5 (6th Cir. 1937) (affirming lower court's reasonable royalty decree of 15 cents per car where the profits ranged from 25 to 30 cents per car and where the patented article's "utility was judicially determined" and it was "revolutionary" and "highly useful and meritorious"); *Cincinnati Car Co. v. N.Y. Rapid Transit Corp.*, 66 F.2d 592, 595 (2d Cir. 1933) (modifying reasonable royalty

It may be helpful, therefore, before exploring how to best apply the *Georgia-Pacific* factors to the apportioned profits on the infringing product, to find a more concrete framework to work within. As discussed above, a reasonable royalty is intended to be an approximation of what an established royalty would have been had the patentee licensed its patent often enough to establish a market rate for it.[148] Thus, properly understood, a reasonable royalty is not an approximation of the individually negotiated price that the patentee and infringer might have reached. Rather, it is an approximation of the price that the *market* would have placed on the patent had the patentee regularly licensed it.

Under the *Georgia-Pacific* methodology, reasonable royalties are determined using the "willing licensor/willing licensee" rule that posits a "hypothetical negotiation" between the patentee and the infringer. However, the price that the patentee and infringer would have individually negotiated is irrelevant.[149] Think of it this way: were you to convert and inadvertently destroy a car, the sole measure of the owner's damages would be the market value of the car. The fact that you could have negotiated a lower price under different circumstances is irrelevant. Therefore, the starting premise of the *Georgia-Pacific* framework is faulty.[150]

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awarded by lower court from $50 to $100 per infringing articulation); *Rockwood v. Gen. Fire Extinguisher Co.*, 37 F.2d 62, 66 (2d Cir. 1930) (modifying lower court's reasonable royalty award to $33 per infringing automatic sprinkler dry pipe valve sold for a total award of $205,260 plus interest); *Egry Register Co. v. Standard Register Co.*, 23 F.2d 438, 442-43 (6th Cir. 1928) (reversing and remanding to determine damages for infringement of autographic register where record is devoid of any factual basis for assigning reasonable royalty); *U.S. Frumentum Co. v. Lauhoff*, 216 F. 610, 625-26 (6th Cir. 1914) (reversing and remanding lower court's award of nominal damages and directing lower court to assess a reasonable royalty for infringement on grit-steaming apparatus).

[148] *See supra* Part II.

[149] As one court expressly observed, the bitter competition between the parties does not change what is or is not a "fair measure of damage for defendants' use of plaintiff's invention." *K.W. Ignition Co. v. Temco Elec. Motor Co.*, 283 F. 873, 879 (6th Cir. 1922) (awarding $2 royalty per set of shock absorbers where net profit amounted to $3.45 per set).

[150] Courts have often been critical of the willing licensee/willing licensor rule without explaining the underlying flaw. Several courts have acknowledged that the hypothetical negotiation amounts to an artificial, fictional exercise with questionable results. *See, e.g.*, *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1554 n.13 (Fed. Cir. 1995) ("The hypothetical negotiation is often referred to as a 'willing licensor/willing licensee' negotiation. However, this is an inaccurate, and even absurd, characterization when, as here, the patentee does not wish to grant a license."); *Fromson v. W. Litho Plate & Supply Co.*, 853 F.2d 1568, 1575 (Fed. Cir. 1988) (noting that the "methodology encompasses fantasy and flexibility; fantasy because it requires a court to imagine what warring parties would have agreed to as willing negotiators"); *Panduit Corp. v. Stahlin Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1159 (6th Cir. 1978) ("Determination of a 'reasonable royalty' after infringement, like many devices in the law, rests on a legal fiction. Created in an effort to 'compensate' when profits are not provable, the 'reasonable royalty'

Viewed as an exercise to determine an approximation of the fair market value of the patent, the reasonable royalty analysis should bypass a number of the *Georgia-Pacific* factors.

> **Factor 2** (Infringer's Other Licenses): The infringer's other licenses may be relevant to the question of whether the infringer would have taken a license at a given price offered by the patentee, but the reasonable royalty analysis begins with the premise that the infringer has *already* taken a license, thus, the only question is the proper price for it. The decision to take the patent having been traversed, the infringer's other patent licenses are simply not relevant.[151]
>
> **Factor 3** (Nature and Scope of the License): It is not clear why this factor was ever given such emphasis. The defining characteristic of an exclusive license is the licensor's promise not to license the same rights to others.[152] An infringer never obtains such a promise merely by infringing. Rather, the infringer's license will always be akin to a nonexclusive license.[153]

device conjures a 'willing' licensor and licensee, who like Ghosts of Christmas Past, are dimly seen as 'negotiating' a 'license.'"); *Cincinnati Car Co.*, 66 F.2d at 595 ("The whole notion of a reasonable royalty is a device in aid of justice, by which that which is really incalculable shall be approximated, rather than that the patentee, who has suffered an indubitable wrong, shall be dismissed with empty hands. It is no more impossible to estimate than the damages in many other torts, as for example, personal injuries with their accompanying pain and mutilation."); *Egry Register Co.*, 23 F.2d at 443 ("To adopt a reasonable royalty as the measure of damages is to adopt and interpret, as well as may be, the fiction that a license was to be granted at the time of beginning the infringement, and then to determine what the license price should have been."); *Am. Med. Sys. Inc. v. Med. Eng'g Corp.*, 794 F. Supp. 1370, 1394-95 (E.D. Wis. 1992), *aff'd in part, rev'd in part and remanded*, 6 F.3d 1523 (Fed. Cir. 1993) ("The process is truly artificial . . . . Basically, the court must pretend these parties are locked in a room and forced to remain there until they arrive at a figure.").

[151] Indeed, courts "rarely give [Factor 2] decisive or substantial weight due to the generally unique character of each patented invention." *Procter & Gamble Co.*, 989 F. Supp. at 608. Moreover, the fact that Factor 2 has been broadly interpreted to include consideration of industry licenses to which the patentee is not a party, does not alter its irrelevance. *Id.*

To the extent that Factor 2 might become relevant because the patentee and the infringer are the only two players, Factor 12 would pull in the infringer's relevant licenses. *See, e.g.*, *Procter & Gamble Co.*, 989 F. Supp. at 612 (analyzing Factor 12 and noting that the court had already considered comparable industry licenses in its analysis of Factor 2).

[152] 2 Roger M. Milgrim & Eric E. Bensen, Milgrim on Licensing § 15.08 (2007) ("One of the most common forms of licensing is the grant of an exclusive license, assuring to the licensee all the rights that the licensor has with respect to a defined activity, territory and period of time.").

[153] A non-exclusive licensee "transfers no ownership of the licensed thing to the licensee; the licensor/owner is simply permitting the use of the subject matter in a particular manner." *Id.* at

> Inasmuch as the nature of the license is uniform, the nature of the license can hardly suggest a higher or lower royalty.
>
> **Factor 4** (Patentee's Licensing Policy): Just as the hypothetical negotiation is premised on the infringer having taken a license, it is equally premised on the patentee having *granted* that license. The notion that a patentee's policy against licensing its patents is relevant to the royalty determination must be rejected as contrary to the premise of the question posed. One can hardly establish a market rate for a patent that the patentee would not market.[154]
>
> **Factor 5** (Relationship of the Parties): Experts and sometimes courts point to the respective bargaining power of the parties to suggest a higher or lower royalty. However, the starting premise of the reasonable royalty analysis is that the patentee has a market price for its patent and the infringer accepted. Their respective bargaining powers are irrelevant. Experts will also sometimes argue that the patentee would have lost sales to the infringer under a license and, therefore, would have insisted on a high royalty. Again, that would not be relevant to a market price and in all events, if the patentee cannot prove lost sales so as to be entitled recover lost profits, lost sales should not be relevant to the reasonable royalty analysis.

Additional factors can be eliminated as well. Under the methodology we set forth, apportionment is the *threshold* question in a reasonable royalty analysis. More precisely, the first inquiry in the analysis is: What portion of the profits on the infringing product is attributable to the claimed invention's advance over the prior art? This inquiry captures Factors 8-11 and 13, all of which essentially embody apportionment principles, and need not be revisited to determine the reasonable royalty. Lastly, two of the *Georgia-Pacific* were never really separate "factors" at all. Factor 14 references expert

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§ 15.34 (citing *ITOFCA, Inc. v. MegaTrans Logistics, Inc.*, 322 F.3d 928, 939 (7th Cir. 2003) (Ripple, J., concurring)).

There can be circumstances where this factor has more currency than we give it credit for here. An arm's length nonexclusive license can impose certain restrictions and burdens on the licensee, such as geographic restrictions or reporting requirements. A hypothetical license, of course, would have no corresponding provisions. Where nonexclusive licenses for a patent exist, the patentee may have a persuasive argument that this factor weighs in favor of a royalty *higher* than that received for the nonexclusive licenses because the hypothetical license is free from such restrictions and burdens. (The authors would like to thank Prof. Dr. Winfried Tilmann of Lovells LLP in Düsseldorf, Germany for this insightful observation.)

[154] If, however, the patentee did license the patent, Factor 1 considers the royalties received by the patentee and remains relevant to a market price determination in the revised framework. *See infra*.

testimony, but expert testimony incorporates the preceding factors. In addition, Factor 15 incorporates the "willing-buyer – willing seller,"[155] which, as we have described, is fundamentally flawed, but also which would in all events be based on the other factors.

With that analysis in mind, there are only four *Georgia-Pacific* factors that are actually relevant to a reasonable royalty.[156]

> **Factor 1** (Other Licenses for the Patent-in-suit): Given the high threshold for proving an established royalty, it is entirely possible for a patentee to have existing licenses for the patent-in-suit, but not enough such licenses to meet the established royalty standard. Such licenses are nonetheless at least relevant to the reasonable royalty.[157]
>
> **Factor 6** (Effect of any Derivative and Convoyed Sales):[158] If the infringer enjoyed profits on other goods sold as the result of sales of the infringing item, a higher royalty would be warranted.
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> **Factor 7** (Duration of the Patent Term): The longer the term remaining on the patent, the more opportunity the infringer will have to build relations

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155 *See, e.g.*, *Mobil Oil Corp. v. Amoco Chems. Corp.*, 915 F. Supp. 1333, 1367-68 (D. Del. 1995) ("The fifteenth factor sets forth the 'willing-buyer – willing seller' hypothetical negotiation framework through which the other fourteen factors are to be considered.").

156 There may, of course, be other relevant factors in particular industries. We focus here only on the original fifteen *Georgia-Pacific* factors.

157 *Mobil Oil Corp.*, 915 F. Supp. at 1353 ("[T]he royalties received by the patentee for the licensing of the patents in suit is [sic] the 'most influential factor' in determining a reasonable royalty."); *Faulkner v. Gibbs*, 199 F.2d 635, 639-40 (9th Cir. 1952) (considering royalties specified in 10 written licensing agreements and four oral agreements in fixing annual royalties at $3000 for infringement of the patented pinball machines; noting that two of the oral license provided for $3000 annual royalties); *Cincinnati Car Co. v. N.Y. Rapid Transit Corp.*, 66 F.2d 592, 595 (2d Cir. 1933) (considering license fees ranging from $250 to $75 in agreements settling patent infringement lawsuits).

158 *Union Carbide Corp. v. Graver Tank & Mfg. Co.*, 282 F.2d 653, 671-72 (7th Cir. 1960) (noting that parties would consider convoyed and derivative sales and the resulting increase in sales and profit in arriving at a reasonable royalty and a willing licensee would "charge part or all of the royalty agreed upon to other operations rather than include the royalty in the selling price").

"Convoyed sales" are those made simultaneously with the patent item while "derivative sales" are made as a result of the sale of the patented item at a later time. *Carborundum Co. v. Molten Metal Equip. Innovations, Inc.*, 72 F.3d 872, 881 n.8 (Fed. Cir. 1995).

> with its customers.[159] Also, the better opportunity for the infringer to recoup its investments related to the infringing product. Such factors would justify a higher royalty. Conversely, a patent of short duration at the time of infringement would limit such opportunities and warrant a smaller warranty.
>
> **Factor 12** (Customary Royalties in the Industry): It may very well be the case that the relative industry has fairly well-established licensing practices. If that is the case, royalty rates used in other industry licenses may be highly probative of the reasonable royalty.

Notably, these factors are the more objective of the original *Georgia-Pacific* factors. Limiting the post-apportionment analysis to these factors, therefore, has the added advantage of providing a relatively more concrete framework for determining a royalty than the full range of *Georgia-Pacific* factors, which include an array of more malleable subjective elements.

CONCLUSION

Modern decisional law does not restrict reasonable royalties to some portion of the economic value actually provided by the patent and, in fact, provides almost no concrete guidance to the fact-finder in determining a reasonable royalty. The result is that reasonable royalty awards are at best arbitrary and at worst punitive. This is not what patent law traditionally provides.

Identifying the portion of the infringer's profit that is attributable to the patented invention as an initial step in the reasonable royalty analysis ensures that the subsequent hypothetical negotiation will take place in the confines of well-established patent damages law, sound licensing practice, and economic reality. Applying only those factors pertinent to a reasonable royalty as a substitute for a fair market price instead of an individually negotiated price will ensure that the fact-finder relies on reasonably objective criteria to determine what portion of the profit contributed by the patent is due to the patentee in the form of a royalty. While reasonable people will still be able to disagree about any particular outcome, following this approach will at least ensure that reasonable royalty awards are in harmony with their intended purpose.

[159] If a long patent-term remains, the royalty rate may be higher "because a longer term would better allow the licensee to establish stronger customer relations." *Procter & Gamble Co. v. Paragon Trade Brands, Inc.*, 989 F. Supp. 547, 610 (D. Del. 1997) (citing 7 Donald S. Chisum, Chisum on Patents § 20.03[3][b][ix], at 20-218 to 20-219 (2000)).