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Patent Infringement and Future Lost  
Profits Damages

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# Patent Infringement and Future Lost Profits Damages

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## I. INTRODUCTION

In patent infringement suits, a patentee can seek monetary relief from infringement under three basic theories: lost profits, established royalty, and reasonable royalty. According to the patent statute, the damage award shall be "adequate to compensate" the patentee, but in no event less than a reasonable royalty.<sup>1</sup> As a result, a court should award lost profits damages if they exceed the award resulting from a reasonable royalty. Indeed, lost profits is the general rule when the patentee is producing the patented invention.<sup>2</sup> Irrespective of the damages theory, the basis for damages is to make the patentee whole for losses incurred from the infringer's illegal

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1. 35 U.S.C. § 284 (1988). In *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 377 U.S. 476, 507 (1964), the Supreme Court stated that "[t]he question to be asked in determining damages is 'how much had the Patent Holder and Licensee suffered by the infringement. And that question [is] primarily: had the Infringer not infringed, what would Patent Holder-Licensee have made?'" (quoting *Livesay Window Co. v. Livesay Indus.*, 251 F.2d 469, 471 (5th Cir. 1958)). Section 284 of the Patent Statute also provides that, if damages are not found by a jury, the court shall assess them, that the court may increase the damages found by up to three times, and that the court may receive expert testimony to aid in determining damages or a reasonable royalty. "The methodology of assessing and computing damages under 35 U.S.C. § 284 is within the sound discretion of the district court." *Nickson Indus. v. Rol Mfg.*, 847 F.2d 795, 798 (Fed. Cir. 1988).

2. *Del Mar Avionics, Inc. v. Quinton Instrument Co.*, 836 F.2d 1320, 1326 (Fed. Cir. 1987). Alternatively, a patentee may recover a mixed or split award, in which lost profits is used as a measure for some infringing sales, while established or reasonable royalty is used as a measure for the remaining sales. See, e.g., *H.K. Porter Co. v. Goodyear Tire & Rubber Co.*, 536 F.2d 1115, 1122 (6th Cir. 1976) (recovering reasonable royalty and lost profits); *Swan Carburetor Co. v. Nash Motors Co.*, 133 F.2d 562, 566 (4th Cir. 1943) (establishing royalty and lost profits). A patentee may also obtain relief in the form of collateral assessments, which include prejudgment interest, increased damages up to three times the amount found or assessed, and attorney fees. See 35 U.S.C. § 284 (1988).

Since *Yale Lock*, courts have increasingly awarded lost profits damages to patentees based on price erosion, and in some cases, the awards have been enormous.<sup>11</sup> As a consequence, claims for this potentially lucrative form of damages have rapidly escalated.<sup>12</sup>

Generally, lost sales and price erosion damages are inextricably linked.<sup>13</sup> That is, they both depend on how the patentee and infringer interact in the market, and in many cases, infringement will have resulted in the patentee suffering both lost sales and depressed prices. While the two are normally evaluated separately, it is nevertheless important to avoid analyzing them in isolation in order to prevent inconsistent results.<sup>14</sup>

No matter the form of lost profits sought, the patentee must establish causation<sup>15</sup>—i.e., a nexus between the infringing activity and the patentee's lost profits.<sup>16</sup> In determining entitlement to lost profits damages in patent infringement actions, as with other torts,<sup>17</sup> the patentee must demonstrate that, but for the infringement, it would have sold its products at a price higher than the prevailing price, or would have sold more products. In other words, in seeking lost profits, the patentee must always prove that its failure to realize greater profits was caused by the infringement.<sup>18</sup> An essential fact in any case, then, is that the patentee and infringer be in head-to-head competition.

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such an award). Price erosion claims may also be used to show irreparable harm in making a motion for preliminary injunction. See *B.F. Goodrich Flight Sys., Inc. v. Insight Instruments Corp.*, 22 U.S.P.Q.2d (BNA) 1832, 1844 (S.D. Ohio 1992); *National Presto Indus. v. Dazey Corp.*, 18 U.S.P.Q.2d (BNA) 1113, 1120 (N.D. Ill. 1990), *aff'd*, 949 F.2d 402 (Fed. Cir. 1991).

11. See, e.g., *Minnesota Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 1578-79 (Fed. Cir. 1992) (affirming award of nearly \$29 million in price erosion damages).

12. See Ned L. Conley, *An Economic Approach to Patent Damages*, 15 AIPLA Q.J. 354, 357 (1987). Conley makes the point that infringers have found lost profits type awards particularly troubling, "because the cost to [the infringer] is often in excess of his own profits, and in most cases any money he pays out on such a claim goes to his direct competitor, thereby doubling his competitor's advantage over him." *Id.*

13. See *Panduit Corp. v. Stahl Bros. Fibre Works*, 575 F.2d 1152, 1157 (6th Cir. 1978) ("The right to damages caused by price reduction stands on the same ground as that to damages caused by lost sales.").

14. See SUMANTH ADDANKI, *ECONOMICS AND PATENT DAMAGES: A PRACTICAL GUIDE 3* (Nat'l Econ. Res. Associates, Inc. Working Paper No. 21, November 1993).

15. See *Bio-Rad Labs., Inc. v. Nicolet Instrument Corp.*, 739 F.2d 604, 616 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 1038 (1984).

16. On June 17, 1994, the Federal Circuit sat en banc and heard oral argument on a patent damages causation issue. *Rite-Hite Corp. v. Kelley Co.*, Nos. 92-1206 & 92-1260 (Fed. Cir. June 17, 1994). Specifically, the court considered whether patent infringement damages are limited to lost sales of the patented product, or whether they may be extended to lost sales of items outside the scope of the patent that the patentee would not have lost but for the infringement. *Pat., Trademark & Copyright J.* (BNA), June 23, 1994, Vol. 48, No. 1185, at 185. The *Rite-Hite* case will explore the limits of the causation or "but for" requirement in patent infringement damages. A published decision should issue within the next year.

17. Patent infringement is a tort. *Carbice Corp. of America v. American Patents Dev. Corp.*, 283 U.S. 27, 33 (1931).

18. See *Bio-Rad*, 739 F.2d at 616.

activity, thus restoring the patentee financially to the position it would have occupied but for the infringement.<sup>3</sup>

Lost profits resulting from patent infringement may be awarded on several grounds, including lost (or diverted) sales, eroded prices, and increased expenses.<sup>4</sup> The classical and most common type of lost profits damages are those due to lost sales.<sup>5</sup> Lost sales constitute those sales that the patentee failed to make as a result of infringement, as well as sales the infringer made that the patentee would have made but for the infringement.<sup>6</sup> Such awards are based on a finding that the patentee, absent the infringement, would have made all or a portion of the infringer's sales.<sup>7</sup>

Price erosion damages are awarded when the patentee establishes that its sales during the infringing period were made at prices below what they would have been absent infringement.<sup>8</sup> The genesis of price erosion type damages occurred in *Yale Lock Mfg. Co. v. Sargent*.<sup>9</sup> There, the Supreme Court held: "Reduction of prices, and consequent loss of profits, enforced by infringing competition, is a proper ground for awarding of damages. The only question is as to the character and sufficiency of the evidence in the particular case."<sup>10</sup>

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3. *Aro*, 377 U.S. at 507; *Lam, Inc. v. Johns-Manville Corp.*, 718 F.2d 1056, 1064 (Fed. Cir. 1983).

4. See, e.g., *Scripto-Tokai Corp. v. Gillette Co.*, 788 F. Supp. 439, 444 (C.D. Cal. 1992). See generally Paul M. Janicke, *Contemporary Issues in Patent Damages*, 42 AM. U. L. REV. 691, 697-98 & nn.32-36 (1993) (identifying as additional grounds for awarding lost profits, "patentee's sales of the invention not made at new, higher prices that the market could have sustained absent the infringement" and "lost tag-along sales of unpatented products" that would have flowed from sales of patented product). Lost profits entitle the patentee to recover its incremental profit, which is the patentee's price less its incremental costs, such as parts, labor, and promotional activities. See *Ristvedt-Johnson, Inc. v. Brandt, Inc.*, 805 F. Supp. 557, 564 (N.D. Ill. 1992) (Rader, Circuit Judge, Federal Circuit, sitting by designation).

5. 5 DONALD S. CHISUM, PATENTS § 20.03 [1][b][i] (1994). For an early Supreme Court decision on diverted sales and the causation needed to prove such damages, see *Seymour v. McCormick*, 57 U.S. (16 How.) 480 (1853).

6. See *Panduit Corp. v. Stahl Bros. Fibre Works*, 575 F.2d 1152, 1156 (6th Cir. 1978).

7. See, e.g., *Velo-Blind, Inc. v. Minnesota Mining & Mfg. Co.*, 647 F.2d 965, 974 (9th Cir.), cert. denied, 454 U.S. 1093 (1981).

8. In *Lam, Inc. v. Johns-Manville Corp.*, 718 F.2d 1056, 1069 (Fed. Cir. 1983), the court upheld an award of lost profits based on lost sales and price erosion. The patentee had provided pre-infringement growth rate in sales of its patented product and projected this growth rate through the infringement period. *Id.* at 1061. Subtracting its actual sales volume during the infringement period from the projected amount, the patentee arrived at a total dollar value of lost sales resulting from the infringement. *Id.* at 1062. The Federal Circuit sustained an award in the full amount lost from the infringer's sales and from the patentee's price reductions. *Id.* at 1067; see also *King Instrument Corp. v. Otari Corp.*, 767 F.2d 853, 864 (Fed. Cir. 1985) (upholding award of lost profits based on patentee's preexisting profit margin at the outset of infringement, where the patentee showed sales and unit profits on the patented product were depressed due to infringement), cert. denied, 475 U.S. 1016 (1986). In a related vein, a patentee may recover lost profits resulting from its failure to obtain new, higher prices during the infringing period caused by the infringement. See, e.g., *Kalman v. Berlyn Corp.*, 914 F.2d 1473, 1485 (Fed. Cir. 1990).

9. 117 U.S. 536 (1886).

10. *Id.* at 551; see also *Cincinnati Siemens-Lungren Gas Illuminating Co. v. Western Siemens-Lungren Co.*, 152 U.S. 200, 211 (1894) (refusing to award price erosion lost profits because facts did not compel

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14. See SUMANTH ADDANKI, *ECONOMICS AND PATENT DAMAGES: A PRACTICAL GUIDE* 3 (Nat'l Econ. Res. Associates, Inc. Working Paper No. 21, November 1993).

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17. Patent infringement is a tort. *Carbice Corp. of America v. American Patents Dev. Corp.*, 283 U.S. 27, 33 (1931).

18. See *Bio-Rad*, 739 F.2d at 616.

Nevertheless, the patentee need only prove causation to a reasonable probability.<sup>19</sup>

This Article analyzes the area of *future* lost profits awards. Future lost profits, as defined in this Article, are those lost profits accruing after termination of the patent infringement suit, as opposed to pre-suit and during-suit lost profits. The cause of such future loss is the infringer's past infringement. A number of courts have awarded lost profits, attributable to past infringement, based on lost sales likely to occur in the future—i.e., after the infringement suit has ended and before the patent expires.<sup>20</sup> It appears, however, that no court to date has awarded a patentee future lost profits due to price erosion.

Future lost profits damages can be somewhat speculative, "for the future always harbors unknowns."<sup>21</sup> Such damage awards, therefore, frequently run afoul of the maxim that liability for patent infringement does not extend to speculative damages.<sup>22</sup> Accordingly, future lost profits damages represent a troublesome area in patent infringement jurisprudence.

In Section I, this Article explains the guiding principles for ascertaining lost profits damages in patent infringement actions. Part A of Section I sets forth two pronounced standards for determining and approximating such damages, followed by a discussion in Part B of economic factors and principles affecting lost profits awards. Section II discusses several theories under which a court in a patent case can award future lost profits damages. It also considers

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19. *E.g.*, *Del Mar Avionics, Inc. v. Quinton Instrument Co.*, 836 F.2d 1320, 1326 (Fed. Cir. 1987). An inference that the patentee lost sales equal to those actually made by the infringer arises where the patentee and infringer are the sole suppliers of a demanded product, as long as the patentee could have met the demand. *Water Technologies Corp. v. Calco, Ltd.*, 850 F.2d 660, 671 (Fed. Cir. 1988).

20. *See, e.g.*, *Sun Prods. Group, Inc. v. B & E Sales Co.*, 700 F. Supp. 366, 386-87 (E.D. Mich. 1988); *BIC Leisure Prods. v. Windsurfing Int'l, Inc.*, 687 F. Supp. 134, 137-38 (S.D.N.Y. 1988) (ruling that plaintiff may attempt to prove future losses for the purpose of awarding damages). Courts have also upheld the validity of future lost profits damages for events occurring after expiration of the patent, known as "accelerated reentry damages"; that is, damages to the patentee due to the infringer's ability to reenter the market after expiration of the patent in suit at a level accelerated by its earlier infringement. *See BIC*, 687 F. Supp. at 137-38 (holding that projected lost profits based on future competition is not impermissible infringement damages theory).

21. *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1581 (Fed. Cir. 1992) (recognizing uncertainties of proving future injury, such as future pricing, future competition, and future markets).

22. *See, e.g.*, *Bio-Rad*, 739 F.2d at 616 ("The amount of lost profits awarded cannot be speculative but the amount need not be proven with unerring precision."). This maxim also applies to any body of law under which damages are sought as compensation. Nevertheless, to recover lost profits, a patentee need only provide proof to a reasonable probability that it would have made a sale but for the infringement. *E.g.*, *Del Mar*, 836 F.2d at 1326. Thus, "the patentee is not obliged to negate every possibility that a purchaser might not have bought the patentee's product instead of the infringing one, or might have foregone the purchase altogether." *Id.*

several patent infringement cases and cases in analogous legal contexts in which courts have applied those theories.

Section III analyzes the propriety of awarding future lost profits damages as a remedy for patent infringement. This Section formulates two proposals for minimizing unwarranted and unjust awards of future lost profits: (1) increasing the evidentiary thresholds for proving future lost profits, and (2) mandating consideration of market forces and economic principles in ascertaining the existence and extent of future lost profits. While the evidentiary proposal seeks relatively strict thresholds for proving future lost profits, it by no means forecloses such awards.<sup>23</sup> In fact, the evidentiary proposal recognizes that future lost profits are an economic reality flowing from patent infringement and that to satisfy the Patent Statute, patentees should be entitled in some instances to a monetary remedy to compensate for future injury.<sup>24</sup> Similarly, the economic proposal recognizes the fact of future lost profits, but seeks to introduce and emphasize the realities of the marketplace in the process of determining future injury.<sup>25</sup>

## II. GUIDING PRINCIPLES IN LOST PROFITS ANALYSIS

### A. Two Standards for Proving Lost Profits Damages

The Court of Appeals for the Federal Circuit ("Federal Circuit")<sup>26</sup> has articulated two standards by which a patentee can prove lost profits damages. The first is the *Panduit* standard, established by the Sixth Circuit in *Panduit Corp. v. Stahl Brothers Fibre Works, Inc.*,<sup>27</sup> and subsequently accepted by the Federal Circuit.<sup>28</sup> Under *Panduit*, "[t]o obtain damages for lost profits

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23. See discussion *infra* part IV.A.1.

24. See discussion *infra* part IV.A.1.

25. See discussion *infra* part IV.A.2.

26. The Federal Circuit has exclusive jurisdiction, *inter alia*, over appeals from final decisions of district courts in which jurisdiction of the district court is grounded wholly or partially on the patent provisions of 28 U.S.C. § 1338. 28 U.S.C. § 1295(a)(1); see also *Christianson v. Colt Indus. Operating Corp.*, 486 U.S. 800, 807 (1988) (discussing scope of Federal Circuit's jurisdiction). Thus, the Federal Circuit provides guidance for all lower courts confronting patent infringement suits.

27. 575 F.2d 1152 (6th Cir. 1978). *Panduit* was written by Judge Howard T. Markey, who at the time was Chief Judge of the Court of Customs and Patent Appeals. Judge Markey later became the Chief Judge of the Federal Circuit at its inception and remained so until 1991. That *Panduit* was written by this influential patent judge may account for its universal acceptance and its logical appeal.

28. See, e.g., *Kaufman Co. v. Lantech, Inc.*, 926 F.2d 1136, 1140-41 (Fed. Cir. 1991); *Bio-Rad*

the patentee must prove: (1) demand for the patented product, (2) absence of acceptable noninfringing substitutes, (3) manufacturing and marketing capacity to exploit the demand, and (4) the amount of profit [lost through the infringement]."<sup>29</sup> If the patentee produces evidence satisfying those four requirements, a reasonable inference arises that it would have made the lost sales but for the infringing sales.<sup>30</sup>

The second standard was firmly announced by the Federal Circuit in *Kaufman Co. v. Lantech, Inc.*<sup>31</sup> There the court held: "When the patentee and the infringer are the only suppliers present in the market, it is reasonable to infer that the infringement probably caused the loss of profits."<sup>32</sup> In *Kaufman*, the court further observed that, where such a two supplier market is involved and the patentee establishes damages under the *Panduit* standard, "the inference approaches conclusiveness."<sup>33</sup>

Nevertheless, the Federal Circuit has made clear that no exclusive standard exists by which to determine lost profits.<sup>34</sup> Accordingly, under appropriate circumstances, a court may fashion a different formula for deriving damages sufficient to compensate the patentee.<sup>35</sup> The process by which a court reaches a damage award is not critical, provided the statutory guarantee is met that the injured party receive adequate compensation for its loss.<sup>36</sup> The Federal Circuit has been cautious, however, to avoid articulating alternatives to the *Panduit* four-part test.<sup>37</sup>

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Labs., Inc. v. Nicolet Instrument Corp., 739 F.2d 604, 616 n.\* (Fed. Cir. 1984).

29. *Panduit*, 575 F.2d at 1156.

30. See, e.g., *Bio-Rad*, 739 F.2d at 616; *Kaufman*, 926 F.2d at 1141.

31. 926 F.2d 1136 (Fed. Cir. 1991). Many previous cases had adopted this approach without pronouncing it an alternative to the *Panduit* standard. See, e.g., *American Hoist & Derrick Co. v. Sowa & Sons*, 725 F.2d 1350, 1365 (Fed. Cir.), *cert. denied*, 105 S. Ct. 95 (1984).

32. 926 F.2d at 1141; see also *Kori Corp. v. Wilco Marsh Buggies & Draglines, Inc.*, 761 F.2d 649, 653 (Fed. Cir. 1985); *Yarway Corp. v. Eur-Control USA, Inc.*, 775 F.2d 268, 275-76 (Fed. Cir. 1985) (holding that patentee and infringer were the only participants in a "mini-market"—25% of the overall market); *Lam, Inc. v. Johns-Manville Corp.*, 718 F.2d 1056, 1065 (Fed. Cir. 1983) (stating that in a two-supplier market causation can be inferred). For one of the first cases to announce this standard, see *Motor Player Corp. v. Piano Motors Corp.*, 19 F.2d 993, 994 (D.N.J. 1927).

33. 926 F.2d at 1141; see also *Ristvedt Johnson, Inc. v. Brandt, Inc.*, 805 F. Supp. 557, 561 (N.D. Ill. 1992) (Rader, Circuit Judge, Federal Circuit, sitting by designation).

34. E.g., *State Indus. v. Mor-Flo Indus.*, 883 F.2d 1573, 1577 (Fed. Cir. 1989), *cert. denied*, 493 U.S. 1022 (1990). One court, however, found the *Panduit* test to be "the clearest roadmap to lost profits," stating that *Panduit* "is a step-by-step, quantifiable method for arriving at a rational, comprehensive, and fair result and is the preferred approach in this case if it results in a fair award." *Polaroid Corp. v. Eastman Kodak Co.*, 16 U.S.P.Q.2d (BNA) 1481, 1490 (D. Mass. 1990), *correction for clerical errors*, 17 U.S.P.Q.2d (BNA) 1711 (D. Mass. 1991).

35. *Polaroid*, 16 U.S.P.Q.2d at 1490.

36. See *supra* note 1 and accompanying text.

37. See *Central Soya Co. v. Geo. A. Hormel & Co.*, 723 F.2d 1573, 1579 n.5 (Fed. Cir. 1983).

Although some decisions (and this Article) refer to the *Panduit* and two-supplier market standards as distinct tests,<sup>38</sup> it is perhaps better to view them as “prototypical situations in which the patentee is likely to carry the burden of establishing causation . . . .”<sup>39</sup> This view is supported by decisions that intertwine the elements of the *Panduit* standard with the “two-supplier market” rule articulated in *Kaufman*.<sup>40</sup>

### B. Economic Factors and Principles Affecting Lost Profits

#### 1. The Evolution of Economic Principles in Patent Infringement Jurisprudence

Even before announcement of the *Panduit* standard, estimation of patent infringement damages shifted toward recognizing economic principles in attempting to meet the statutory requirement of adequately compensating the patentee.<sup>41</sup> In *Aro Manufacturing Co. v. Convertible Top Replacement Co.*,<sup>42</sup> the Supreme Court reasoned that the patentee is entitled to adequate compensation, despite the infringer’s failure to realize any tangible gain from infringement. The Court ruled that the patentee’s damages, regardless of the factual circumstances, should be calculated as the patentee’s profits “had the infringer not infringed,” less its actual profits.<sup>43</sup>

Another significant case applying economic principles in the patent infringement context is *Georgia-Pacific Corp. v. United States Plywood-Champion Papers Corp.*<sup>44</sup> The parties had stipulated that a reasonable royalty was the proper measure of damages.<sup>45</sup> Recognizing that patents exist

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38. See, e.g., *Kaufman*, 926 F.2d at 1141 (stating that *Panduit* theory and two-supplier market theory constitute two different “courses”).

39. 5 CHISUM, *supra* note 5, § 20.03[1][b][v][A], at 20-98.

40. See *Water Technologies Corp. v. Calco, Ltd.*, 850 F.2d 660, 671-72 (Fed. Cir. 1988) (stating that the “absence of acceptable noninfringing substitutes” element embodies the idea that lost profits may be easier to prove where only two-suppliers exist); *Yarway Corp. v. Eur-Control USA, Inc.*, 775 F.2d 268, 277 (Fed. Cir. 1985) (holding that “absence of acceptable noninfringing substitutes” element was established by patentee’s proving the existence of a “mini-market” in which only the patentee and the infringer compete).

41. See Richard T. Rapp & Phillip A. Beutel, *Patent Damages: Rules on the Road to Economic Rationality*, in 2 PAT. LITIG. (Practicing Law Institute) August 19, 1991, at 337.

42. 377 U.S. 476 (1964).

43. *Id.* at 507.

44. 318 F. Supp. 1116 (S.D.N.Y. 1970), *modified*, 446 F.2d 295 (2d Cir. 1971).

45. *Id.* at 1119 n.3.

in the market and that the market will likely affect the damages suffered by the patentee,<sup>46</sup> the court articulated a list of fifteen evidentiary factors generally relevant in computing the amount of a reasonable royalty for a patent license.<sup>47</sup> Fourteen of these factors can be distilled into five: (1) conditions and prices in previous licensing agreements involving the patent at issue or similar patents, (2) market power of the patent and the patented products, (3) the patentee's policies in establishing and maintaining that market power, (4) the patentee's and infringer's market relationship, and (5) the relative importance of the patented invention to the final patented products (i.e., profit attributable to the patented feature).<sup>48</sup> Attempting to provide a universal economic principle, the court's fifteenth factor provided that a reasonable royalty should be determined from a hypothetical, voluntary licensing negotiation at the time of the infringement between a willing patentee (licensor) and a willing infringer (licensee).<sup>49</sup>

After *Georgia-Pacific* came *Panduit*, in which the Sixth Circuit extended the *Georgia-Pacific* market-based analysis to lost profits damage calculations. The *Panduit* court first set forth the four-part standard for proving lost profits described above,<sup>50</sup> which is designed to account for market-based effects in computing lost profits. But the court refused to award the patentee lost profits under this standard, as it had failed to establish the fourth element—the amount of profit it would have made absent infringement—due to the lack of evidence on its fixed costs.<sup>51</sup> The court accordingly turned to a reasonable royalty determination, in the process rejecting the *Georgia-Pacific* concept of hypothetical negotiations between willing parties.<sup>52</sup> Instead of willing parties, the *Panduit* court observed: “There is, of course, no actual willingness on either side, and no license to do anything, the infringer being normally enjoined . . . from further manufacture, use, or sale of the patented product.”<sup>53</sup>

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46. See, e.g., *id.* at 1140.

47. *Id.* at 1120 (stating that it drew these factors from the “leading cases”).

48. See *id.* at 1120-21. Nevertheless, the *Georgia-Pacific* court did observe that it would be impossible to assign fixed weights to these factors. *Id.* at 1143. In their article, Rapp and Beutel classify these fifteen factors into “four basic categories”: (1) directly and indirectly comparable royalty rates; (2) factors affecting profits to a potential licensee-infringer if it were awarded a license; (3) factors affecting the patentee's losses resulting from awarding a license; and (4) factors influencing the bargaining power that each party would bring to a hypothetical licensing orientated negotiation. Rapp & Beutel, *supra* note 41, at 342.

49. 318 F. Supp. at 1121-22 (citing for this principle *Horvath v. McCord Radiator & Mfg. Co.*, 100 F.2d 326, 335 (6th Cir. 1938), *cert. denied*, *Carrier Eng'g Corp. v. Horvath*, 308 U.S. 581 (1939); and *Faulkner v. Gibbs*, 199 F.2d 635, 639 (9th Cir. 1952)).

50. See *supra* notes 27-30 and accompanying text.

51. 575 F.2d at 1157.

52. *Id.* at 1159.

53. *Id.*

## 2. Noninfringing Substitutes: A Failure to Account for Market Forces on Lost Profits

Although the *Panduit* four-part lost profits standard embraces economic analysis, courts have applied the standard so as to vitiate effective market influences.<sup>54</sup> Most importantly, led by the Federal Circuit, courts have applied the noninfringing substitutes element of the *Panduit* test<sup>55</sup> to require the existence of a technical, rather than economic, substitute for the patented product.<sup>56</sup> In other words, where a noninfringing product exists in the market that is commonly purchased as a substitute for the patented product, that substitute will not qualify as an "acceptable" substitute under the *Panduit* standard unless it is also a close technical substitute.<sup>57</sup> Thus, the Federal Circuit, as well as many lower courts, have frequently shunned evidence of market realities in ascertaining the existence of noninfringing substitutes.

For example, in *Radio Steel & Mfg. Co. v. MTD Products, Inc.*,<sup>58</sup> the Federal Circuit rejected the contention that a device incorporating some but not all the elements claimed in the disputed patent was an acceptable noninfringing substitute for the patented product.<sup>59</sup> The court explained that the totality of the claimed elements and their interaction was the patented invention; some lesser assembly and functionality, then, could not be considered an acceptable substitute.<sup>60</sup>

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54. See, e.g., *Kaufman Co. v. Lantech, Inc.*, 926 F.2d 1136, 1142 (Fed. Cir. 1991) (requiring technical substitutes for patented product, rather than approving economic substitutes).

55. See *supra* note 29 and accompanying text (discussing *Panduit* test).

56. See, e.g., *Kaufman*, 926 F.2d at 1142; *Radio Steel & Mfg. Co. v. MTD Prods., Inc.*, 788 F.2d 1554, 1556 (Fed. Cir. 1986). See generally *ROPP & BEUTEL*, *supra* note 41.

57. See *Rexnord Inc. v. Laitram Corp.*, 6 U.S.P.Q.2d (BNA) 1817, 1843 (E.D. Wis. 1988) (stating that "there are no noninfringing substitutes as the term is defined in the patent law"). *Panduit* itself provided the genesis of this strict attitude towards the noninfringing substitutes prong of the four-part test. There the court indicated that the "acceptable substitute" proffered by the infringer "must be viewed of limited influence where the infringer knowingly made and sold the patented product for years while ignoring the 'substitute.'" *Panduit*, 575 F.2d at 1162 n.9; see also *Smith Int'l, Inc. v. Hughes Tool Co.*, 229 U.S.P.Q. (BNA) 81, 95 (C.D. Cal. 1986) (stating that *Panduit* "makes the point . . . that the 'noninfringing alternative' or 'acceptable substitute' must be viewed with some skepticism and conservatism where, in fact, the infringer chose the risk of infringing rather than using the proffered alternative"), *vacated as moot*, 839 F.2d 663 (Fed. Cir. 1988). *Panduit* went even further, however, pointing out that the effective use of substitutes after the injunction has issued, thereby stopping the infringement, does not by itself fully establish the defense of an acceptable noninfringing substitute. 575 F.2d at 1162.

58. 788 F.2d 1554 (Fed. Cir. 1986).

59. *Id.* at 1556.

60. *Id.*; see also *Standard Havens Prods., Inc. v. Gencor Indus.*, 953 F.2d 1360, 1373 (Fed. Cir. 1991) ("[T]o prove that there are no acceptable noninfringing substitutes, the patent owner must show either that (1) the purchasers in the marketplace generally were willing to buy the patented product for its advantages, or (2) the specific purchasers of the infringing product purchased on that basis."); *Kaufman*, 926 F.2d at 1142 ("A technology that was immature and more expensive than the patented

In contrast with its rigid constraints on the availability of economic noninfringing substitutes under the *Panduit* test, both the Federal Circuit and lower courts have made clear that the *patentee* is entitled to use market-share evidence in *supporting* a claim for lost profits.<sup>61</sup> The introduction of such evidence will establish that the patentee would have made some percentage of the infringer's sales, despite the existence in the market of noninfringing substitutes. Presented with such evidence, the Federal Circuit in *State Industries, Inc. v. Mor-Flo Industries, Inc.*<sup>62</sup> upheld an award of lost profits damages.<sup>63</sup> The evidence showed that, absent infringement, the patentee would have made at least its market share percentage of the infringer's sales.<sup>64</sup> As to the remainder of the infringer's sales, i.e., those sales beyond that market share, the court granted the patentee a reasonable royalty.<sup>65</sup>

To avoid rigid application of the *Panduit* test resulting from requiring technical substitutes, and to better account for economic principles, courts should award damages based on the market power the patent confers.<sup>66</sup> Because market power depends largely on the availability of *economic* substitutes for the patented product, a market power-type examination would more accurately account for market forces than the noninfringing substitutes element of the *Panduit* test as construed to require *technical* substitutes.

*Polaroid Corp. v. Eastman Kodak Co.*<sup>67</sup> is a case in which the court looked to economic, as opposed to technical, substitutes.<sup>68</sup> Polaroid had

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technology during the time of infringement cannot have been an acceptable noninfringing substitute."); *TWM Mfg. Co. v. Dura Corp.*, 789 F.2d 895, 901 (Fed. Cir. 1986) ("A product lacking the advantages of that patented can hardly be termed a substitute 'acceptable' to the consumer who wants those advantages." (quoting *Panduit*, 575 F.2d at 1162)).

61. See, e.g., *State Indus. v. Mor-Flo Indus.*, 883 F.2d 1573, 1578-80 (Fed. Cir. 1989), *cert. denied*, 493 U.S. 1022 (1990); *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 939 F.2d 1540, 1545 (Fed. Cir. 1991) ("Because [the patentee] would have possessed only eighty percent of the market, it is more appropriate to assume that [the patentee] would have made 80 percent of [the infringer's] sales, had [the infringer] not been in the market."); *BIC Leisure Prods. Inc. v. Windsurfing Int'l Inc.*, 761 F. Supp. 1032, 1035 (S.D.N.Y. 1991) (stating that "where, as here, there are several suppliers in the market, it is appropriate to award the patentee lost profits according to its actual market share"); *Micro Motion, Inc. v. Kane Steel Co.*, 894 F.2d 1318, 1322 (Fed. Cir. 1990) (dictum) ("Other litigants have been held entitled to lost profits damages calculated on a portion of an infringer's sales based on the patentee's market share.").

62. 883 F.2d 1573 (Fed. Cir. 1989).

63. *Id.* at 1575.

64. *Id.* at 1577-80. *But see* *Slimfold Mfg. Co. v. Kinkead Indus.*, 932 F.2d 1453, 1458 (Fed. Cir. 1991) ("In *State Industries*, we held that the *grant* of lost profits based on market share was not an abuse of discretion. However, that holding does not mean that the contrary is true, i.e., that the *failure* to award lost profits based on market share *would constitute* an abuse of discretion.") (citations omitted).

65. *State Indus.*, 883 F.2d at 1580-81.

66. See *Rapp & Beutel*, *supra* note 41, at 348-49.

67. 16 U.S.P.Q.2d (BNA) 1481 (D. Mass. 1990), *amended due to clerical errors*, 17 U.S.P.Q.2d (BNA) 1711 (D. Mass. 1991).

68. 16 U.S.P.Q.2d (BNA) at 1491.

sought damages for lost profits due to price erosion, arguing that Kodak's sales of infringing instant cameras and film forced down the prices Polaroid charged for its patented instant cameras and film.<sup>69</sup> Despite holding that no "acceptable" noninfringing substitute existed under the *Panduit* test,<sup>70</sup> the court rejected Polaroid's price erosion theory, in part because 35-mm cameras had entered the market (i.e., an economic noninfringing substitute).<sup>71</sup> The court reasoned that 35-mm cameras would have "seriously constrained" Polaroid's ability to charge higher prices for its instant cameras and film.<sup>72</sup>

Further examining the effects of the market on Polaroid's price erosion claim, the court found that "[d]evelopments in 35-mm photofinishing contributed to the declining demand of instant [cameras and film] and reduced Polaroid's ability to raise prices in any 'but for' world."<sup>73</sup> In conclusion, the court held:

It would be ridiculous to conclude that Kodak's presence in the market did not influence how Polaroid conducted its instant business from 1976 to 1985. Other than losing the sales Kodak made, however, Polaroid has not proven additional damage. It has not shown that it would have charged higher prices. . . . Even giving Polaroid every benefit of the doubt, the Court is unable to conclude that the company would have reaped greater profits. Liability does not extend to speculative damages.<sup>74</sup>

Along the same lines as *Polaroid* is *SmithKline Diagnostics, Inc. v. Helena Lab. Corp.*,<sup>75</sup> indicating a liberalization of the Federal Circuit's restrictive stance on what constitutes an acceptable noninfringing substitute.<sup>76</sup> In *SmithKline*, the Federal Circuit affirmed the district court's holding that an acceptable noninfringing substitute existed.<sup>77</sup> The Federal Circuit found unpersuasive the patentee's contention that the noninfringing products lacked certain features of the patented invention and, consequently, could not be deemed part of the market.<sup>78</sup> In so ruling, the court observed that the "realities of the marketplace" are indeed relevant to the question of causa-

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69. *Id.* at 1489.

70. *Id.* at 1492.

71. *Id.* at 1505.

72. *Id.* at 1506. The court also found that "[o]ther conventional photography products also competed with instant [cameras and film], but not to the same degree." *Id.*; see also *SmithKline Diagnostics, Inc. v. Helena Lab. Corp.*, 926 F.2d 1161, 1166 (Fed. Cir. 1991).

73. 16 U.S.P.Q.2d (BNA) at 1507. The "but for" comment refers to the patentee's burden to prove that infringement caused it to lose profits. *Id.* at 1490.

74. *Id.* at 1509 (citation omitted).

75. 926 F.2d 1161 (Fed. Cir. 1991).

76. *Id.* at 1166.

77. *Id.* at 1165.

78. *Id.* at 1166.

tion.<sup>79</sup> In a telling passage, the court explained: “[I]f the realities of the market are [such] that others would likely have captured sales made by the infringer, despite a difference in the products,” it follows that the patentee has not met its burden of proving that it would have made the infringer’s sales but for the infringement.<sup>80</sup>

The principle of economic noninfringing substitutes articulated in *Polaroid* and *SmithKline* helps to protect infringers against excessive damage awards. Clearly, where economic substitutes do exist in the marketplace, but for the infringement, the patentee would *not* have made all the sales of the infringer.<sup>81</sup> Indeed, in the “but for” world, the existence of an economic substitute as effective as, or superior to, the patented product would compel the conclusion that a lost profits award is inappropriate.<sup>82</sup> In such cases, damages based on an actual or reasonable royalty calculation should be the only theories under which the patentee can recover for infringement.<sup>83</sup>

### 3. Accounting for Other Economic Principles and Market Forces in Computing Lost Profits

Many additional economic principles and market forces come into play in analyzing patent damages.<sup>84</sup> Indeed, economics shape the analysis of any damages determination, whether it be lost profits from lost sales, price erosion or reasonable royalty.<sup>85</sup> Accordingly, courts should consider and apply economic principles and market forces in analyzing a claim for damages from

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79. *Id.*

80. *Id.*; *cf.* *Slimfold Mfg. Co. v. Kinkead Indus.*, 932 F.2d 1453, 1458 (Fed. Cir. 1991) (noting that if purchasers specifically wanted products with certain advantages, then other products without these advantages would not be acceptable noninfringing substitutes). *But see Kaufman Co. v. Lantech, Inc.*, 926 F.2d 1136, 1142 (Fed. Cir. 1991) (holding that to qualify as an acceptable noninfringing substitute, the product must not have a disparately higher price or significantly different characteristics from the patented product).

81. *See Rapp & Beutel, supra* note 41, at 344, 348-49.

82. Where close noninfringing economic substitutes exist that are as good or better than the patented product, consumers will lose nothing by switching from the patented product to the economic substitutes, assuming, of course, that the economic substitutes are priced at or below the patented product’s price. (Indeed, if the economic substitutes are superior to the patented product, they may be priced incrementally higher than the patented product, and consumers will lose nothing by switching.) If an infringer enters such a market and sells its product, the patentee is not entitled to lost profits damages, because had the patentee raised its price, consumers would have switched to the noninfringing economic substitutes. Thus, the patentee cannot establish the requisite causation element for lost profits damages. *See supra* notes 15-18 and accompanying text.

83. *See Panduit Corp. v. Stahl Brothers Fibre Works, Inc.*, 575 F.2d 1152, 1157 (6th Cir. 1978) (“When actual damages . . . can not be proved, the patent owner is entitled to a reasonable royalty.”).

84. *See infra* notes 86-103.

85. *See Addanki, supra* note 14, at 22.

patent infringement. To ignore these principles risks an award of damages that is either insufficient to adequately compensate the infringer or grossly inflated.

It is "well established in the law relating to patent damages" that lost profits must be calculated on an incremental basis.<sup>86</sup> This economic principle recognizes that it costs less to produce the unit N+1, provided the previous N (or fewer) units have already paid the fixed costs.<sup>87</sup> Fixed costs include items such as rent, salaries, utilities, subscriptions, etc.—in other words, overhead and operating expenses.<sup>88</sup>

Another important economic factor that should be considered in computing lost profits is the market effect of higher prices on the patented invention. In other words, a court should consider that when the price of a product increases, public consumption of that product will decrease, and vice versa.<sup>89</sup> This is the law of demand.<sup>90</sup>

The law of demand has significant application in the computation of price erosion damages.<sup>91</sup> In analyzing a claim of price erosion, a court should consider that a patentee who raises prices in the absence of infringement will almost certainly experience a decrease in demand for the patented product.<sup>92</sup> Such a price increase may *create* economic noninfringing alternatives—alternatives that consumers would not have purchased at the lower price, thus causing the patentee to lose some customers. Accordingly, the patentee should account for such reduced demand in presenting its evidence on price erosion (whether past or future). In effect, when making its case for lost profits, the patentee should admit that a concomitant decrease in demand would have accompanied the increased price it could have obtained for its patented product, had the infringement never occurred.<sup>93</sup> The patentee's failure to make such an admission may prove fatal to a claim for price erosion damages.<sup>94</sup>

The elasticity of demand will dictate how much the increased price affects the demand for the patented product. Elasticity, which refers to the sensitivity of quantity sold to changes in price, is defined as the percent change in

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86. Paper Converting Mach. Co. v. Magna-Graphics Corp., 745 F.2d 11, 22 (Fed. Cir. 1984).

87. See, e.g., *id.*

88. See, e.g., Andrew Corp. v. Gabriel Elec., Inc., 785 F. Supp. 1041, 1049 (D. Me. 1992); Saf-Guard Prods. Inc. v. Service Parts, Inc., 491 F. Supp. 996, 1001 (D. Ariz. 1980).

89. See, e.g., Rapp & Beutel, *supra* note 41 at 349-50; Addanki, *supra* note 14, at 9.

90. See Addanki, *supra* note 14, at 5-7.

91. See *id.* at 8-9.

92. See Rapp & Beutel, *supra* note 41, at 349-50.

93. See Andrew Corp., 785 F. Supp. at 1052 (refusing to award price erosion damages because patentee failed to appropriately deduct for reduced sales due to price increase).

94. See *id.*

quantity demanded resulting from a 1% change in price.<sup>95</sup> Where quantity is very responsive to price, demand is said to be elastic. In contrast, if price changes have little or no effect on demand, demand is said to be inelastic.<sup>96</sup>

The interaction of elasticity of demand and claims for price erosion may be confusing in some instances. For example, suppose that infringement causes the patentee to reduce its prices. If demand is elastic, the increase in quantity caused by the patentee's price decrease will more than offset the price decrease, resulting in a net *increase* in revenue for the patentee.<sup>97</sup> This does not mean, however, that the patentee has suffered no damage from price erosion. Damage may result despite the net increase in overall revenue (via the disproportionate increase in quantity sold vis-a-vis the price reduction), because the increase in costs associated with producing and selling the increased quantity may have more than offset the increase in revenue.<sup>98</sup>

The law of demand also has application to lost sales claims. Assume first that demand is not perfectly inelastic,<sup>99</sup> and is thus to some extent responsive to price.<sup>100</sup> Even in the absence of infringement, then, the patentee could not have made all the sales the infringer made.<sup>101</sup> This is because any price increase by the patentee will affect demand for the patented product.<sup>102</sup> In computing lost profits due to lost sales, therefore, a court should consider the economic influence of demand for the patented product and calculate the total number of lost sales accordingly.<sup>103</sup>

### III. FUTURE LOST PROFITS: THEORIES AND EXAMPLES

Various theories may provide grounds for awarding future lost profits based on past infringement. As with an award of lost profits to directly compensate for past infringement, future lost profits can be awarded to compensate the

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95. Addanki, *supra* note 14, at 9.

96. *See id.*

97. *Id.*

98. *Id.* Addanki provides some concrete examples. *Id.* at 10-11.

99. If demand were perfectly inelastic, the patentee would possess a true monopoly and could raise prices, but for infringement, with impunity. Rapp & Beutel, *supra* note 41, at 349 n.20.

100. The extent demand is responsive to price is a function of the market power the patent confers—the greater the power, the less responsive, and vice versa. In order to measure elasticity of demand, one may employ econometric or statistical techniques to analyze historical and other market data to obtain an estimate of elasticity. Addanki, *supra* note 14, at 11, 12-14.

101. Rapp & Beutel, *supra* note 41, at 352.

102. *See supra* notes 89-90 and accompanying text.

103. This can be established, for example, through expert testimony.

patentee for future lost sales, future price erosion, and future increased expenses.<sup>104</sup> This section examines several theories under which a patentee can argue for future lost profits damages. These theories are discussed in conjunction with cases that have applied them.

#### A. Future Lost Sales Damages

It is relatively well-settled that a patentee can recover future damages resulting from future lost sales.<sup>105</sup> Under this theory, a patentee contends that it will lose some amount of future sales due to past infringements.<sup>106</sup> To prove its case, the patentee will look to its past history of sales and those diverted from it during the period of infringement and project into the future how many sales it will likely lose as a result of the infringer's previous infringing activity.<sup>107</sup>

As an example, suppose a patentee has a patent on a product and produces that product for several years. Subsequent to introduction of the patentee's product, an infringer enters the market with an infringing product. Due to this infringing product, suppose the patentee loses some or all of its sales and consequently removes its patented product from the market.<sup>108</sup> The patentee then brings suit against the infringer, obtaining an injunction prohibiting the infringer from making further sales of its product.<sup>109</sup>

In seeking compensation for all damages it suffered as a result of the infringement, the patentee can assert various claims for lost profits damages. For instance, the patentee may seek the classical form of lost profits damages,

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104. See *supra* note 4 and accompanying text (discussing various grounds for awarding lost profits damages).

105. See, e.g., *Oiness v. Walgreen Co.*, 774 F. Supp. 1277, 1285-86 (D. Colo. 1991), *aff'd in part, vacated in part, unpublished opinion*, 26 U.S.P.Q.2d (BNA) 1548 (Fed. Cir. 1992); *Sun Prods. Group Inc. v. B & E Sales Co.*, 700 F. Supp. 366, 384 (E.D. Mich. 1988) (discussed *infra* notes 116-38 and accompanying text); *cf.*, e.g., *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1581 (Fed. Cir. 1992) (stating that "projected future losses may be recovered when sufficiently supported"); *Standard Havens Prods., Inc. v. Gencor Indus.*, 953 F.2d 1360, 1372-73 (Fed. Cir. 1991) (rejecting request for future lost profits, but not rejecting viability of such awards).

106. See, e.g., *Sun Products*, 700 F. Supp. at 385.

107. See, e.g., *id.*

108. Alternatively, the patentee may lose so many sales to the infringer that the patentee's product is effectively off the market, even though the patentee still produces and attempts to sell its product.

109. A patentee is entitled to an injunction "to prevent the violation of any right secured by a patent, on such terms as the court deems reasonable." 35 U.S.C. § 283 (1988). The rights secured by a patent are the exclusive right to make, use, and sell the patented invention in the United States for the term of the patent, see *id.* § 271(a), the term being 17 years, *id.* § 154.

i.e., those adequate to compensate the patentee for its past lost sales.<sup>110</sup> In addition, the patentee may assert that it would have sold a certain quantity of its product in the future but for the infringer's product, which caused the patentee to remove its patented product from the market.<sup>111</sup> The patentee would argue that the partial or total cessation of sales of its product either could not be resumed or could be resumed only on a limited basis after the injunction issued.<sup>112</sup> Thus, the patentee would contend that in the future it could not realize the total sales it would have realized had the past infringement never occurred.<sup>113</sup>

As one may imagine, however, such projections are inherently speculative.<sup>114</sup> It is difficult to imagine a circumstance in which a patentee could not resume sales of its patented product once the patent protections are given effect by a court.<sup>115</sup> Thus, even if a court awards damages for future lost sales, it should recognize that some potential still exists for future sales of the patented product despite the past infringement.<sup>116</sup>

A good example of such a case is *Sun Products Group, Inc. v. B & E Sales Co.*<sup>117</sup> In June 1984, the plaintiff-patentee commenced marketing and selling

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110. See *supra* note 5 and accompanying text (stating that lost profits due to past lost sales is the classic and most prevalent form of lost profits damages awarded by courts).

111. See *Sun Prods. Group Inc. v. B & E Sales Co.*, 700 F. Supp. 366, 386-87 (E.D. Mich. 1988).

112. See *id.* at 381-82.

113. See *id.*

114. See *Standard Havens Prods., Inc. v. Gencor Indus.*, 953 F.2d 1360, 1376 (Fed. Cir. 1991). In *Standard Havens*, the Federal Circuit rejected as too speculative a contract damage claim for lost profits from future sales of unpatented parts for the patented product. *Id.* The patentee in *Standard Havens* had provided sufficient evidence that it would have made pre-infringement sales of a patented asphalt plant and was awarded lost profits based on those lost sales. *Id.* at 1373-74. The patentee also sought contractual damages for lost profits based on future lost sales of unpatented parts for the patented asphalt plants. *Id.* at 1375. Evidence existed to the effect that when a company lost a plant sale it would also lose that plant's future parts sales; the infringer was enjoined from future contributory patent infringement and was thereby enjoined during the life of the patent from selling such parts. *Id.*

The patentee nevertheless argued that the injunction did not prevent the infringer from making parts sales because the infringer was protected under the "repair doctrine," which permits a buyer to repair a patented product bought from the patentee or a licensee of the patentee. *Id.* (The genesis of the repair doctrine is *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 377 U.S. 476, 497-98 (1964), and *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 345-46 (1966).) Reasoning that it was impossible to determine in advance whether future sales of parts would fall within the repair doctrine, the *Standard Havens* court rejected the patentee's argument. 953 F.2d at 1376. It specifically held that under the circumstances of the case, the lost profits based on the future parts sales were "entirely too speculative to permit a damage award on that basis." *Id.*

115. See *Sun Products*, 700 F. Supp. at 386.

116. See *id.* at 387; cf. *Minnesota Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, No. 4-86-359, 1991 WL 441901, at \*58 (D. Minn. April 30, 1991) (rejecting award of future price erosion damages on ground that "it is certainly possible that in the [future the defendant], or some other company, will develop a . . . product that does not infringe the . . . patents"), *aff'd*, 22 U.S.P.Q. (BNA) 1401 (D. Minn. 1991), *aff'd*, 976 F.2d 1559 (Fed. Cir. 1992).

117. 700 F. Supp. at 387.

a product called the "Headchair," a foldable head rest.<sup>118</sup> Shortly thereafter, the inventors of the Headchair applied for a patent, which was granted on October 1, 1985.<sup>119</sup> Plaintiff also received a U.S. Trademark registration on its "Headchair" trademark.<sup>120</sup>

While plaintiff purchased very little commercial advertising for the Headchair, it was widely publicized in the print and broadcast media.<sup>121</sup> It was also identified as one of the "hot new products of 1985," and its inventors received considerable media attention.<sup>122</sup> As a result, plaintiff sold nearly 200,000 Headchair units in the first year of production.<sup>123</sup> In this first year, the defendant also began marketing and selling a headrest that infringed the Headchair, adopting the term "Heads-Up" for its headrest.<sup>124</sup> Within months of introduction of the Heads-Up product, sales of the Headchair plummeted to a fraction of their pre-infringement levels.<sup>125</sup> Accordingly, plaintiff brought suit, asserting patent and trademark infringement.<sup>126</sup>

Having established infringement of its patent, plaintiff sought an award of lost profits damages.<sup>127</sup> Defendant countered, arguing that a reasonable royalty was the proper award because: the patented product was merely a fad or novelty item; the two products were sold at greatly different prices to entirely different retailers and ultimately to different consumers; and, therefore, sales of the Heads-Up product could not have caused a loss of Headchair sales.<sup>128</sup>

Plaintiff presented testimony of a marketing expert, who made projections of future sales prospects for the Headchair in a marketplace without the Heads-Up chair.<sup>129</sup> The expert also opined that the Headchair was more than a fad or novelty item.<sup>130</sup> The only evidence defendant produced to counter the plaintiff's expert's projections was testimony of defendant's own marketing expert, who countered that the Headchair was merely a fad item.<sup>131</sup> The

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118. *Id.* at 371.

119. *Id.*

120. *Id.* at 372.

121. *Id.* at 373.

122. *Id.*

123. *Id.*

124. *Id.* at 373, 381.

125. *Id.* at 374-75.

126. *Id.* at 378-81. Not only did the plaintiff contend that defendant's chair infringed plaintiff's patent; it also argued that the name adopted by defendant, Heads-Up, was confusingly similar to plaintiff's trademark, namely, Headchair. *Id.* at 373-74.

127. *Id.* at 381-82.

128. *Id.* at 382.

129. *Id.*

130. *Id.*

131. *Id.* at 383.

defendant's marketing expert did not testify, however, as to what effect introduction of the Heads-Up product might have had on the Headchair market.<sup>132</sup>

Noting that "judgmental forecasting is far from an infallible science,"<sup>133</sup> the court nevertheless accepted the plaintiff's expert's estimates of future Headchair sales and found the estimates to be conservative.<sup>134</sup> The court thus agreed with plaintiff's sales projections and awarded future lost profits due to lost sales for a period of four years after conclusion of the lawsuit.<sup>135</sup> Reasoning that the defendant's acts permanently impaired sales prospects for the Headchair, the court explained:

Those acts resulted in a near-complete interruption of the "Headchair" sales, a breach in the relationship of trust which [plaintiff] had established with its nationwide network of independent sales agents, [in] a drastic reversal of what had been a phenomenal early commercial success. The damage to [plaintiff's] business caused by [defendant's] infringements will likely never be fully repaired.

It seems apparent that the 1985 wave of media interest in the "Headchair" cannot be expected to duplicate itself when the product reappears on the market after a hiatus such as the present one. Moreover, it will not be easy for [plaintiff] to reestablish the relationships that it had developed in the marketplace before [defendant's] infringement began. This Court believes that the sales momentum and business goodwill which flowed from [plaintiff's] successful first year has, to a great extent, been irreparably lost.<sup>136</sup>

Accordingly, the court in *Sun Products* awarded plaintiff a percentage of its projected lost sales from the conclusion of the lawsuit (in November 1988) through the end of 1992.<sup>137</sup> In so doing, however, the court recognized that some potential still existed for Headchair sales in the future and thus discounted plaintiff's damages to avoid an unjust enrichment.<sup>138</sup>

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132. *Id.*

133. *Id.* at 384 (footnote omitted).

134. *Id.*

135. *Id.*

136. *Id.* at 386-87.

137. *Id.* at 387.

138. *Id.* Following the *Sun Products* litigation, the new owner of the same patent involved in that litigation brought suit for patent infringement against the Walgreen Company. *Oiness v. Walgreen Co.*, 774 F. Supp. 1277, 1280 (D. Colo. 1991), *aff'd in part, vacated in part, unpublished opinion*, 26 U.S.P.Q.2d (BNA) 1548 (Fed. Cir. 1992). In *Oiness*, the plaintiff also sought future damages, seeking compensation for damages that had accrued after resolution of the *Sun Products* case and that were solely the result of Walgreen's infringement. 774 F. Supp. at 1284-85. Ruling that no double recovery would result, the *Oiness* court awarded "projected" lost profits for the 1992 to 2002 time frame. *Id.* at 1285. The

The Federal Circuit addressed a claim for "projected" lost profits damages in *Lam, Inc. v. Johns-Manville Corp.*,<sup>139</sup> in which the court upheld a damage award based on "projected lost sales" in a two-supplier market.<sup>140</sup> At trial, the plaintiff-patentee introduced evidence of its pre-infringement growth rate, its decreased growth rate during the infringement period, and its even greater growth rate following cessation of infringement.<sup>141</sup> The Federal Circuit held that the post-infringement growth rate was admissible evidence to infer that the plaintiff would have grown at the pre-infringement growth rate had defendant not infringed, and that such growth would have provided plaintiff a 25% profit margin.<sup>142</sup> Concluding, the court ruled that in a two-supplier market, "an award based on projected lost sales is neither remote nor speculative when there is evidence of actual pre-infringement and post-infringement growth rates."<sup>143</sup>

The "projected" lost profits award in the *Lam* decision, however, was not for "future" lost profits as defined and studied in this Article. Rather, *Lam* involved a determination of "intermediate" damages—that is, a case in which damages continue to accrue after suit is filed and before the final decision is handed down.<sup>144</sup> Specifically, plaintiff filed suit after its patent issued and obtained an injunction in late 1979, as well as damages accruing from the date the patent issued until issuance of the injunction.<sup>145</sup> In addition, plaintiff sought lost profits damages for "projected lost sales," a claim for damages

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jury awarded the plaintiff \$300,000 for post-1992 damages, and the court affirmed, finding that this award did not result "from speculation or conjecture on the part of the jury." *Id.* The court, however, refused to award the plaintiff prejudgment interest, because such an award is inappropriate "where damages are recovered for future injury rather than past or present losses." *Id.* at 1291. The Federal Circuit affirmed the jury's verdict, but vacated and remanded for reconsideration of the lost profits award and denial of prejudgment interest, holding that the jury instructions did not adequately distinguish a portion of the damages for separate 1985-86 infringement, and that the jury's damage award was not supported by substantial evidence. 26 U.S.P.Q.2d (BNA) at 1550.

139. 718 F.2d 1056 (Fed. Cir. 1983).

140. *Id.* at 1067. A two-supplier market exists where the patentee and the infringer are the only two significant participants in the market for the patented product. *Id.*

141. *Id.* at 1068.

142. *Id.*

143. *Id.* The district court's basis for awarding projected lost profits was the expense of the litigation. *Id.* at 1067. The Federal Circuit, however, expanded the basis for affirming the award, citing not only the harm to plaintiff's financial and human resources resulting from the litigation, but the harm caused to its patented product by defendant's poorly designed and faulty infringing product. *Id.* at 1067-68. The Federal Circuit explicitly praised the district court's extrapolation of lost sales and actual profits data, stating that the resultant damages were "not picked out by mere speculation or guess. . . ." *Id.* at 1068. The Federal Circuit distinguished *Velo-Bind, Inc. v. Minnesota Mining & Mfg. Co.*, 647 F.2d 965, 973 (9th Cir. 1980), *cert. denied*, 454 U.S. 1093 (1981), and *Union Carbide Corp. v. Graver Tank & Mfg. Co.*, 282 F.2d 653, 673 (7th Cir. 1960), *cert. denied*, 365 U.S. 812 (1961).

144. *Lam*, 718 F.2d at 1066.

145. *Id.* at 1059.

from the date the injunction issued until the date of the trial court's decision.<sup>146</sup>

In its projected lost sales claim, plaintiff projected what its profit would have been during that post-injunction period had defendant not infringed, basing its claim on pre-infringement growth rates and post-infringement growth rates.<sup>147</sup> Plaintiff extrapolated what its growth rate would have been during the period of infringement.<sup>148</sup> It then projected what sales it would have made during the post-injunction period had it "been permitted to grow the way it could have grown absent the lawsuit."<sup>149</sup> Accordingly, the district court based its post-injunction projected lost profits award on plaintiff's impaired growth rate resulting from the infringement litigation and the associated cash drain.<sup>150</sup>

Both *Sun Products* and *Lam* establish the viability of future lost profits damages based on lost sales. *Sun Products* shows that courts will award lost profits for injury occurring after termination of the lawsuit. *Lam*, despite awarding only "projected" lost sales accruing during the lawsuit, nevertheless demonstrates a method by which courts can estimate future lost profits due to lost sales. Moreover, in principle, *Lam* demonstrates a willingness in the Federal Circuit to accept evidence projecting future lost sales damages and a lack of antipathy towards claims seeking redress for future harm.

### B. Future Price Erosion Damages

In spite of the apparent acceptance of future lost sales awards, it appears that no court has yet awarded a patentee future lost profits resulting from future price erosion. In fact, to this Author's knowledge, the courts have addressed future price erosion claims only twice in published opinions.<sup>151</sup>

To assert future injury resulting from future price erosion, a patentee will claim that, due to the infringer's past infringement, the patentee's future price

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146. *Id.*

147. *Id.* at 1060-61.

148. *Id.* at 1061.

149. *Id.* at 1063-64 (quoting district court).

150. *Id.* at 1062. *But see* *Union Carbide Corp. v. Graver Tank & Mfg. Co.*, 282 F.2d 653, 673 (7th Cir. 1960) (rejecting award of additional compensatory damages "to cover the inconvenience, trouble and expense which the plaintiff has suffered by reason of the infringement and based on the fact that the plaintiff has been compelled to conduct long and expensive litigation"), *cert. denied*, 365 U.S. 812 (1961).

151. *See* *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1581 (Fed. Cir. 1992); *Minnesota Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, No. 4-86-359, 1991 WL 441901, at \*58 (D. Minn. April 30, 1991), *aff'd*, 22 U.S.P.Q.2d (BNA) 1401 (D. Minn. 1991), *aff'd*, 976 F.2d 1559 (Fed. Cir. 1992).

on its patented product will be depressed from what it would have been but for the infringement.<sup>152</sup> The claim is premised on the ground that, once the infringer leaves the market (via an injunction), the patentee will be unable to immediately raise its prices to where they would have been absent infringement.<sup>153</sup> The patentee instead would be forced to gradually raise its prices on an inflationary basis to maintain customer relations—the price increase commencing at institution of the injunction barring the infringing product from the market.<sup>154</sup>

As can be readily imagined, under this reasoning one can contend that the post-injunction price charged for the patentee's product will never reach the level it would have attained had the infringement not occurred.<sup>155</sup> The basis of this contention is as follows: Had the infringer never entered the market, the patentee could have raised its prices on an inflationary basis at a steady rate through the actual period of infringement and into the future. Nevertheless, because the infringement did occur, the patentee's prices were deflated from where they should have been at the time the injunction issued. And despite the patentee's ability to raise its prices after the infringer departs from the market, because the patentee's price is depressed, and because the patentee can only increase its prices on an inflationary basis, the post-infringement price will never reach the level it would have attained absent infringement. In other words, the projected price absent infringement would have been higher than the actual (infringement) price when the infringer left the market; the two prices—increasing on an inflationary basis—will parallel each other in the future, with the actual price always being lower than the projected non-infringement price.<sup>156</sup>

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152. For the remainder of this section, price erosion claims will be discussed in relation to a patented end-product, the simplest of scenarios to envision. While scenarios involving a patented process for making an unpatented end-product, or a patented element of a multi-element unpatented end-product, are more complicated, the basic principles will be the same. See WARD S. BOWMAN, JR., PATENT AND ANTITRUST LAW, A LEGAL AND ECONOMIC APPRAISAL 66-76, 88-93 (1973).

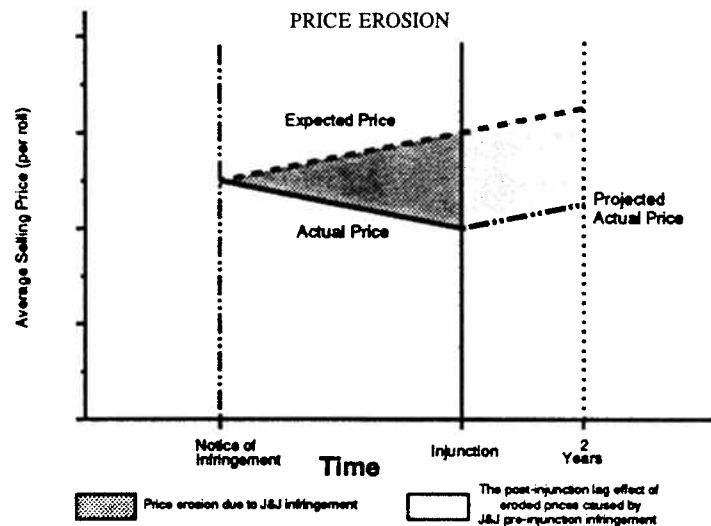
153. David C. Forsberg & Karen D. McDaniel, *Patent Damages: Proving Lost Profits Due to Price Erosion*, AIPLA Selected Legal Papers 247, 267 (Am. Intell. Prop. L. Ass'n 1992); see also *Proving Patent Damages at Trial*, AIPLA BULL. (Am. Intell. Prop. L. Ass'n, Arlington, VA), Dec. 1992, at 255-60.

154. Forsberg & McDaniel, *supra* note 153, at 267.

155. *Id.* at 268.

156. *Id.* This theory of future price erosion lost profits was espoused by Forsberg and McDaniel in their paper. They presented the following graph to depict their theory:

This simplified theory fails to account, however, for two important market forces. First, in a free market, it is reasonable to assume that the market will self-correct after infringement has ceased. That is, once an injunction issues leaving no infringing product in the marketplace, and assuming the absence of economic noninfringing substitutes,<sup>157</sup> as well as sufficient demand for the product, the patentee will possess a monopoly. This monopoly will allow it to freely price its product, with supply and demand dictating the price.<sup>158</sup> Accordingly, the patentee should be capable of immediately increasing its prices upon issuance of an injunction to the highest level the market will allow. That level (assuming no economic noninfringing substitutes) will be the same or very close to what it would have been had infringement never occurred. Second, and perhaps more significant, an economic substitute for the patented product may be developed in the future that will partly or wholly



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157. See *supra* part I.B.2 (discussing economic noninfringing substitutes). Clearly, the patentee's market price will be disciplined by the degree of competition in the market. That is, the more competition, the lower the price the patentee can charge for its product. Accordingly, if there exists a total absence of noninfringing substitutes in the market, the patentee will experience little, if any, practical price discipline.

158. Assuming adequate demand, the absence of economic noninfringing substitutes gives the patentee a virtual monopoly over the patented product or process, see Rapp & Beutel, *supra* note 41, at 340 n.3, with the concomitant power over pricing a monopoly confers. Of course, this conclusion will not hold if economic substitutes do exist. Yet, as was contended earlier, a patentee should be unable to recover lost profits in the presence of an economic substitute. See *supra* part I.B.2. Assuming this to be the law, a patentee entitled to lost profits damages will always have monopoly power after an injunction issues.

On the other hand, a patented product having many close economic substitutes may possess little or no market power. Such a product is a "commodity" selling for no more than the cost of making it. See Rapp & Beutel, *supra* note 41, at 340 n.3.

displace the patented product from the market.<sup>159</sup> It is indisputable that "the future always harbors unknowns."<sup>160</sup> Accordingly, future injury resulting from price erosion may be mitigated, or may never result, due to the future development of an economic noninfringing substitute. As a consequence, courts must always consider this factor in ascertaining future damages.

In *Brooktree Corp. v. Advanced Micro Devices, Inc.*,<sup>161</sup> the Federal Circuit considered claims for future lost profits due to price erosion. The claims were advanced under the patent laws and the Semiconductor Chip Protection Act,<sup>162</sup> which protects against infringement of "mask works."<sup>163</sup> At trial, Brooktree presented evidence that it was forced to reduce its chip prices by 10% when AMD announced its chips at lower prices and that, but for AMD's infringement, Brooktree would have continued to sell its chips at pre-infringement, established prices.<sup>164</sup> Based on this evidence, the jury awarded Brooktree past price erosion damages for combined patent/mask work infringement.<sup>165</sup> On appeal, the Federal Circuit upheld the damage award for past price erosion.<sup>166</sup>

Brooktree cross-appealed, however, claiming lost profits damages based on future price erosion.<sup>167</sup> Specifically, Brooktree argued that it was entitled to damages for a two year, post-infringement period<sup>168</sup> for eroded prices caused by AMD's infringement that Brooktree asserted it could not recover as a matter of practical marketing.<sup>169</sup> Despite recognizing that "projected

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159. Indeed, this unknown (and virtually unknowable) factor can cloud every award of future damages for patent infringement, no matter the theory underlying the award. See *Minnesota Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, No. 4-86-359, 1991 WL 441901, at \*58 (D. Minn. April 30, 1991) (opinion of Special Master) ("It is certainly possible that in the next two years [the defendant], or some other company, will develop a . . . product that does not infringe the . . . patents [in suit]."), *aff'd*, 22 U.S.P.Q.2d (BNA) 1401 (D. Minn. 1991), *aff'd*, 976 F.2d 1559 (Fed. Cir. 1992); cf. BOWMAN, *supra* note 152, at 69 ("Patentee price-searchers, or any other price-searchers, do not have the precise demand schedules economists draw for illustration. They must estimate or guess, on the basis of experience, about demand conditions. . . . Forecasting is not precise.").

160. *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1581 (Fed. Cir. 1992).

161. 977 F.2d 1555 (Fed. Cir. 1992).

162. Semiconductor Chip Protection Act of 1984, 17 U.S.C. §§ 901-914 (1988).

163. The Semiconductor Chip Protection Act is specifically adapted to protect design layout of semiconductor chips, known as "mask works," which embody the selection and configuration of electrical components and connections achieving a desired electrical function. *Brooktree*, 977 F.2d at 1561.

164. *Id.* at 1579.

165. *Id.* at 1578.

166. *Id.* at 1581.

167. *Id.*

168. In *Minnesota Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, No. 4-86-359, 1991 WL 441901 (D. Minn. April 30, 1991) (opinion of Special Master), *aff'd*, 22 U.S.P.Q.2d (BNA) 1401 (D. Minn. 1991), *aff'd*, 976 F.2d 1559 (Fed. Cir. 1992), 3M argued for future price erosion, similarly limiting its claim to a two year post-infringement period. See 1991 WL 441901, at \*58-59. The reason for so limiting its claim was to make it "less speculative." Forsberg & McDaniel, *supra* note 153, at 268.

169. 977 F.2d at 1581. The district court declined to present this argument to the jury, finding a

future losses may be recovered when sufficiently supported,"<sup>170</sup> the Federal Circuit rejected *Brooktree's* argument:

The burden of proving future injury is commensurately greater than that for damages already incurred, for the future always harbors unknowns. We take note of the discussion before the trial judge of the uncertainties of future pricing, future competition, and future markets, in this fast-moving field, as well as the requirements of proof of future losses. *Brooktree* has not shown that the district court erred in determining that the evidence was too speculative to meet the threshold requirements for a sustainable jury verdict.<sup>171</sup>

Although the *Brooktree* court rejected the claim for future price erosion damages, the case establishes that such damages are viable in appropriate circumstances. Nevertheless, it should also be recognized that future price erosion damages are highly speculative, being limited by market self-correction and future development of economic noninfringing substitutes.<sup>172</sup> Accordingly, while patentees should claim such damages when appropriate, they should also recognize the difficulties in prevailing.

### C. Accelerated Reentry Damages

A patentee can also attempt to recover future lost profits based on the so-called "accelerated reentry" theory.<sup>173</sup> Under this theory, damages are based "on the continued loss of profits after expiration of the patent due to the loss of potential customers that the infringer diverted from the [patentee] during the infringing period."<sup>174</sup> In other words, the patentee argues that, due to the

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determination of such future estimated damages to be too speculative. *Id.*

170. *Id.* (citing *Lam, Inc. v. Johns-Manville Corp.*, 718 F.2d 1056, 1068 (Fed. Cir. 1983)).

171. *Id.* Because the jury did not separate the damages awarded for mask work infringement from those awarded for patent infringement, the applicability of *Brooktree* to pure patent infringement cases is an open question. As a suggestion that damages for these two types of infringement should be measured differently, the court noted that "no issue [was] raised as to any difference in the measurement of damages." *Id.* at 1578. The court further questioned the existence of a distinction in calculating these two types of damages, observing that the court did not need to "decide whether all aspects of proof of damages in patent cases apply to mask work copying . . ." *Id.* at 1579 n.4.

172. Of course, the development of economic noninfringing substitutes will affect all forms of future lost profits damages. *See supra* note 159.

173. It appears that the first case to recognize this theory was *BIC Leisure Prods. v. Windsurfing Int'l, Inc.*, 687 F. Supp. 134, 137 (S.D.N.Y. 1988).

174. *TP Orthodontics, Inc. v. Professional Positioners, Inc.*, 17 U.S.P.Q.2d (BNA) 1497, 1505 (E.D. Wis. 1990). The Federal Circuit recently denied an injunction against future infringement where the patent had already expired before the injunction would have issued. *Kearns v. Chrysler Corp.*, 31 U.S.P.Q.2d

infringer's past infringement, after the patent expires, the infringer will have a head start in reentering the market for the patented product.<sup>175</sup> The infringer will have such a head start because it will already possess the know-how, machinery, marketing information, etc., needed to produce or use the patented product. Nevertheless, because the patent will have expired when such damages accrue, the infringer's activities will not then be actionable. Under the theory, therefore, the patentee will be damaged and lose profits—such damages being a direct consequence of the infringer's past infringing activities.<sup>176</sup>

Presently, however, it appears that no court has actually awarded future lost profits under the accelerated reentry theory. Yet the theory is viable, as several courts have recognized and applied it, despite finding such an award unwarranted on the particular facts.<sup>177</sup>

The argument against accelerated reentry damages is that such an award is an impermissible extension of the patent "monopoly" beyond the patent's expiration date.<sup>178</sup> Such damages, however, are based on past infringe-

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(BNA) 1746 (August 11, 1994). Kearns, who had obtained patents on the intermittent windshield wiper, sued Chrysler for patent infringement. During the course of litigation, however, Kearns' patents expired. He nevertheless argued that he was entitled to an injunction against future infringement by Chrysler, asserting that his \$11 million damage award against the automotive giant was insufficient to compensate him. 31 U.S.P.Q.2d (BNA) at 1752. Kearns contended that Chrysler's infringement stripped him of his "exclusive time" over his patents and that he was entitled to restoration of that time. *Id.*

The court ruled that Kearns' "contention . . . finds no basis in the statutory scheme governing patent infringement remedies." *Id.* The court explained:

An invention claimed in a patent passes into the public domain upon termination of the patent's 17-year statutory term. Because the rights flowing from a patent exist only for the term of the patent, there can be no infringement once the patent expires. Here, all of the asserted patents expired before the commencement of trial. Therefore, Kearns "can no longer obtain injunctive relief with respect to [those patents.]" Granting the relief requested by Kearns would impermissibly extend the statutory term beyond that established by Congress.

*Id.* at 1752-53 (quoting *Kinzebaw v. Deere & Co.*, 741 F.2d 383, 386 (Fed. Cir. 1984), *cert. denied*, 470 U.S. 1004 (1985)).

The *Kearns* case may undercut the arguments supporting the theory of accelerated reentry damages. It remains to be seen whether the Federal Circuit will disapprove of this theory, if, and when, it hears a case involving an award for accelerated reentry damages.

175. Again, for the sake of clarity and simplicity, only patented products are discussed. *See supra* note 152.

176. Of course, the patentee will lose sales and experience price depression due to accelerated reentry by the infringer. As a result, the accelerated reentry theory of future lost profits damages is merely another form of future lost profits based on future lost sales and future price erosion.

177. *See BIC*, 687 F. Supp. at 138; *TP Orthodontics*, 17 U.S.P.Q.2d (BNA) at 1505; *Mars, Inc. v. Conlux USA Corp.*, 818 F. Supp. 707, 716 (D. Del. 1993).

178. *See BIC*, 687 F. Supp. at 137-38. The Federal Circuit disfavors the term monopoly in reference to the patent grant, urging that deeming the patentee a monopolist is pejorative, possibly resulting in bias against patents. *See Jamesbury Corp. v. Litton Indus. Prods., Inc.*, 756 F.2d 1556, 1559 (Fed. Cir. 1985). The term "monopoly" is used here primarily for convenience and cogency.

ments. Accordingly, they are not prohibited *per se*<sup>179</sup> by the principle that prohibits a patentee from disturbing the post-expiration free market with the monopoly influence of its patent.<sup>180</sup>

The seminal case on accelerated reentry damages is *BIC Leisure Products, Inc. v. Windsurfing International, Inc.*<sup>181</sup> After the patentee, Windsurfing International ("WSI"), had established infringement of its patent, BIC moved to limit the damage theories on which WSI could recover.<sup>182</sup> The patent, which issued in January of 1970,<sup>183</sup> had expired by the time the court issued its opinion in July, 1988.<sup>184</sup> Therefore, among other theories,<sup>185</sup> WSI sought post-expiration damages for lost future profits due to depressed prices of the patented product.<sup>186</sup> WSI also sought "projected lost profits for future competition with BIC which WSI [claimed would be] accelerated because BIC's infringement [would] allow it to reenter the market in an enhanced position . . . ." <sup>187</sup>

The court considered these two damage theories together, concluding that WSI was entitled to attempt to prove future lost profits under both.<sup>188</sup> In an effort to persuade the court to preclude any future award, BIC argued that such damages constitute an impermissible extension of the patent rights.<sup>189</sup> The court rejected this argument, reasoning that WSI sought compensation for future losses resulting from BIC's capacity to reenter the market at a level accelerated by its earlier infringement.<sup>190</sup> Accordingly, the court stated that by the very nature of WSI's argument, it "propose[d] only to be made whole for *past* violations of BIC, and thus the theories are consistent with the

179. See *BIC*, 687 F. Supp. at 138.

180. See *Brulotte v. Thys Co.*, 379 U.S. 29, 32-33 (1964); *Scott Paper Co. v. Marcalus Mfg. Co.*, 326 U.S. 249, 256 (1945). Both of these cases were cited by the defendant in *BIC* in its attempt to argue that accelerated reentry damages are impermissible as a matter of law. Defendant's argument was explicitly rejected, however, by the court. *BIC*, 687 F. Supp. at 137-38.

181. 687 F. Supp. 134 (S.D.N.Y. 1988).

182. *Id.* at 135.

183. *Windsurfing Int'l, Inc. v. Fred Ostermann GMBH*, 613 F. Supp. 933, 935 (S.D.N.Y. 1985), *aff'd in part, rev'd in part, vacated in part, and remanded sub nom. BIC Leisure Prods. v. Windsurfing Int'l, Inc.*, 687 F. Supp. 134, 134 (S.D.N.Y. 1988).

184. *Id.* A patent automatically expires after seventeen years. 35 U.S.C. § 154 (1988). Accordingly, because the patent issued in January of 1970, the patent expired in January of 1987. See 613 F. Supp. at 935.

185. WSI also sought classic lost profits damages to compensate for past lost sales and price erosion. 687 F. Supp. at 135.

186. 687 F. Supp. at 135.

187. *Id.*

188. *Id.* at 138.

189. *Id.* at 137.

190. *Id.* at 138.

purpose of [the Patent Statute] of awarding damages approximating what 'the patent holder would have made had the infringer not infringed.'"<sup>191</sup>

Other courts have followed the lead of the *BIC* court. For example, in *Amsted Industries Inc. v. National Castings Inc.*,<sup>192</sup> the court adopted the *BIC* court's reasoning, finding it "persuasive."<sup>193</sup> The *Amsted* court also rejected several of the infringer's arguments attempting to criticize and distinguish *BIC*.<sup>194</sup> First, the court ruled that no distinction exists under *BIC* between direct patent infringers and contributory infringers.<sup>195</sup> The court reasoned that "a defendant which, prior to the expiration of a patent, knowingly sells a component especially made for an infringing combination [and thereby] seizes a head start in the post-expiration marketplace [is liable] in the same way as one who assembles and sells the infringing combination itself."<sup>196</sup>

Second, the *Amsted* court rejected defendant's argument that *BIC* was wrongly decided, in that it runs contrary to the principle first articulated by the Supreme Court in *Brulotte v. Thys Co.*<sup>197</sup> This principle holds that a patentee may not continue to extract royalties on a patented product after the patent expires and thereby extend the patent beyond its maximum seventeen year term.<sup>198</sup> The *Amsted* court held that accelerated reentry damages are

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191. *Id.* (quoting *Lam, Inc. v. Johns-Manville Corp.*, 718 F.2d 1056, 1064 (Fed. Cir. 1984)).

192. 16 U.S.P.Q.2d (BNA) 1737 (N.D. Ill. 1990).

193. *Id.* at 1753; *see also* *TP Orthodontics, Inc. v. Professional Positioners, Inc.*, 17 U.S.P.Q.2d (BNA) 1497, 1504-06 (E.D. Wis. 1990) ("Plaintiff has adequately described the accelerated reentry approach to damages, and its description has an empirical logic: a patent holder can suffer from a loss of profits because an infringer has diverted continuing customers from the patent holder to the infringer during the infringement period. . . . Plaintiff's 'accelerated reentry' component to damages is a theory under which plaintiff attempts to provide a more precise calculation of what it lost in its customer relationships because of the infringement. Plaintiff should not be precluded from amplifying this evidence at trial and using the accelerated reentry approach as a lens through which to view damages."), *further proceedings in* 20 U.S.P.Q.2d (BNA) 1017, 1024 (E.D. Wis. 1991) (denying accelerated reentry claim for lost profits due to patentee's "lack of proof of actual lost sales" and thus failure to prove that it would have made post-expiration sales but for the pre-expiration infringement).

194. 16 U.S.P.Q.2d (BNA) at 1753.

195. *Id.* at 1754. *See* 35 U.S.C. § 271 (1988) which sets forth the acts that constitute patent infringement. Section 271(a) describes direct infringement, providing that "whoever without authority makes, uses or sells any patented invention, within the United States during the term of the patent therefor, infringes the patent." Under § 271(c), a party incurs liability for contributory patent infringement if the party sells a component of a patented combination, knowing the component to be made or adapted for use in infringing the patent, "and not [to be] a staple article or commodity of commerce suitable for substantial noninfringing use . . . ." Section 271(b) makes parties liable for inducing another to infringe a patent.

196. 16 U.S.P.Q.2d (BNA) at 1754. Query whether an infringer charged with inducing infringement under § 271(b) can be held liable for accelerated reentry damages? Under the reasoning in *Amsted*, the answer should be yes.

197. 379 U.S. 29 (1964).

198. *Id.* at 32. *Brulotte* holds impermissible *per se* an attempt by a patentee to continue royalties on a patented product *unchanged* after expiration of the patent. Such conduct, ruled the *Brulotte* Court, would

not the same as a post-expiration royalty; accelerated reentry damages are "based *only* upon those post-expiration sales which the defendant would not have made but for its wrongful conduct before the patent expired."<sup>199</sup> Thus, the *BIC* rule recognizes that a patentee has no right to damages for post-expiration sales not attributable to defendant's pre-expiration infringement.<sup>200</sup> Consequently, ruled the *Amsted* court, "the holding in *BIC* . . . in no way conflicts with *Brulotte*."<sup>201</sup>

Third, *Amsted* rejected the defendant's argument that accelerated reentry damages are waived when a patentee abandons an attempt to obtain a preliminary injunction.<sup>202</sup> Noting that the purpose of a preliminary injunction is to compensate for irreparable injury requiring preliminary relief, the court held that seeking accelerated reentry damages demonstrates that such accelerated reentry is something that is monetarily compensable.<sup>203</sup> Thus, the court declared that defendant's proposed rule that a patentee must seek preliminary relief to be entitled to accelerated reentry damages "turns [the] preliminary injunction doctrine on its head"; the court thus refused to adopt such a rule.<sup>204</sup>

#### D. Noncompetitive Markets: Contractual Obligations

In the theories and examples described and analyzed in the preceding sections,<sup>205</sup> the market is open to competition, both during the period of infringement and after issuance of an injunction that eliminates the infringing activity. In such circumstances, before an injunction issues, the infringer's product and any noninfringing substitutes are in competition with the patented product.<sup>206</sup> Despite an absence of the infringing product from the market, noninfringing substitutes may still compete with the patented product in the

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be an illegal attempt by the patentee to extend its patent monopoly beyond the statutory term. By contrast, in a patent licensing agreement involving more than one patent, a patentee may not violate the antitrust laws if it seeks an undiminished royalty rate after one of the patents expires, so long as at least one patent remains in force. See *McCullough Tool Co. v. Well Surveys, Inc.*, 343 F.2d 381, 410 (10th Cir. 1965), *cert. denied*, 383 U.S. 933 (1966).

199. 16 U.S.P.Q.2d (BNA) at 1754.

200. *Id.*

201. *Id.*

202. *Id.*

203. *Id.*

204. *Id.*

205. See *supra* part III.A-C.

206. See *supra* parts III.A-C.

post-injunction market.<sup>207</sup> Accordingly, it is difficult to project future market fluctuations and conditions in such competitive markets, especially considering that one can only speculate whether new economic noninfringing substitutes will be developed.

Noncompetitive markets, however, do not necessitate such projections and speculation. This is because no products will be developed that can compete with the patented product in the future, noncompetitive marketplace. The future of the market will thus be readily predictable. The following two sections present examples of noncompetitive markets. In both examples, the existence of future, unpredictable market forces does not significantly undermine the propriety of awarding future lost profits.

#### 1. Future Lost Sales Due to Infringing Competitor's Contractual Arrangement

The first example involves two suppliers, one a patentee ("SP") and the other an infringer ("SI"). Suppose SP and SI compete with one another to supply a purchaser ("P") with its requirements for a product, with SI winning the contract. Here, SP will have lost the right to supply P with its requirements of SP's patented product, because SI outbid SP by offering the infringing product. Accordingly, the infringement will have caused SP to lose sales it may well have made but for the infringement.<sup>208</sup> Because the contract is a requirements contract, SI will have obtained the right (and obligation) to supply P with the infringing product into the future, to the absolute exclusion of SP.<sup>209</sup>

In such a case, SP may be able to establish with precision that it will lose future sales of its patented product. Only two questions must be answered. First, how many of SI's products will P require? That question can be answered with evidence of past dealings in the particular contractual

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207. These substitutes may be economic and/or technical noninfringing substitutes. Both inject an element of competition in the marketplace. See *supra* part II.B.2.

208. Of course, the patentee must establish such causation to prevail on its claim for lost profits. See *supra* part II.A (discussing *Panduit* test for lost profits damages and need to prove causation).

209. A requirements contract obliges the supplier to provide the purchaser with the latter's needs or requirements of a product or service for a specified period. See, e.g. *Bartlett Springs Co. v. Standard Box Co.*, 117 P. 934, 935 (Cal. Ct. App. 1911). This example is not limited to requirements contracts, however. For instance, where the contract is an output contract, the market will also be noncompetitive. An output contract would be one in which SI or SP promised to deliver its entire output to P, and in which P agreed to buy the entire output of SI or SP. STEVEN H. GIFIS, *LAW DICTIONARY* 96 (2d ed. 1984).

relationship or other, similar relationships.<sup>210</sup> Second, if the patentee obtains an injunction prohibiting SI from making and selling its infringing product to P, will the contract survive? To answer this question, the court must determine whether SI has a noninfringing substitute that P will accept.<sup>211</sup> If SP can overcome both hurdles, SP will have proven that it will in fact lose future sales as a result of SI's past infringement.<sup>212</sup> No speculation or conjecture is involved. Thus, SP is entitled to an award of future lost profits due to the contractual relationship between SI and P.

A case presenting similar circumstances is *T.A. Pelsue Co. v. Grand Enterprises, Inc.*<sup>213</sup> There, the patentee and infringer competed directly in the sales of tents on which the patentee held a patent.<sup>214</sup> Before expiration of the patent, the infringer entered into a contract with a purchaser to supply the purchaser with infringing tents.<sup>215</sup> The patentee sought lost profits due to "continuing" (i.e., future) sales it lost for the entire period of the contract, which continued until after expiration of the patent.<sup>216</sup> Despite denying this award due to insufficient evidence that a contract was in fact formed, the court did not reject as a matter of law the patentee's future damages theory.<sup>217</sup>

## 2. Price Erosion

A claim for future price erosion damages normally arises when the market, both pre- and post-injunction, is open to competition from noninfringing

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210. *Cf. Vickers v. Wichita State Univ.*, 518 P.2d 512, 517 (Kan. 1974) (in breach of contract action for future lost profits damages, stating that even though business is in early promotional stage, it is "manifestly unjust" to deny damages where it is possible to look to other, similar business operations to calculate with reasonable certainty the future lost profits).

211. This may be difficult to establish. On the other hand, SI may already have developed a non-infringing substitute acceptable to P or may be very close to completing such a substitute. This can be established by the court through the submission of evidence by SI or testimony by P to the effect that it will accept a noninfringing product of SI.

212. *See supra* part III.A.

213. 782 F. Supp. 1476 (D. Colo. 1991).

214. *Id.* at 1484-85.

215. *Id.*

216. *Id.* at 1498. The contract was entered into during the patent's term, and before expiration, the court issued a preliminary injunction enjoining the infringer from selling its tents. The patent expired before the court's decision, but the contract was still in existence, under which the infringer was to sell the infringing tents to the purchaser.

217. *Id.* Because the court disposed of the issue based on insufficient evidence, it did not address the two questions raised above with respect to future contractual relations and patent infringement. *See supra* notes 210-11 and accompanying text.

substitutes.<sup>218</sup> In such cases, future price erosion damages are inherently speculative.<sup>219</sup> If, however, the market is open to pre-injunction competition (i.e., infringing and noninfringing substitutes exist that compete with the patented product) but is noncompetitive post-injunction or is noncompetitive both pre- and post-injunction, the argument for future price erosion damages becomes more persuasive.<sup>220</sup>

For example, take a case in which two suppliers compete to supply the requirements of a purchaser ("P"), the winning supplier obtaining the exclusive right to supply P. Suppose the first supplier ("SP") owns a patent covering the product it proposes to supply to P, and the second supplier ("SI") proposes to supply a competing product that infringes SP's patent. In submitting its proposal to P, SP is forced to offer its patented product to P at a reduced price due to the infringing competition from SI's product. If it wins the contract to supply P, SP will lose profits it would have made but for the infringement, because it was forced to offer its patented product at a reduced price to overcome SI's infringing competition. SP then brings suit against SI, alleging patent infringement and resultant damages.

As compensation for the infringement, SP may seek lost profits due to past price erosion for all sales it made to P under the contract before SP brought suit, as well as for future price erosion for post-suit sales SP will make to P.<sup>221</sup> Because SP is contractually bound to sell its patented product to P at the fixed contract price to satisfy P's requirements, SP will be unable to raise its prices on the patented product in its future dealings with P.<sup>222</sup> Accordingly, SP will suffer future injury for which it should be compensated, provided SP can prove with some degree of certainty that P will, in fact, purchase more of SP's product in the future.<sup>223</sup>

In this scenario, the effect of an injunction forcing SI's product from the market does not provide SP with monopoly pricing power and thus the means to instantly raise its price to the level it would have been absent infringement. Consequently, SP is entitled to future price erosion damages.<sup>224</sup> Although SP's calculations of the amount of damages cannot be based on specula-

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218. See *supra* part III.B.

219. See *supra* notes 151-60 and accompanying text.

220. See *supra* notes 151-60 and accompanying text.

221. See *supra* part III.B.

222. See *Bardett Springs Co. v. Standard Box Co.*, 117 P. 934, 935 (Cal. Ct. App. 1911).

223. See *Panduit Corp. v. Stahl Bros. Fibre Works*, 575 F.2d 1152, 1156 (6th Cir. 1978)

224. Granted, the court will be compelled to speculate as to the quantity of SP's product P will buy in the future. SP, however, can submit evidence of past dealings and reasonable projections of P's needs based on the past market. The court can, of course, be conservative here, perhaps limiting the future award on a durational basis.

tion,<sup>225</sup> under current legal standards its burden of proof is merely one of showing a reasonable probability that, but for the infringement, patentee would have made the sales that the infringer made.<sup>226</sup>

To the Author's knowledge, no court has addressed a case involving similar facts. It is reasonable to assume, however, that such a case could easily arise, given the myriad contractor-subcontractor and purchaser-supplier relationships involving patented products or processes. In such relationships, under the above analysis, it would be prudent for the patentee to seek future price erosion damages.

### *E. Injury to Reputation and Goodwill*

Under one final theory, a patentee may attempt to obtain future lost profits by arguing that the infringing activity has injured the reputation and goodwill in the patented product and hence the patentee.<sup>227</sup> Of course, this theory assumes the infringing product was inferior to and thus damaged the patented product's and the patentee's reputation in the eyes of consumers.<sup>228</sup> Moreover, while discussed here as a separate "theory," proof of such indirect damage would lead to the conclusion that the patentee lost sales or reduced prices as a result of the inferior infringing product. As such, the theory is actually an argument on which to base further lost profits, i.e., in addition to lost profits caused by the presence of the infringing product in the market, notwithstanding its alleged inferiority. With these caveats in mind, two decisions will be examined in which the courts applied this theory in assessing lost profits damages.

The Federal Circuit in the *Lam* decision<sup>229</sup> based its award of "projected" lost profits in part on the damage the infringer's product caused to the patentee's goodwill. Specifically, the court observed that the infringer's "hastily developed" infringing product "seriously damaged [the patentee's]

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225. See, e.g., *Bio-Rad Laboratories, Inc. v. Nicolet Instrument Corp.*, 739 F.2d 604, 616 (Fed. Cir. 1984), cert. denied, 469 U.S. 1038 (1984).

226. See e.g., *Del Mar Avionics, Inc. v. Quinton Instrument Co.*, 836 F.2d 1320, 1326 (Fed. Cir. 1987). As will be argued later, however, the patentee's burden to prove future lost profits should be elevated above the "reasonable probability" level. See *infra* part IV.A.1.

227. See *Lam, Inc. v. Johns-Manville Corp.*, 718 F.2d 1056, 1067-68 (Fed. Cir. 1983).

228. *But cf. Maier Brewing Co. v. Fleischmann Distilling Corp.*, 390 F.2d 117, 123 (9th Cir. 1968) (noting, in trademark infringement case, that even if the infringer's product is of high quality, the trademark owner is still deprived of its right to the exclusive use and control of its product, and thus, if no award is made to the owner, no compensation is granted to compensate for indirect injuries).

229. 718 F.2d 1056 (discussed *supra* notes 139-50 and accompanying text).

goodwill. Since [the infringing product] didn't [sic] work very well, the customers developed doubts concerning the entire [patented] concept."<sup>230</sup> The court held that this and other evidence established that the patentee had suffered lost profits that were not remote and speculative.<sup>231</sup>

The court in *Sun Products*<sup>232</sup> also applied this interesting theory of lost profits damages.<sup>233</sup> The *Sun Products* court awarded the patentee past and future lost profits partly on the basis of the infringer's inferior product.<sup>234</sup> As for future harm, the court reasoned that "it will not be easy for [the patentee] to reestablish the relationships that it had developed in the marketplace before [the] infringement began."<sup>235</sup> As a result, the court found that "the sales momentum and business goodwill" flowing from the patentee's successful first year of marketing its patented product had been irreparably lost.<sup>236</sup>

These decisions make clear that damage to the goodwill and reputation of a patented product (indeed the patented concept itself), and consequently to the patentee, provides grounds for awarding lost profits damages. This theory has particular application to future damages because such injury will continue beyond the issuance of an injunction. While difficult to quantify, it is not mere conjecture to reason that future injury will befall the patentee.<sup>237</sup>

In analogous contexts, courts have awarded lost profits damages for injury to reputation and goodwill. One such context is copyright infringement, in which courts have awarded damages compensating the copyright owner for injury to business goodwill in order to fill gaps in its recovery for lost sales.<sup>238</sup> For instance, in *Atlantic Monthly Co. v. Post Publishing Co.*,<sup>239</sup> the court indicated that it would have awarded damages to a magazine publisher to compensate the publisher for reduced confidence of contributors in the magazine's ability to protect its press releases if the case had been properly filed.<sup>240</sup> The defendant newspaper had scooped the publisher by

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230. *Id.* at 1068.

231. *Id.* at 1067.

232. *Sun Prods. Group, Inc. v. B & E Sales Co.*, 700 F. Supp. 366 (E.D. Mich. 1988) (discussed *supra* notes 117-38 and accompanying text).

233. *Sun Products*, 700 F. Supp. at 387.

234. *Id.*

235. *Id.*

236. *Id.*

237. Indeed, borrowing from trademark and copyright law, courts can develop principles by which to quantify such damage. See *infra* notes 238-47 and accompanying text.

238. See, e.g., *Bevan v. Columbia Broadcasting Sys., Inc.*, 175 U.S.P.Q. (BNA) 475, 481-82 (S.D.N.Y. 1972); see also 2 PAUL GOLDSTEIN, COPYRIGHT - PRINCIPLES, LAW AND PRACTICE § 12.1.1.2, at 319-21 (1992).

239. 27 F.2d 556 (D. Mass. 1928).

240. *Id.* at 560. The *Atlantic* court stated that it could not award monetary damages because the

publishing earlier a copyrighted article to which the magazine had the right of first publication.<sup>241</sup> On these facts, the court would have awarded the publisher damages for the expense of making necessary changes to that issue of the magazine, as well as for injury to the publisher's business goodwill.<sup>242</sup>

The case for awarding damages to compensate for injury to business reputation and goodwill, however, is arguably stronger for copyright than patent infringement. Patent protection is directed to an inventive idea or concept,<sup>243</sup> and a patent provides a relatively broad, generic bundle of rights.<sup>244</sup> A patentee has the exclusive liberty to manufacture, use, and sell a patented product embodying the patented idea.<sup>245</sup> An infringer, however, does not infringe the *patented product* but rather the patent itself. Accordingly, damage to the business reputation or goodwill of the patentee stemming from patent infringement must flow from the patent to the patented product to the patentee—a three-link chain. As a result, the nexus between the patent infringement and the damage may be quite attenuated and difficult to prove.

By contrast, copyright protection extends to the specific, concrete, expressive vehicle embodying an idea or concept.<sup>246</sup> Accordingly, a copyright is analogous to the patented product and thus represents a more concrete form of intellectual property than a patent. In essence, then, only a two-link chain connects the copyright to the copyright owner. Consequently, copyright infringement by an inferior product or expression is more likely to cause direct damage to the business reputation and goodwill of the copyright owner than is patent infringement to the patentee.

Trademark infringement is another analogous context in which courts regularly award damages for injury to business reputation and goodwill.<sup>247</sup>

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complaint called for equitable relief, namely an injunction. This did not mean, however, that damages were not recoverable at law. Therefore, the court established damages of \$13,500 and dismissed the case without prejudice. *Id.*

241. *Id.* at 558.

242. *Id.* at 560.

243. See 35 U.S.C. § 101 (1988) (providing that "inventions" are patentable).

244. 35 U.S.C. § 154 (1988); *Seymour v. Osborne*, 78 U.S. (11 Wall.) 516, 533 (1870).

245. 35 U.S.C. § 154; *Seymour*, 78 U.S. (11 Wall.) at 533. Nevertheless, a patentee may suppress its invention entirely during the term of the patent. *Continental Paper Bag Co. v. Eastern Paper Bag Co.*, 210 U.S. 405, 429 (1908).

246. See 17 U.S.C. § 102(b)(1988) (denying copyright protection to "any idea"); *Nichols v. Universal Pictures Corp.*, 45 F.2d 119, 121 (2d Cir. 1930) (holding that copyright infringement occurs not where the ideas of a copyrighted work are taken, but rather where the expression of those ideas is taken).

247. See, e.g., *Wolfe v. National Lead Co.*, 272 F.2d 867, 871 (9th Cir. 1959) ("Whether [defendant] believed himself to be within the law or not, he was knowingly and deliberately cashing in upon the goodwill of [plaintiff]. This is such an infringement as will justify an accounting of profits."), *cert. denied*, 362 U.S. 950 (1960); *Maier Brewing Co. v. Fleischmann Distilling Corp.* 390 F.2d 117, 122 (9th Cir. 1968) (stating that awarding lost profits only as a measure of actual diversion of sales does not provide adequate protection for the value of goodwill built up in the trademark, and that even if no diversion of sales

Like copyright, however, trademarks are also more directly attributable to the trademark owner than patented ideas are to patentees. Indeed, trademarks are generally selected and enforced so that consumers will come to recognize the trademark owner as the source of the product or service, thereby promoting consumer loyalty.<sup>248</sup> Thus, as with copyright, trademark infringement presents a more compelling case than patent infringement for awarding such damages.

Nevertheless, copyright and trademark damages are instructive in the patent infringement arena. They indicate that infringement of intellectual property rights frequently causes damage to the reputation and goodwill of the copyright or trademark and consequently to the owner of the copyright or trademark. Similarly, as illustrated in the *Lam* and *Sun Products* cases,<sup>249</sup> patent infringement may harm the reputation and goodwill of the patented product, and such harm may flow to the reputation of the patentee who manufactures the product.<sup>250</sup> In such cases, the patent is being "expressed" in product form. Accordingly, damage to the patented invention's, and thus the patentee's, reputation by an inferior infringing design is tangible and can be measured, despite the nebulous concept of reputational harm to the patented idea.

#### IV. MINIMIZING UNJUSTIFIED AWARDS OF FUTURE LOST PROFITS

What do the preceding sections indicate about future lost profits damages in patent infringement cases? Most importantly, they highlight the speculative and conjectural nature of such claims and the inherent difficulty in proving the fact and amount of such damages. They also underscore the significance of accounting for future market forces to avoid unjustly enriching the patentee at the expense of the infringer.

What can be done, then, to prevent unjustified or excessive awards of future lost profits damages while securing the availability of such damages in appropriate cases? Despite mandating that patentees be compensated to the

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occurs, the trademark owner is injured because confused buyers may be so unhappy with the infringer's product that they will never buy the trademark owner's product again), *cert. denied*, 391 U.S. 966 (1968).

248. J. THOMAS MCCARTHY, *MCCARTHY ON TRADEMARKS AND UNFAIR COMPETITION*, § 3.03[2] (1994).

249. See *supra* notes 139 and 117 and accompanying text.

250. *Lam, Inc. v. Johns-Manville Corp.*, 718 F.2d 1056, 1068 (Fed. Cir. 1983); *Sun Prods. Group, Inc. v. B & E Sales Co.*, 700 F. Supp. 366, 387 (E.D. Mich. 1988).

full extent of their damage, the Patent Statute does not contemplate awarding damages based on mere conjecture.<sup>251</sup> This Article thus proposes that courts impose a heightened burden of proof on patentees seeking future lost profits damages and that courts diligently consider market forces in ascertaining the existence and assessing the amount of future damages.

*A. The Patentee's Burden to Prove Lost Profits Damages and Market Forces: Two Proposals*

1. Raising the Evidentiary Threshold for Future Lost Profits

An accurate prediction of the future of a patented product's market is difficult to make.<sup>252</sup> This is especially true where the market is altered by removal of an infringing product. The future necessarily harbors unknowns and uncertainties, and all inferences as to the future are based on probabilities.<sup>253</sup>

Accordingly, if the evidentiary threshold for proving future lost profits is too low, the infringer may find itself unduly penalized and the patentee unjustly enriched.<sup>254</sup> One way to combat this dilemma, then, would be to increase the patentee's burden of proving future lost profits above that required

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251. See *supra* notes 21-22 and accompanying text.

252. See Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 848 (1990) (stating that when a patent is filed "no one knows what future developments will follow or how difficult it will be to achieve them"). Even aside from the relatively simple scenario involving a patented end-product, significantly more complex problems can arise with patented inventions, rendering even more difficult the proof of future lost profits damages. For instance, in some cases the patentee will possess a patent on article X, which is used mainly or solely in connection with some unpatented device or in some patented end-product. The infringer may sell article X together with this device, the latter being an unpatented tag-along. Can the patentee in such a case recover lost profits on both items, or merely article X? See *Electric Pipe Line, Inc. v. Fluid Sys., Inc.*, 250 F.2d 697, 700 (2d Cir. 1957). Such scenarios obviously provide more complicated cases by which to ascertain future lost profits.

253. WILLIAM S. JEVONS, *PRINCIPLES OF SCIENCE* 224 (Am. ed. 1874), quoted in James P. McBaine, *Burden of Proof: Presumptions*, 2 UCLA L. REV. 13, 15 (1954).

254. This injustice can produce grave results, as evidenced by patentee-3M's seeking over \$30 million in future price erosion damages in *Minnesota Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, No. 4-86-359, 1991 WL 441901, at \*57 (D. Minn. April 30, 1991), *aff'd*, 22 U.S.P.Q.2d (BNA) 1401 (D. Minn. 1991), *aff'd*, 976 F.2d 1559 (Fed. Cir. 1992). The Special Master rejected 3M's claim as too speculative. 1991 WL 441901, at \*58-59. But the huge amount of 3M's claim underscores the potential liability an infringer may incur for future lost profits damages. If awarded when unwarranted, the effect may be devastating.

for past lost profits.<sup>255</sup> With such a heightened evidentiary threshold, the patentee will find it more difficult to prevail on a claim of future lost profits. Such a result is desirable due to the speculative nature of future lost profits claims stemming from past patent infringement.

In patent infringement cases, relatively low evidentiary thresholds exist for proving lost profits, whether past or future. First, it is well established that, in making its case for lost profits, the patentee need only prove causation to a "reasonable probability."<sup>256</sup> A court may infer causation under the reasonable probability standard.<sup>257</sup> Second, it is settled that the patentee need only provide a "reasonable approximation" of the amount of lost profits caused by the infringement.<sup>258</sup> Hence, "the amount need not be proven with unerring precision,"<sup>259</sup> and "when the amount of the damages is not ascertainable with precision, reasonable doubt is appropriately resolved against the infringer."<sup>260</sup>

For both causation and the amount of damages, then, the patentee's burden of proof is not rigorous, permitting the patentee to prove its case with less than overwhelming evidence. That is not to say, however, that a patentee can easily prove lost profits. On the contrary, the number of cases rejecting such claims make clear that lost profits are not automatically recoverable.<sup>261</sup> This result is justified in light of the fact that the patentee's evidentiary burden should not be too great for *past* lost profits; otherwise, in many cases the patentee would be improperly relegated to an award of actual or reasonable

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255. Indeed, the Federal Circuit has recognized this need: "The burden of proving future injury is commensurately greater than that for damages already incurred, for the future always harbors unknowns." *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1581 (Fed. Cir. 1992).

256. *E.g.*, *Paper Converting Machine Co. v. Magna-Graphics Corp.*, 745 F.2d 11, 21 (Fed. Cir. 1984) ("The patent holder does not need to negate *all* possibilities that a purchaser might have bought a different product or might have foregone the purchase altogether. The 'but for' rule only requires the patentee to provide proof to a reasonable probability that the sale would have been made but for the infringement."); *Weinar v. Rollform, Inc.*, 744 F.2d 797, 808 (Fed. Cir. 1984), *cert. denied*, 470 U.S. 1084 (1985).

257. *Kaufman Co. v. Lantech, Inc.*, 926 F.2d 1136, 1141 (Fed. Cir. 1991).

258. *E.g.*, *Saginaw Prod. Corp. v. Eastern Airlines, Inc.*, 615 F.2d 1136, 1142 (6th Cir. 1980).

259. *Standard Havens Prods., Inc. v. Gencor Indus.*, 953 F.2d 1360, 1374 (Fed. Cir. 1991) (quoting *Bio-Rad Lab., Inc. v. Nicolet Instrument Corp.*, 739 F.2d 604, 616 (Fed. Cir. 1984)).

260. *Del Mar Avionics, Inc. v. Quinton Instrument Co.*, 836 F.2d 1320, 1327 (Fed. Cir. 1987) (citing *Lam, Inc. v. Johns-Manville Corp.*, 718 F.2d 1056, 1065 (Fed. Cir. 1983)).

261. *See, e.g.*, *Hughes Tool Co. v. G.W. Murphy Indus.*, 491 F.2d 923, 929 (5th Cir. 1973); *Datascope Corp. v. SMEC Inc.*, 678 F. Supp. 457, 462 (D.N.J. 1988), *aff'd in part, rev'd in part*, 879 F.2d 820 (Fed. Cir. 1989), *cert. denied*, 493 U.S. 1024 (1990). *See generally* CHISUM, *supra* note 5, § 20.03[1][b][ii],[iii],[v]. It is well-settled, due to the causation element, that where the patentee and infringer are not in competition with one another, lost profits awards are inappropriate. *See supra* § I.

royalty.<sup>262</sup> Such a result is clearly not the design and policy of the Patent Statute, which expressly provides for awards of lost profits.<sup>263</sup>

In contrast, due to the unknowns of the future marketplace, *future* lost profits should be awarded only in exceptional cases.<sup>264</sup> A rigorous standard of proof would help ensure such a result. But what should this standard of proof be, and how should it be applied to ensure that future lost profits damages are awarded only in compelling circumstances? This Article proposes that the evidentiary thresholds for proving lost profits articulated above<sup>265</sup> be limited to past lost profits claims and that the thresholds be raised when a patentee makes a claim for future lost profits.<sup>266</sup>

For causation, the "reasonable probability" standard could be raised to a "reasonable certainty" standard.<sup>267</sup> In an analogous context, that of contract damages for an unestablished business, the courts have adopted the evidentiary standard of reasonable certainty for proving the *fact* of lost profits damages.<sup>268</sup> In this situation, an owner of a business, unestablished when the contract was breached, claims lost profits damages caused by the breach. These damages are for future injury, because the owner claims it would have made certain future profits from the contract but for the breach.<sup>269</sup> Until relatively recently, courts held that unestablished business owners could not recover such damages.<sup>270</sup> They reasoned that the occurrence of "damages

262. See *supra* notes 1-2 and accompanying text (discussing actual and reasonable royalty damages for patent infringement).

263. 35 U.S.C. § 284 (1988).

264. "If events usually develop in a certain way, the party who claims that his case is an exception to the usual rule will ordinarily have the production burden and may face a higher than average persuasion burden." RICHARD O. LEMPERT & STEPHEN A. SALTZBERG, *A MODERN APPROACH TO EVIDENCE* 797 (2d ed. 1982).

265. See *supra* notes 256-60 and accompanying text.

266. While the Federal Circuit has made the same point advanced in this proposal, it has not articulated a standard of proof by which to determine future damages. See *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1581 (Fed. Cir. 1992) ("The burden of proving future injury is commensurately greater than that for damages already incurred, for the future always harbors unknowns.").

267. In general, the plaintiff must prove the *fact* of damages, i.e., causation, to a reasonable certainty. This is true no matter the legal context. See DAN R. DOBBS, *REMEDIES* § 3.3, at 150 (1973).

268. See ROBERT L. DUNN, *RECOVERY OF DAMAGES FOR LOST PROFITS* 2D 185-213 (2d ed. 1983); see also Robert L. Dunn, *Recovery of Damages for Lost Profits in California*, 9 U.S.F. L. REV. 415, 434 (1974-75) (quoting *Stott v. Johnson*, 229 P.2d 348, 355 (Cal. 1951)). In personal injury tort cases, courts also commonly award future lost profits damages. See, e.g., *Ginn v. Penobscot Co.*, 334 A.2d 874, 887 (Me. 1975), *modified*, 342 A.2d 270 (Me. 1975) (awarding future lost profits (income from business) to permanently incapacitated self-employed plaintiff).

269. ROBERT L. DUNN, *RECOVERY OF DAMAGES FOR LOST PROFITS* 2D 55 (2d ed. Supp. June 1983) (citing *Chung v. Kaonohi Center Co.*, 618 P.2d 283 (Haw. 1980)).

270. DUNN, *supra* note 268, at 186 (citing *California Press Mfg. v. Stafford Packing Co.*, 221 P. 345, 347 (Cal. 1923)).

for prospective profits that might otherwise have been made from [the unestablished business] operation . . . is uncertain, contingent and speculative."<sup>271</sup>

In near unanimity, however, recent court decisions have rejected this proposition, holding instead that such profits are recoverable if proved to a "reasonable certainty."<sup>272</sup> For example, in *Barbier v. Barry*,<sup>273</sup> involving a patent license contract, a Texas state court refused to deny recovery of damages for lost profits to an unestablished business. There, plaintiff's assignor obtained an exclusive 20-year license to exploit defendant's chemical processes and patents.<sup>274</sup> After breach of the contract, plaintiff brought suit claiming lost profits damages, even though the assignor was not yet in business when the contract was breached.<sup>275</sup> Submitting evidence showing profits made by others with a similar agreement with defendant, plaintiff prevailed on its lost profits claim at trial.<sup>276</sup> On appeal, the court ruled that lost profits could be recovered for an unestablished business, despite holding that plaintiff's evidence was too speculative to permit recovery.<sup>277</sup>

While one can argue that the reasonable certainty standard represents a mere semantic change from reasonable probability, if applied by the court so as to distinguish the two, the reasonable certainty standard may have real force and effect.<sup>278</sup> One way a court can do this is to instruct the jury concurrently on past and future lost profits, stressing that the standard for the latter, i.e., reasonable certainty, requires more substantial and persuasive evidence for the patentee to prevail.<sup>279</sup> In this way, the jury will be made to comprehend that

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271. *Grupe v. Glick*, 160 P.2d 832, 840 (Cal. 1945); *accord* *China Doll Restaurant, Inc. v. Schweiger*, 580 P.2d 776, 780 (Ariz. Ct. App. 1978); *Marvell Light & Ice Co. v. General Elec. Co.*, 259 S.W. 741, 741 (Ark. 1924).

272. *See* DUNN, *supra* note 268, at 188 (stating that "[w]hat was once a rule of law [rejecting such damages] has been converted into a rule of evidence"). Dunn approves of the conversion, arguing that "[i]t is impossible for anyone, including an appellate court, to foresee all the possible situations in which meritorious claims could be asserted for lost profits even though the business to which those profits might accrue had not yet commenced operation." *Id.* at 196.

273. 345 S.W.2d 557, 563 (Tex. Civ. App. 1961).

274. *Id.* at 559.

275. *Id.* at 558-59.

276. *Id.* at 559.

277. *Id.* at 563; *see also* *Perma Research & Dev. Co. v. Singer Co.*, 542 F.2d 111, 116 (2d Cir. 1976) (awarding lost profits damages for breach of contract, where plaintiff had never perfected or marketed a patented device that was the subject of the contract, but where the court found persuasive plaintiff's expert testimony evidence that had plaintiff "put its resources and ingenuity to the . . . device, it probably would have been successful in the marketing of the same"), *cert. denied*, 429 U.S. 987 (1976).

278. *Cf.* LEMPERT & SALTZBERG, *supra* note 264, at 794 (stating that the amount of evidence required to satisfy the production burden "depends largely on the standard of proof by which the trier of fact is to decide the case and the way the law assigns responsibility for persuading a trier that a contention is valid") (citing Fleming James, Jr., *Burdens of Proof*, 47 VA. L. REV. 51 (1961)).

279. On the other hand, it is likely that juries are not greatly influenced by standards of proof on which they are instructed. Rather, they "may think conventionally even though the evidence is not so presented

the patentee's burden to demonstrate future lost profits is more severe.<sup>280</sup> Further, because the words "probability" and "certainty" have significantly different connotations, the court could instruct the jury as to their definitional distinctions.<sup>281</sup> Finally, knowing the patentee's heightened evidentiary threshold, the court can refuse to submit the issue of future lost profits to the jury where the patentee has failed to produce evidence of sufficient probative value.<sup>282</sup>

It is also apparent that for future lost profits, causation should not be inferred. With the inherent uncertainty of future patent damages, eliminating this inference will help prevent unwarranted awards of future damages. Thus, instead of permitting such an inference, the court should put the patentee to its proof.

The evidentiary threshold requiring that the patentee prove the amount of lost profits merely to a "reasonable approximation" could also be raised. This threshold, seemingly lower than the reasonable probability threshold,<sup>283</sup> should be significantly heightened. Various phrases could be formulated, for example, "reasonable precision" or "reasonable certainty" or even "precision" alone.<sup>284</sup> Whatever the eventual phraseology, it is again important that the court admonish the jury as to the patentee's heightened burden of proving the amount of future lost profits, impressing on the jury that a higher probability is required for future lost profits than for past lost profits.

Further, it is important to eliminate the rule that reasonable doubts as to the amount of damages be resolved against the infringer when the amount cannot be ascertained with precision. Under this rule, a patentee merely capable of

and the judges advise them against it." Ronald J. Allen, *The Nature of Juridical Proof*, 13 CARDOZO L. REV. 373, 402 (1991) (summarizing Nancy Pennington & Reid Hastie, *Evidence Evaluation in Complex Decision Making*, 51 J. PERSONALITY & SOC. PSYCHOL. 242 (1986)).

280. If the district court failed to so instruct the jury, the appellate court could rule that the district court's failure constituted reversible error or grounds for a new trial. See JAMES W. MOORE ET AL., MOORE'S MANUAL, FEDERAL PRACTICE AND PROCEDURE § 24.01[2], at 24-10 (1994).

281. The word "probable" is defined as "supported by evidence strong enough to establish presumption but not proof," or "likely to be or become true or real." WEBSTER'S NEW COLLEGIATE DICTIONARY 909 (1981). By contrast, the word "certain" is defined, for example, as "fixed," "settled," "proved to be true," or "assured in mind or action." *Id.* at 180.

282. See LEMPET & SALTZBERG, *supra* note 264, at 794 ("If the party with the burden of producing evidence produces nothing or produces evidence of insufficient probative value, his claim or defense will not be considered by the trier of fact.").

283. This is a reasonable assumption, based not only on the particular semantics, but on the low burden of proving the amount of lost profits in other branches of the law, such as contract. There, while the *fact* of lost profits must be proved to a reasonable certainty, once the plaintiff has established this level of causation, less certainty (perhaps none at all) is required in proving the *amount* of damages. DUNN, *supra* note 268, at 9-10 (citing numerous cases). *But see infra* note 284.

284. The standard of "reasonable certainty" is nearly universal in proving the amount of damage suffered. See DOBBS, *supra* note 267, at 150.

demonstrating that future injury may occur, but unable to quantify the injury, may nevertheless prevail despite the uncertainty as to how much damage the infringement actually caused. It would be unfair to compensate the patentee by some amount derived by sheer guesswork. The amount of future damages should be capable of at least reasonably precise empirical estimation.<sup>285</sup> Accordingly, for future lost profits alone, this potentially harmful rule favoring patentees could be discarded; only where the patentee can prove the amount of future lost profits with some precision should a court permit compensation.

Finally, in determining the fact of future lost profits, courts should abandon the two-supplier market standard.<sup>286</sup> Under this standard, an inference arises that the infringement caused the lost profits where the patentee and the infringer were the only competitors in the market for the patented product. The logic underlying this standard, persuasive in cases for past lost profits, breaks down in analyzing future lost profits. In the latter case, it is nearly impossible to ascertain with any degree of certainty whether the particular market in question will remain a two-supplier market in the future. Depending on the complexity and scope of the patented concept, the lucrative nature of the market, and the patentee's head start in the market, it is quite possible that at least one competitor will enter the future market for the patented product with a noninfringing substitute.

Accordingly, in the vast majority of cases, it will be inappropriate to *infer* that the existence of a two-supplier market will necessarily cause the patentee future damage. The patentee, in such cases, should thus be put to its proof. Only where it is abundantly clear that the patentee has such a quantum head start and a wholly novel patented invention (commonly referred to as a "pioneer" invention or patent),<sup>287</sup> should the court permit the inference. And even then, the court should limit the duration of the inference, fixing a

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285. Most courts, in non-patent contexts, hold that where plaintiff can prove the fact of damage, but not the amount, the reasonable certainty requirement does not compel proof of damages with mathematical precision. *DOBBS*, *supra* note 267, at 151. Yet courts do require that the plaintiff "adduce some relevant datum from which a 'just and reasonable' estimate of the amount might be drawn, and without any such datum in the evidence, the claim will necessarily be dismissed as speculative and conjectural." *Id.* (footnotes omitted).

286. *See supra* notes 31-33 and accompanying text.

287. The term "pioneer" patent is a rather nebulous term referring to inventions that break new ground or represent such marked advances over prior, related inventions as to be entitled to sweeping protection. *See Boyden Power-Brake Co. v. Westinghouse Elec. Corp.*, 170 U.S. 537, 562 (1898) ("This word [pioneer], although used somewhat loosely, is commonly understood to denote a patent covering a function never before performed, a wholly novel device, or one of such novelty and importance as to mark a distinct step in the progress of the art, as distinguished from a mere improvement or perfection of what had gone before. Most conspicuous examples of such patents are: the one to Howe, of the sewing machine; to Morse, of the electrical telegraph; and to Bell, of the telephone.").

point in the future at which it is *unreasonable* to rely on the inference. For example, the court could conclude, based on the circumstances, that the patentee's head start and pioneering concept will be neutralized in three years, and for any claim to lost profits occurring after that date, the court could put the patentee to its proof.

As an alternative to these semantic changes, the patentee's burden of persuasion could be set to the standard of clear and convincing evidence.<sup>288</sup> The patentee would then be required to produce in the mind of the trier of fact "an abiding conviction that the truth of [the] . . . contentions [i.e., the fact and amount of damages] are [sic] 'highly probable'."<sup>289</sup> The risk of unwarranted and potentially devastating future damages would thus be reduced.<sup>290</sup>

The typical standard of proof in civil cases, namely preponderance of the evidence, is too low an evidentiary threshold for future lost profits. This is due in part to the multiplicity of elements (i.e., the four *Panduit* elements) required to prove lost profits in a patent infringement case. Under the preponderance standard, the party having the burden of persuasion need only demonstrate that the issue is more probably true than false.<sup>291</sup> Thus, the proponent need only establish the issue by more than a .5 probability. Only if the evidence is in equipoise or is less than a .5 probability will the non-proponent prevail.

Such a low threshold would be unwarranted for future lost profits claims, resulting from the inherent difficulties in establishing future probabilities and the weakness of future predictions. This is especially true in the post-infringement marketplace, which is fraught with unknowns. This prediction problem would be magnified if the patentee was required to prove future lost

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288. See Fleming James, Jr., *Burdens of Proof*, 47 VA. L. REV. 51, 55 (1961) (stating that the clear and convincing evidentiary formulation "probably suffices to put the jury more in a frame of mind to resist persuasion than does the [preponderance of the evidence] test, and it is doubtful whether anything more can be done where a difference in degree is sought in dealing with factors so subjective and imponderable"). But see McBaine, *supra* note 253, at 16 (stating that preponderance of the evidence and clear and convincing standards are merely figures of speech and not an exact method of expression, and that neither standard has a place in statements of rules of evidence and should not be used in instructing juries). See generally Edmund M. Morgan, *Instructing the Jury Upon Presumptions and Burdens of Proof*, 47 HARV. L. REV. 59 (1933); James P. McBaine, *Burdens of Proof: Degrees of Belief*, 32 CAL. L. REV. 242 (1944). To avoid a patent for fraud in its procurement, evidence must be clear and convincing. *United States v. American Bell Tel. Co.*, 167 U.S. 224, 262 (1897).

289. *Buildex, Inc. v. Kason Indus.*, 849 F.2d 1461, 1463 (Fed. Cir. 1988).

290. See *supra* note 254 (discussing the potentially devastating effect an unwarranted award of future lost profits can have on the infringer).

291. In contrast, as stated above, the clear and convincing standard requires that the patentee produce in the mind of the trier of fact "an abiding conviction that the truth of [the] factual contentions are [sic] 'highly probable'." *Buildex*, 849 F.2d at 1463 (emphasis added) (quoting *Colorado v. New Mexico*, 467 U.S. 310, 316 (1984)).

profits only by a preponderance of the evidence. Uncertainties would mount on uncertainties, making the .5 threshold a dangerous one.

An example will illustrate these mounting uncertainties and their effect on future damage awards. Suppose the probability is .6 that a new noninfringing substitute will *not* be developed in the future. Because the patentee must establish the absence of noninfringing substitutes, it will prevail on this point. Suppose further that the patentee establishes the amount of its future damage to a .6 probability. Consequently, it will also prevail on this element. Finally, assuming the patentee proves by a preponderance of the evidence the remaining two *Panduit* elements,<sup>292</sup> it will prevail on its future lost profits claim.

Paradoxically, however, the patentee should have failed in its claim, as the *overall* probability of future damage does not exceed the .5 threshold. Because the absence of noninfringing substitutes and amount of damages elements do not completely depend on one another,<sup>293</sup> the combined probability of both occurring in this example is merely  $.6 \times .6 = .36$ .<sup>294</sup> This means the probability that the infringement will *not* cause the patentee future damage is .64 (i.e.,  $1.0 - .36$ ).<sup>295</sup> Accordingly, the patentee will prevail, though the probability of future injury is less than .5.

That such an error favors the patentee is particularly troublesome with future lost profits. In future lost profits cases, the fact and amount of damages are inherently speculative. Exacerbation of this speculation with a preponderance of the evidence standard creates a risk of unjustified and unjustifiable future damage awards. This risk would be reduced, however, with a more

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292. Those elements are: demand for the patented product and manufacturing and marketing capacity to exploit the demand. See *supra* notes 27-30 and accompanying text (setting forth the four *Panduit* elements).

293. The amount of future damages is not *entirely* dependent on the presence or absence of noninfringing substitutes. This statement is true, of course, because it is clear that the amount of damages will also depend on the ability of the patentee to meet the market demand, as well as on a myriad of other market influences, including the development of a recession and the potential concomitant reduction in demand for the patented product. The presence or absence of future noninfringing substitutes, moreover, is almost entirely independent from the amount of damages.

294. Unless the two elements are completely dependent, the above phenomenon will still occur. See Allen, *supra* note 279, at 375; see also *id.* at 374 (discussing a similar example in the context of negligence cases and explaining that, if .6 probabilities existed for the duty and causation elements, the overall probability would be .36).

295. *Id.* Allen also points to the opposite case, where, for example, one element is .9 and the other .4. Here, the *defendant* will prevail, even though the probability of future damages would be the same in both cases ( $.6 \times .6 = .9 \times .4 = .36$ ). This is a bizarre result, indeed, because even though the probabilities are the same in both cases, the infringer will win in one and the patentee in the other.

Perhaps a better example would be to consider the absence of noninfringing substitutes element in conjunction with the ability of the patentee to meet future demand element. These elements are not completely dependent on one another, and if the patentee were to prove each to a .6 probability, the probability of future injury would be only .36.

strenuous burden of proof placed on the patentee, such as the clear and convincing standard, which requires the patentee to prove that all the elements underlying an award of future lost profits are "highly probable."<sup>296</sup> This standard would thus effectuate the desired result of limiting future lost profits awards only to compelling cases, without altogether eliminating such relief.

Of course, the normative proposals proffered in this section are just that—proposals. Accordingly, no matter how it is finally accomplished, whether by adopting particular phraseology for the various evidentiary thresholds or the clear and convincing standard, it is imperative that courts assign patentees a rigorous burden of proof in attempting to establish the fact and amount of future lost profits damages.

## 2. Mandating Consideration of Market Forces and Economic Principles

As noted above, all inferences as to the future are based on probabilities.<sup>297</sup> The accuracy of assessing the degree of probability depends entirely on comprehension of the principles of the subject being studied.<sup>298</sup> Where the subject is the fact and amount of future lost profits damages in patent infringement cases, the principles involved are chiefly economic in nature.

Thus, it is imperative that courts account for various market forces and economic principles in determining future lost profits damages for patent infringement.<sup>299</sup> While courts should always consider such forces when a patentee seeks lost profits, it is especially critical to account for them in ascertaining future lost profits due to the difficulty in forecasting and understanding the future of a particular market. By attempting to account for market forces, courts can minimize unwarranted and inflated awards of future lost profits. Indeed, the Federal Circuit has "take[n] note . . . of the

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296. *Buildex, Inc. v. Kason Indus.*, 849 F.2d 1461, 1463 (Fed. Cir. 1988) (quoting *Colorado v. New Mexico*, 467 U.S. 310, 316 (1984)).

297. See *supra* note 253 and accompanying text.

298. JEVONS, *supra* note 253, at 224; see generally Symposium, *Probability and Inference in the Law of Evidence*, 66 B.U. L. REV. 377 (1986).

299. Litigants may find it difficult, however, to introduce expert testimony on economics into evidence because of the opinion and hearsay rules. Such difficulties have arisen in common law jurisdictions, such as New Zealand and Australia, where courts will permit expert testimony as to economic principles in general, but have frequently denied attempts by experts to apply those principles to the facts of the case. See Christopher Finlayson, *Proving Your Case—Evidence and Procedure in Action*, 13 CARDOZO L. REV. 257, 264-68 (1991). This problem is not as acute in the United States, however, where the Federal Rules of Evidence, universally applicable in patent cases due to exclusive federal jurisdiction over such cases, liberally permit introduction of such evidence.

uncertainties of future pricing, future competition, and future markets . . . as well as the requirements of proof of future losses" in rejecting a claim for future price erosion damages.<sup>300</sup>

Where a court fails to account for economic noninfringing substitutes—either in lieu of or in addition to technical noninfringing substitutes—and awards future lost profits, future uncertainty will inure to the benefit of the patentee. This is because the patentee will receive damages for future lost profits, even though an economic substitute may exist or be developed that will substantially reduce or negate future lost profits. Accordingly, the patentee may fail to suffer any of the forecasted future injury.

This is manifestly unfair to the infringer, for market-based evidence from the past could establish, with some certainty, the effect of an economic substitute on future lost profits. Moreover, after the suit has ended and before the patent expires, equivalent or superior economic substitutes (or even technical substitutes) may enter the market.<sup>301</sup> In such a case, demand for the patented product will decline, perhaps even disappear entirely.

For example, in *Minnesota Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*,<sup>302</sup> the court rejected a claim for future price erosion damages, reasoning that a noninfringing substitute for the patented product could be developed in the future that would minimize or eliminate price erosion. The patentee argued that prices on its patented product would be "unnaturally depressed for two years after an injunction is issued against [the defendant] enjoining it from selling infringing product."<sup>303</sup> As a result of this price "depression" on future sales, the patentee sought \$34.5 million in damages for the two-year post-injunction period.<sup>304</sup>

Rejecting such a large award "based on unknown future events,"<sup>305</sup> the Special Master reasoned: "It is certainly possible that in the next two years [the defendant], or some other company, will develop a . . . product that does not infringe the . . . patents [in suit]."<sup>306</sup> The Special Master recognized that development of such a product would create competition and possibly cause the patentee's prices to fall again.<sup>307</sup>

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300. *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1581 (Fed. Cir. 1992).

301. See *Merges & Nelson*, *supra* note 252, at 870 (making reference to "subsequent inventions that not only substitute for the initial invention, but also improve on it in some way.").

302. No. 4-86-359, 1991 WL 441901 (D. Minn. April 30, 1991) (opinion of Special Master), *aff'd*, 22 U.S.P.Q.2d (BNA) 1401 (D. Minn. 1991), *aff'd*, 976 F.2d 1559 (Fed. Cir. 1992).

303. *Id.*, at \*58.

304. *Id.*

305. *Id.* at \*59.

306. *Id.* at \*58.

307. *Id.*

Accordingly, the possible development of future economic and technical noninfringing substitutes should be taken into account in calculating future lost profits damages. But clearly, it can be difficult, if not impossible, to anticipate such substitutes, let alone numerous other market forces that will affect the market power of the patent in suit. It follows that, while in some cases future lost profits damages may be appropriate, such damages are frequently too speculative and thus run contrary to patent law.<sup>308</sup> Courts must therefore be cautious in awarding future lost profits damages in cases where it is difficult to predict, with at least reasonable certainty, the evolution of the future marketplace.

Courts will also find it difficult to anticipate other market forces affecting a patent's market power and thus future lost profits. Such forces, then, should be analyzed in ascertaining future lost profits in patent infringement cases.<sup>309</sup>

For instance, the law of demand will play a vital role not only in computing future damages, but in determining whether such damages will occur at all. When the price of a patented product<sup>310</sup> is increased after an injunction has issued banning the infringing product from the market, the demand for the patented product will decrease.<sup>311</sup> Future price increases may also create noninfringing alternatives, causing the patentee to lose some or all of its customers, depending on the efficacy and price of the alternatives. Accordingly, courts should discount future price erosion damages to account for these decreases in demand. On a more extreme level, a future price increase could altogether eliminate demand for the patented product—e.g., where a close noninfringing substitute exists that is priced well below the patented product. In these cases, courts should go further and reject claims for future price erosion damages.<sup>312</sup>

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308. As argued above, one way to combat speculative awards and properly account for the possibility of future developed noninfringing substitutes would be to commensurately increase the burden of proving future lost profits. See *supra* part IV.A.1.

309. As discussed above, see *supra* notes 86-88 and accompanying text, the courts uniformly recognize and apply the economic principle that lost profits in patent cases must be calculated on an incremental basis. That is, unit N+1 will cost less to produce than preceding units, provided the previous N (or fewer units) have already paid the fixed costs. See, e.g., *Paper Converting Mach. Co. v. Magna-Graphics Corp.*, 745 F.2d 11, 22 (Fed. Cir. 1984).

310. Or any product, for that matter. Here, the discussion is limited to patented products. Although more complicated, this discussion could apply to patented processes for making an unpatented end-product and to patented components of an unpatented end-product. See *supra* note 152.

311. Of course, this assumes that demand for the patented product is not perfectly inelastic, in which case the patentee could raise its prices with impunity. See *supra* note 99. It is rare, however, to have such inelastic demand.

312. The law of demand will affect not only future (and past) price erosion, but future (and past) lost sales as well. See *supra* notes 99-103 and accompanying text.

In sum, market forces and economic principles play a vital role in assessing lost profits, whether past or future. It is thus imperative that courts account for market forces and economic principles in ascertaining future lost profits damages. Failure to so account will likely financially harm the infringer and unjustly enrich the patentee.

### *B. Some Final Thoughts*

Heightened evidentiary standards and market forces aside, one point should be clear from the preceding discussion: courts should approach claims for future lost profits damages with caution and skepticism, making such damage awards the exception rather than the norm. The mere existence of future injury is difficult to establish, let alone quantify. As a consequence, when presented with such claims, courts should closely scrutinize them, applying economic principles and considering market forces. By conducting an in-depth economic analysis of future lost profits claims, courts will take a significant step toward eliminating unjustified awards of future lost profits damages.

On the other hand, it is less clear whether increasing evidentiary thresholds to account for future market uncertainties will significantly affect a trier of fact. On a logical level, the greater the patentee's burden of proof, the more difficult it will be to prove the existence and extent of future injury. But on a visceral level, the mere semantic exchange of words of degree may not greatly influence juries. In other words, instructing the jury as to the burden of proof, stating that the patentee must prove future injury to a greater degree than past injury, may have little effect on the jury's eventual verdict. This follows from the theory that juries "may think conventionally even though the evidence is not so presented and the judges advise them against it."<sup>313</sup> Such conventional thinking reduces the impact of jury instructions on standards of proof.

Conventional thinking by juries can be particularly confounding to lawyers in highly complex trials, such as patent cases. Patent cases frequently involve the technological cutting edge in a particular industry or science and thus confront jurors with complicated facts and legal framework.<sup>314</sup> As a result,

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313. Allen, *supra* note 279, at 402 (summarizing theory advanced by Nancy Pennington & Reid Hastie, *Evidence Evaluation in Complex Decision Making*, 51 J. PERSONALITY & SOC. PSYCHOL. 242 (1986)).

314. An important distinction exists between technology-related and other complex litigation: Laypersons generally have no personal experience with the subject matter of a technological trial, while in other complex litigation, such as contract disputes, lay jurors, and particularly judges, will have at least minimal familiarity. Such familiarity will permit the judge and jurors to fill gaps in evidence and draw analogies. This is rarely possible, however, in cases involving highly complex technology.

in lengthy, intricate patent trials, jurors may focus on the lawyers and witnesses, forming strong impressions rather than concentrating on the documentary evidence.<sup>315</sup> Jurors in patent trials, therefore, will likely miss subtleties in legal arguments, observing the case more as a drama unfolding before them.<sup>316</sup> Moreover, jurors tend to consider the courtroom a “moral arena,”<sup>317</sup> causing them to attempt to do what is morally “right,” rather than what the law suggests is correct.<sup>318</sup>

In consequence, lawyers in patent cases must anticipate and account for such juror behavior in presenting their technical evidence and arguments, as well as their proof of damages. Because the damages phase of a patent trial requires the introduction of economic evidence—frequently complex and detailed economic evidence—it is critical that lawyers attempt to make and defend their damages case in a manner that facilitates juror comprehension.<sup>319</sup> Various techniques exist for realizing this goal, perhaps paramount among them being the need to have expert witnesses communicate well with the jury.<sup>320</sup> Lawyers should work with economics experts in simplifying and condensing their testimony and should use demonstrative exhibits and models whenever possible and appropriate.

If the damages issues are presented to facilitate jury comprehension, instructing the jury as to a heightened standard of proof may be effective. By contrasting the lower burden of proof for past damages with the heightened evidentiary threshold for proving future injury, the judge can emphasize to the jury that future injury is more difficult to prove than past injury. Thus, the jury may find and award past lost profits, while rejecting future lost profits. Further, with a more strenuous standard of proof in effect, the judge may

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Similarly, complex economic evidence, such as that proffered in the damages phase of a patent trial, will cause confusion to jurors. Economic evidence, like technological evidence, is generally arcane and unfamiliar to laypersons, thus making it difficult for them to comprehend.

315. Allen M. Terrell, Jr., *The Jury Returns—How to Try a Patent Case*, 75 J. PAT. & TRADEMARK OFF. SOC'Y 874, 874 (1993). Terrell discusses an interview of jurors conducted after a patent trial in 1992. He states that the jurors tended to comment more on how and why witnesses have acted, instead of exhibits or documents.

316. *Id.*

317. *Id.* (citing a study by Jenne J. Fleming, *Metricus' National Juror Opinion Survey*, which indicated that a majority of Americans view the courtroom as a “moral arena”).

318. *Id.* at 874-75.

319. In one survey study, trial judges cited jurors' difficulties in comprehending the evidence, often due to technical expert testimony, as the most frequent factor making cases too complicated for juries. Jane Goodman, et al., *What Confuses Jurors in Complex Cases*, TRIAL, Nov. 1985, at 65.

320. Other techniques include: (1) filing summary judgment motions to eliminate issues; (2) separating and ordering issues in a logical manner during opening and closing arguments and at trial; (3) simplifying voluminous or complex matters with demonstrative evidence (such as charts, graphs, pictures, and summaries); (4) permitting jurors to take notes during trial; and (5) providing the jury with instructions written in plain English.

direct a verdict for the infringer as to future lost profits, but submit to the jury the patentee's claim for past lost profits. Accordingly, even assuming juries are not greatly influenced by instructions on standards of proof, increasing the evidentiary threshold for future lost profits is clearly not a hollow, meaningless change.

## V. CONCLUSION

Claims for future lost profits in patent infringement cases are problematic. The future presents limitless unknowns and uncertainties, rendering predictions as to the future market for a patented invention a difficult and inherently speculative task. And it is the market that will determine the existence and extent of a patentee's future lost profits.

Consequently, courts must take measures to avoid unjustified awards of future lost profits damages. One such measure contemplates consideration and application of market forces and economic principles. If a court undertakes a detailed economic analysis of a claim for future damages, accounting for all such factors and principles within reason, it will take a significant step toward minimizing unjustified awards. Foremost among these economic influences on the future marketplace is the existence of economic noninfringing substitutes for the patented invention. Not only may such substitutes presently exist when suit is brought; additional substitutes may be developed in the future. It is these future substitutes that are nearly impossible to predict with any degree of precision.

Another measure calls for courts to apply a heightened evidentiary threshold to claims for future lost profits. It is disputable whether such a heightened threshold will act to meaningfully mitigate the speculative nature of future harm in patent cases. This is because jurors may not be influenced by instructions on standards of proof. Nevertheless, an increased evidentiary burden placed on the patentee to prove future lost profits may, if properly invoked and applied, reduce unjustified awards of such damages.

Together, examination and application of market forces and a heightened burden of proof should reduce occurrences of future lost profits awards. Because the future presents so many unknowns and unknowables, rendering the fact and amount of future injury inherently speculative, such a result is desirable. Accordingly, by raising the patentee's burden of proof and analyzing market forces, the possibility of unwarranted future damage awards will be minimized.