

APPLE, INC. V. SAMSUNG ELECTRONICS CO.:
ECONOMICS OF DESIGN PATENT TROLLING[♦]

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INTRODUCTION

After filing over one thousand patent applications for the iPhone¹ within the last decade, Apple² has been granted hundreds of patents specifically towards iPhone technology.³ Of those hundreds of granted patents, a handful claim ownership of design rights concerning the shape and ornamental features of the iPhone.⁴ On April 15, 2011, Apple filed suit against their client⁵ and mobile phone market competitor⁶ Samsung Electronics Co., Ltd.,⁷ Samsung Electronics America, Inc., and Samsung Telecommunications America, LLC, alleging that Samsung's product line of Galaxy cell phones and computer tablets infringe Apple's trade dress, trademarks, and utility and design patents.⁸

On May 15, 2015, the United States Court of Appeals for the Federal Circuit ("The Federal Circuit") handed down its decision in the case of *Apple, Inc. v. Samsung Electronics Co.*⁹ The Federal Circuit applied a literal reading of 35 U.S.C. § 289¹⁰ to find in favor of Apple,

¹ See Laura Gaze & John Roderick, *Inside the iPhone Patent Portfolio*, THOMSON REUTERS (Sept. 2012), <http://ip-science.thomsonreuters.com/m/pdfs/iphone-report.pdf>.

² See *Apple Inc.*, WIKIPEDIA, https://en.wikipedia.org/wiki/Apple_Inc. (last visited Jan. 24, 2016) ("Apple Inc. (commonly known as Apple) is an American multinational technology company headquartered in Cupertino, California, that designs, develops, and sells consumer electronics, computer software, and online services."); see also *Apple Info*, APPLE, <http://www.apple.com/about/> (last visited Mar. 20, 2016).

³ See Lindsey Gilroy & Tammy D'Amato, *How Many Patents Does It Take to Build an iPhone?*, IP TODAY (Nov. 2009), <https://inovorg2011-2.wikispaces.com/file/view/2.1-How+many+patents+does+it+take+to+build+an+iPhone.pdf>.

⁴ See, e.g., U.S. Patent No. D504,889 S (filed Mar. 17, 2004); U.S. Patent No. D618,677 S (filed Nov. 18, 2008); U.S. Patent No. D593,087 S (filed July 30, 2007); U.S. Patent No. D604,305 S (filed Jun. 23, 2007).

⁵ Apple has been a long time purchaser of Samsung components for use in many of its products, including the iPhone series. See J.T. Barrett, *Does Samsung Make iPhone Parts?*, TECH IN OUR EVERYDAY LIFE, <http://techin.oureverydaylife.com/samsung-make-iphone-parts-18028.html> (last visited Oct. 12, 2016).

⁶ The success or failure of Samsung and Apple in the mobile phone market directly affects the other competing producers, and success is largely attributed to the failure of the other. See Jack Linshi, *Samsung vs. Apple in Global Smartphone Market Share*, TIME MAG. (Apr. 29, 2015), <http://time.com/3840414/samsung-apple-market-share/>; Barrett, *supra* note 5; see also Kurt Eichenwald, *The Great Smartphone War*, VANITY FAIR (May 31, 2014, 9:45 AM), <http://www.vanityfair.com/news/business/2014/06/apple-samsung-smartphone-patent-war>. But see Ian King, *Apple and Samsung Are Friendly Again, and the Competition Should Be Terrified*, BLOOMBERG (May 1, 2015 9:00 AM), <http://www.bloomberg.com/news/articles/2015-05-01/apple-and-samsung-are-friendly-again-and-the-competition-should-be-terrified> (suggesting that the legal feud is anticipated to die down since the death of Steve Jobs, creating a more monopolized mobile phone market).

⁷ See *Samsung Electronics*, WIKIPEDIA, https://en.wikipedia.org/wiki/Samsung_Electronics (last visited Mar. 20, 2016) ("Samsung Electronics Co., Ltd. . . . is a South Korean multinational electronics company headquartered in Suwon, South Korea."); see generally *Welcome to Samsung*, SAMSUNG, <http://www.samsung.com/us/aboutsamsung/> (last visited Mar. 20, 2016).

⁸ See *Apple Inc. v. Samsung Electronics Co.*, No. 11-cv-01846, 2011 U.S. Dist. LEXIS 53233, at *2 (N.D. Cal. May 18, 2011).

⁹ See *Apple, Inc. v. Samsung Electronics Co.*, 786 F.3d 983 (Fed. Cir. 2015).

¹⁰ See *id.* at 1001, 1002 ("In reciting that an infringer 'shall be liable to the owner to the extent of [the infringer's] total profit,' Section 289 explicitly authorizes the award of total profit from the

holding that Samsung is liable for the total profit of the infringing products.¹¹ Section 289 makes a defendant who infringes a design patent liable to the extent of the total profit derived from an infringing product's sales.¹² One limitation to this rule, in order to prevent over-rewarding, is that no other damages can be sought if a plaintiff is successful under section 289. For example, if awarded total profit under section 289, a plaintiff could no longer seek additional damages for infringement of utility patents attributed to the same product covered by the infringed design patent.¹³ Because one aspect of Samsung's mobile phone products infringed upon Apple's design patents, section 289 allowed Apple to claim damages in the full amount of all profit that Samsung gained in selling the infringing products.¹⁴ After multiple appeals by Samsung challenging the validity of the patents and over one billion dollars in damages, Samsung was able to reduce the damage amount to roughly \$548 million.¹⁵ Despite invalidity of one of Apple's design patents,¹⁶ the legal standard commonly referred to as the total profit rule,¹⁷ set by the holding in *Apple v. Samsung* remains clear: an infringement of a design patent allows the plaintiff to claim damages equal to the total profit of the infringing product.¹⁸

In the field of technology, economic monopolies have been and continue to be created through large patent portfolios.¹⁹ Traditionally, the bulk of those portfolios consisted of utility patents, especially in the cutting-edge mobile phone market. Litigation and prosecution of hundreds of patents is possible with the resources available to large companies, as exemplified by Apple's recent patent assertion

article of manufacture bearing the patented design.”); see 35 U.S.C. § 289 (1952).

¹¹ See *Apple v. Samsung*, 786 F.3d at 1005.

¹² See 35 U.S.C. § 289.

¹³ See Dennis Couch, *Design Patent Damages*, PATENTLY-O (Sept. 29, 2015), <http://patentlyo.com/patent/2015/09/design-patent-damages.html>.

¹⁴ See *id.*

¹⁵ See Arnold Kim, *USPTO Invalidates One of Apple's iPhone Design Patents in Apple vs. Samsung Lawsuit*, MACRUMORS (Aug. 17, 2015, 8:51 PM), <http://www.macrumors.com/2015/08/17/uspto-invalidates-patent/>.

¹⁶ See *id.* The 618,677 patent has been invalidated as it is not able to benefit from the filing date of the previous two Apple design patents, see *id.*; see also Florian Mueller, *U.S. Patent Office Considers Apple's D'677 iPhone Design Patent Invalid on Multiple Grounds*, FOSS PATENTS (Aug. 17, 2015), <http://www.fosspatents.com/2015/08/us-patent-office-considers-apples-d677.html>.

¹⁷ See *Apple, Inc. v. Samsung Electronics Co.*, 786 F.3d 983, 1001–02 (Fed. Cir. 2015) (“In reciting that an infringer ‘shall be liable to the owner to the extent of [the infringer’s] total profit,’ Section 289 explicitly authorizes the award of total profit from the article of manufacture bearing the patented design.”).

¹⁸ See *id.* at 1001 (“[35 U.S.C.] Section 289 explicitly authorizes the award of total profit from the article of manufacture bearing the patented design.”).

¹⁹ See Mark Nowotarski, *The Power of Portfolio: Strong Design Patents III*, IP WATCHDOG (Aug. 23, 2013), <http://www.ipwatchdog.com/2013/08/23/the-power-of-portfolio-strong-design-patents/id=44774/>.

practices,²⁰ allowing for control of large portions of a market space. The controlling companies further engrain their place as monopolies if a competitor lacks funds to successfully litigate infringement suits or police any design patent copying. Those with the resources are able to “troll”²¹ companies, seeking and enforcing patents for the sake of profit and harming competition, not for purposes of innovation as originally intended by the creators of the American patent system.²²

In light of *Apple v. Samsung*, design patents are now much more susceptible to trolling. The decision opens the door even more for frivolous trolling of design patents. The Federal Circuit’s full acceptance of the total profit rule incentivizes patent trolls²³ to file more design patents with as broad claims and drawings as possible in pursuit of “striking oil” in litigation against a potentially infringing company that holds a large share of a certain market. As a defense against the threat of losing profits for an entire product, practicing entities that control the markets post-*Apple v. Samsung* may seek to keep such design patents from trolls by filing applications themselves. This will create a massive increase in patents created solely for the defense against potential suit, as opposed to patents created to protect innovation.²⁴ Despite many large companies taking a stance against the decision in *Apple v. Samsung*,²⁵ practicing entities and trolls are now more incentivized than ever to file design patent applications due to their low-risk, high-reward nature.²⁶

²⁰ See Gaze & Roderick, *supra* note 1, Gilroy & D’Amato, *supra* note 3.

²¹ See Colleen Chien, *Startups and Patent Trolls*, SANTA CLARA L. DIGITAL COMMONS (Sept. 13, 2012), <http://digitalcommons.law.scu.edu/facpubs/553>. Trolls are entities focused on the enforcement, rather than the active development or commercialization of their patents, *see id.*

²² See Gene Quinn, *The Story of How Patents Promote Innovation*, IP WATCHDOG (May 12, 2014), <http://www.ipwatchdog.com/2014/05/12/the-story-of-how-patents-promote-innovation/id=49520/>.

²³ “Patent trolls . . . are patent owners who, instead of developing products or services themselves, profit by acquiring patents from others and charging royalties or seeking settlement demands against practicing entities [Because patent trolls] do not engage in technology development, manufacturing, and transfer . . . they have less complex business operations that immunize them from counter-suits . . . [and] are generally seen as deterring innovation by raising costs and risks for new developers.” Stephanie A. Diehl, *Treating the Disease: A First Amendment Prescription for the U.S. Patent System*, 33 CARDOZO ARTS & ENT. L.J. 495, 503.

²⁴ See Gina Hall, *Tech Companies Draw Large Amount of Attention from Patent Trolls*, SILICON VALLEY BUS. J. (July 13, 2015, 7:37 AM), <http://www.bizjournals.com/sanjose/news/2015/07/13/tech-companies-draw-large-amount-of-attention-from.html>; *see also* Florian Mueller, *Google, Facebook, HP, Others Warn a Company Could Lose Its Entire Profits Due to a Single Patented Icon*, FOSS PATENTS (July 21, 2015), <http://www.fosspatents.com/2015/07/google-facebook-hp-others-warn-company.html>.

²⁵ See Mytheos Holt, *The Fight Against Patent Trolls Is About Principle*, DAILY CALLER (July 24, 2015, 12:06 PM), <http://dailycaller.com/2015/07/24/the-fight-against-patent-trolls-is-about-principle> (“Household names like Google, Facebook, HP, and Dell have all resoundingly come out in favor of Samsung and called on courts to throw Apple’s lawsuit out.”).

²⁶ See Gary L. Griswold, *35 USC 289 – After Apple v. Samsung, Time for a Better-Crafted Judicial Standard for Awarding “Total Profits”?*, PATENTLY-O (Aug. 14, 2015), <http://patentlyo.com/patent/2015/08/griswold-patent-damages.html>.

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In response to the anticipated surge in design patent trolling resulting from the ruling in *Apple v. Samsung*, this Note will argue why the standard implemented by Federal Circuit is flawed through an economic analysis and comparison of design patents versus utility patents before and after the decision in *Apple v. Samsung*. This Note will then propose a more functional and fair design patent infringement remedy standard based on “apportionment.”

Part I provides a brief description of the origins of the “ordinary observer” test²⁷ used to determine whether design patent infringement has occurred, as well as an overview of Apple’s infringed patents, the procedural history of *Apple v. Samsung*, and the court’s development of the total profit rule. Part II analyzes the economic aspects of both design and utility patents in the context of feasibility and monetary risk and reward. The analysis is done with respect to the standard both before and after the full acceptance of the total profit rule, ultimately showing that design patents are now much more troll friendly. Part II additionally discusses the discrepancies between the infringement legal standards of design and utility patents, shedding light on the lower infringement standard for design patents. Also, the types of economic models used by trolls to assert utility patents are discussed, including which method is most viable for design patent trolling. Part III consists of an in-depth evaluation of why the total profit rule produces more harm than good. In place of the total profit rule, Part III proposes an alternative rule based on apportionment of damages. The apportionment value, or the estimated percentage of the total profit gained by the contributing effects of the infringing design patent as compared to all other non-infringing patents for that product, would be determined by a fact finder after viewing additional evidence set forth by both parties. Under the proposed rule, an economic comparison of design versus utility patents is performed to show how it better adheres to the traditional intended policies of the patent system than the total profit rule.²⁸

I. BACKGROUND OF DESIGN PATENTS

A. *Brief Summary of Patent Trolling*

In the late 1990s, Intel coined the phrase “patent troll” in

²⁷ See *Apple Inc. v. Samsung Electronics Co.*, 786 F.3d 983, 999 (Fed. Cir. 2015) (“A design patent is infringed if an ordinary observer would have been deceived: ‘if, in the eye of an ordinary observer, giving such attention as a purchaser usually gives, two designs are substantially the same, if the resemblance is such as to deceive such an observer, inducing him to purchase one supposing it to be the other, the first one patented is infringed by the other.’”) (citing *Gorham Co. v. White*, 81 U.S. 511, 528 (1 Wall.) (1872)); *id.* at 1000 (“This determination of whether two designs are substantially the same will benefit from comparing the two designs with prior art.”).

²⁸ See Quinn, *supra* note 22.

describing “litigants seeking to assert patents which they owned, but did not practise and had no intention of practising.”²⁹ Despite such nomenclature developed during the technology boom at the turn of the century, the practice of “trolling” within the American patent system has been around for over one hundred years.³⁰ Currently, patent trolls, a subset of non-practicing entities (NPE), come in many different forms performing various methods of trolling.³¹ Essentially, trolls with a large number of patents at their disposal launch infringement suits against companies and individuals that are alleged to have illegally used some element from their portfolio of patents.³² The Federal Trade Commission acknowledges the less-than-pleasant business model of the patent troll, distinctly identifying a separate type of NPE known as patent assertion entities (PAE),³³ whose purposes for assertion are generally more malicious.³⁴

1. Patent Troll Troubles

Because such unwanted patent troll behavior has been shown to stifle innovation and increase litigation, opposite the intent of the drafters of the American patent system,³⁵ it is no wonder most

²⁹ Joff Wild, *The Real Inventors of the Term “Patent Troll” Revealed*, INTELL. ASSET MGMT. (Aug. 22, 2008), <http://www.iam-media.com/blog/detail.aspx?g=cf2afd3-c24e-42e5-aa68-a4b4e7524177> (“[T]roll: the man who hides under the bridge that he has not built to demand a fee from whoever wants to cross.”).

³⁰ In the late 1700s, Eli Whitney attempted to assert his patent of the cotton gin after feeling unjustly compensated (or not compensated at all) for his invention. George Seldon became the first recognized patent troll when he threatened suit with a patent on a “road engine” he left idle for 16 years. In 1879, Western Union effectively turned Bell Telephone Company into a patent troll via settlement instead of risking loss in litigation, granting Bell the benefit of the telephone patent. See Robert H. Resis, *History of the Patent Troll and Lessons Learned*, 17 A.B.A. INTELL. PROP. LITIG. 1 (Winter 2006).

³¹ See Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117, 2125 (2013). “Types of trolls include: Entity Class 1 (acquired patents), Entity Class 2 (university heritage or tie), Entity Class 3 (failed startup), Entity Class 4 (corporate heritage), Entity Class 5 (individual inventor started company), Entity Class 6 (university/government/NGO), Entity Class 7 (startup, pre-product), Entity Class 8 (product company), Entity Class 9 (individual), Entity Class 10 (undetermined), Entity Class 11 (industry consortium), and Entity Class 12 (IP subsidiary of product company)” *id.* at n.41.

³² See *id.*

³³ “In September 2013, the FTC launched a study of Patent Assertion Entities (PAEs), which are businesses that acquire patents from third parties and seek to generate revenue by asserting them against alleged infringers.” *Patent Assertion Entities (PAE) study*, F.T.C., <https://www.ftc.gov/policy/studies/patent-assertion-entities-pae-study> (last visited Jan. 24, 2016); see also Chien, *supra* note 21 (“Unlike the more popular term ‘NPE,’ ‘PAE’ excludes universities, startups and others who seek to commercialize or transfer their technology.”). The specific behaviors that establish an organization as a troll is highly contested. See Lemley & Melamed *supra* note 31. For the sake of this Note, PAEs are considered trolls. NPEs may exhibit troll-like behavior and partake in “trolling,” albeit outside the traditional patent assertion economic models.

³⁴ See Chien, *supra* note 21.

³⁵ See Quinn, *supra* note 22; see also James Evans, *Remembering the Real Purpose of Patents*, AM. C.L. UNION (Apr. 10, 2013, 10:44 AM), <https://www.aclu.org/blog/remembering-real-purpose-patents> (“The intent of the patent system is to achieve a social good—not to stimulate

practitioners view trolling as largely harmful, producing little to no benefit to society or to the patent system itself.³⁶ In addition to abusing the patent system for the sole purpose of monetary gain, trolling negatively affects small-to-medium sized businesses and startups, who become bankrupt from frivolous law suits.³⁷ Even if companies are not in danger of bankruptcy due to pending infringement claims that may not even be valid, many choose to settle to avoid the larger price tag of litigation, which could cost between two to six million dollars.³⁸ Yet, settling to avoid litigation, which typically results in a license agreement³⁹ and fees in exchange for the ability to not be sued by the same patent holder, may actually invite additional suits by other trolls.⁴⁰ However, patent assertions by practicing entities, such as Apple, can cause just as much harm as the traditional patent troll, filing similar suits for the sake of eliminating competition.⁴¹

Yet the trolls continue to operate within the legal bounds of the patent system, accounting for a large portion, if not a majority, of patent applications and litigation.⁴² Indeed, the expected monetary value of patent trolling practices as a result of all these filings and suits is nothing to scoff at either, with expenses exceeding tens of billions of dollars annually.⁴³ A recent academic study suggests that over the past twenty years, patent trolls have cost society an estimated \$500 billion.⁴⁴

commerce.”).

³⁶ See John F. Luman III & Christopher S. Dodson, *No Longer a Myth, the Emergence of the Patent Troll: Stifling Innovation, Increasing Litigation, and Extorting Billions*, 18 INTELL. PROP. & TECH. L.J. 5 (May 2006).

³⁷ See *Patent Trolls Are Forcing Startups to Shut down — You Can Help Stop Them*, VENTURE BEAT (Dec. 1, 2014, 8:00 AM), <http://venturebeat.com/2014/12/01/patent-trolls-are-forcing-startups-to-shut-down-you-can-help-stop-them/>.

³⁸ See *id.*

³⁹ “Patent licenses are one of the primary tools for commercializing patent rights” and allow patent holders to sell limited use of those rights. See Gwen Peterson, *Patent Licensing Considerations*, ASS’N OF CORP. COUNS. (Aug. 27, 2013), <http://www.acc.com/legalresources/quickcounsel/qcplc.cfm>.

⁴⁰ See *id.*

⁴¹ See Lemley & Melamed, *supra* note 31, at 2120–21.

⁴² See Susan Decker, *What Is a Patent Troll? Congress, Courts Try to Find Out*, BLOOMBERG BUS. (Apr. 1, 2014), <http://www.bloomberg.com/news/articles/2014-04-01/what-is-a-patent-troll-congress-courts-try-to-find-out> (“[T]he Internet Association, a lobbying group cites studies putting litigation expenses at \$29 billion a year and estimating that complaints from non-manufacturers make up two-thirds of complaints filed. It included litigation from all ‘non-practicing entities’ By contrast, a U.S. Government Accountability Office report last year only counted ‘patent monetization entities,’ companies buying patents to profit from royalties or lawsuits. Such suits made up 19 percent of the complaints filed between 2007 and 2011, GAO said.”). See Chris Neumeyer, *Managing Costs of Patent Litigation*, IP WATCHDOG (Feb. 5, 2013), <http://www.ipwatchdog.com/2013/02/05/managing-costs-of-patent-litigation/id=34808/> (“[M]ore than 60% of all patent suits are filed by non-practicing entities (NPEs) that manufacture no products and rely on litigation as a key part of their business model.”).

⁴³ See Decker *supra* note 42, Neumeyer *supra* note 42; see also Lemley & Melamed, *supra* note 31, at 2119.

⁴⁴ See Decker *supra* note 42, Neumeyer *supra* note 42, Lemley & Melamed, *supra* note 31, at

However, while it is easy to target the unscrupulous behavior of trolls, viewing the current patent field as a whole allows for the realization that trolls are merely a symptom of a damaged patent system, which they simply use to their advantage.⁴⁵

2. Emerging Design Patent Troll Practices

Traditionally, patent trolls have focused efforts on utility rather than design patents.⁴⁶ Of the 615,243 patent applications filed in 2014, 578,802 were utility patents and 35,378 were design patents.⁴⁷ The trend of concentrating on utility patents over design patents has remained relatively constant, with design patents averaging roughly 5.6% of all United States and foreign patent applications since 1880.⁴⁸ Even over the last twenty years, that ratio has not changed significantly, with the number of design patent applications only rising to 6% of the total applications filed with the United States Patent and Trademark Office (USPTO).⁴⁹

It is not difficult to see why both legitimate inventors and PAEs have preferred utility patents over design patents. Design patents, typically viewed as “supplement[al] protection sought by a utility patent in order to facilitate a larger business strategy,” do not offer the same level of protection that the utility patent does.⁵⁰ The utility patent

2119 (citing James Bessen et al., *The Private and Social Costs of Patent Trolls 17* (Bos. Univ. Sch. of Law Working Paper No. 11-45, 2011), <http://ssrn.com/abstract=1930272> (on file with the Columbia Law Review)).

⁴⁵ See Lemley & Melamed, *supra* note 31, at 2120–21; see also Raymond P. Niro, *Who Is Really Undermining the Patent System – “Patent Trolls” or Congress?*, 6 J. MARSHALL REV. INTELL. PROP. L. 185 (2007); see also Larry Downes, *Everyone Hates Patent Trolls, but Here’s the Root Problem with Our Broken System*, WASH. POST (May 4, 2015), <http://www.washingtonpost.com/news/innovations/wp/2015/05/04/everyone-hates-patent-trolls-but-heres-the-root-problem-with-our-broken-system/>.

⁴⁶ See generally *Patent Statistics*, USPTO, <http://www.uspto.gov/learning-and-resources/statistics/patent-statistics> (last visited Mar. 20, 2016).

⁴⁷ See Patent Technology Monitoring Team, *U.S. Patent Statistics Chart Calendar Years 1963 – 2015*, U.S. PAT. & TRADEMARK OFF. (last updated Nov. 14, 2016, 6:35 PM), http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm.

⁴⁸ See Patent Technology Monitoring Team, *U.S. Patent Activity Calendar Years 1790 to the Present*, U.S. PAT. & TRADEMARK OFF. (last updated Nov. 14, 2016, 6:36 PM), http://www.uspto.gov/web/offices/ac/ido/oeip/taf/h_counts.htm (percentage data was extrapolated from the number of applications in the yearly patent statistics published by the USPTO).

⁴⁹ See *id.*; *General Information Concerning Patents*, U.S. PAT. & TRADEMARK OFF. (Mar. 9, 2011, 6:01 PM), <http://www.uspto.gov/patents-getting-started/general-information-concerning-patents#heading-1> (“The United States Patent and Trademark Office (USPTO or Office) is an agency of the U.S. Department of Commerce. The role of the USPTO is to grant patents for the protection of inventions and to register trademarks.”).

⁵⁰ See Gene Quinn, *Design Patents 101 – Protecting Appearance Not Function*, IP WATCHDOG (July 25, 2015), <http://www.ipwatchdog.com/2015/07/25/design-patents-101-protecting-appearance-not-function/id=59208/>; *Design Patent v. Utility Patent*, NEUSTEL LAW OFFICES, <http://www.neustel.com/Design-Utility-Patents/Design-Patent-vs-Utility-Patent.aspx> (last visited Oct. 21, 2015); Gene Quinn, *Design Patents: The Under Utilized and Overlooked Patent*, IP WATCHDOG (Dec. 20, 2011), <http://www.ipwatchdog.com/2011/12/20/design-patents-the-under->

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confers a greater power to a patent holder's rights, broadly claiming a variety of functional aspects within a single technology.⁵¹ Design patents, on the other hand, being limited to a single claim, merely protect the key specific ornamental appearance of an invention, allowing competitors to design around the product with relative ease.⁵² Though very rare and highly dependent on the product being claimed, there may be valid claiming techniques in a design patent encompassing a product's function. However, the general rule of thumb is that design patents cannot dictate function and are thus narrowly limited to claiming ornamental appearance only.⁵³

Broad protection of a patentee's rights for the function of an invention—the most important feature of a utility patent—has always been the biggest advantage over design patents. While utility patents do enjoy a twenty-year period of protection versus the fourteen-year protection granted by a design patent,⁵⁴ design patents require no maintenance fees, whereas utility patents require thousands of dollars to maintain.⁵⁵ Design patents are notoriously less expensive than utility patents in terms of filing fees for an application to the USPTO as well.⁵⁶ Additionally, even considering the slight variation in attorney's fees from firm to firm, attorney's fees for design patent filing are generally only a few thousand dollars, a fraction of the plausible fifteen thousand dollars or more required to prosecute a complex utility patent.⁵⁷ Design

utilized-and-overlooked-patent/id=21337/.

⁵¹ See *Design Patent v. Utility Patent*, *supra* note 50.

⁵² See *id.*

⁵³ See Robert G. Oake, Jr., *DESIGN PATENT PERSPECTIVE: Why Get A Design Patent?*, INTELL. PROP. TODAY (June 2012), http://designpatentschool.com/assets/Oake_JUN12%20V1.pdf (“Although a design patent cannot be granted on a design dictated by function, claiming techniques may exist that will effectively protect function.”).

⁵⁴ See 35 U.S.C. § 154 (2000) (“...35 U.S.C. 154 to provide that the term of a patent (other than a design patent) begins on the date the patent issues and ends on the date that is twenty years from the date on which the application for the patent was filed in the United States Design patents have a term of fourteen years from the date of patent grant”).

⁵⁵ See Time for Payment of Maintenance Fees, 37 C.F.R. 1.362(b) (2014) (“Maintenance fees are not required for any plant patents or for any design patents.”). Maintenance fees for utility patents are subjectively expensive, depending on the size of the filing entity. If not recognized as a “small” or “micro” entity, maintenance fees to keep the protection rights of a patent and prevent abandonment are as follows: \$1,600 due at 3.5 years, \$3,600 due at 7.5 years, \$7,400 due at 11.5 years. This comes to a total of \$12,600 to maintain protection of a utility patent. See *USPTO Fee Schedule*, U.S. PAT. & TRADEMARK OFF. (last updated Oct. 1, 2015), <http://www.uspto.gov/learning-and-resources/fees-and-payment/uspto-fee-schedule>.

⁵⁶ See *USPTO Fee Schedule*, *supra* note 55.

⁵⁷ See, e.g., Michael J. Colitz, Jr., *FEE DESCRIPTIONS*, COLITZ.COM (last visited Oct. 21, 2015), <http://colitz.com/site/fees.html>; see *How Much Does a Patent Cost?*, NEUSTEL LAW OFFICES (last visited Oct. 21, 2015), <http://www.neustel.com/Patent-Costs-Fees/How-Much-Does-A-Patent-Cost.aspx>; Gene Quinn, *The Cost of Obtaining a Patent in the US*, IP WATCHDOG (Apr. 4, 2015), <http://www.ipwatchdog.com/2015/04/04/the-cost-of-obtaining-a-patent-in-the-us/id=56485/>; Louis Ventre, Jr., *DESIGN PATENT DETAILS*, LAW FIRM OF LOUIS VENTRE, JR. (last modified June 13, 2015), <http://www.lventre.com/detailsdesign.html>; Eric Waltmire, *How Much Does a Patent Cost*, ERICKSON LAW GROUP, PC (last visited Oct. 21, 2015),

patents are also advantageous in the context of total file time required, taking about three months less than a utility patent from the time of filing to First Office Action by the USPTO,⁵⁸ and roughly six months less from initial filing to final disposition (grant or dismissal).⁵⁹ The advantage of a six-month faster turnaround is significant in claiming patent protection rights in the fast paced realm of technological research and development.

Although the average percentage of design patent applications with respect to total patent applications seems relatively insignificant,⁶⁰ over the last twenty years, the issue rate for utility patents, roughly 47.1%, pales in comparison to the 76.9% grant rate of design patents.⁶¹ The high grant rate of design patents may be one more factor incentivizing trolls to file more design patent applications. Indeed, large technology corporations, including leading players like Apple and Samsung, have recognized the growing significance of design patents, filing more design patent applications as their product lines grow.⁶² In conjunction with the fast and high issue rate, design patents offer a “patent

<http://www.ericksonlawgroup.com/law/patents/patentfaq/how-much-does-a-patent-cost/>.

⁵⁸ See *General Information Concerning Patents*, *supra* note 49. An Office Action is a USPTO examiner’s decision in writing regarding the eligibility of patent or trademark protection, *see id.* “The reasons for any adverse action or any objection or requirement are stated in the Office action and such information or references are given as may be useful in aiding the applicant to judge the propriety of continuing the prosecution of his or her application,” *id.*

⁵⁹ See Design First Office Action Pendency and Design Traditional Total Pendency, U.S. PAT. & TRADEMARK OFF. (last visited Oct 21, 2015), <http://www.uspto.gov/corda/dashboards/patents/main.dashxml?CTNAVID=1006>; First Office Action Pendency and Traditional Total Pendency, U.S. PAT. & TRADEMARK OFF. (last visited Oct 21, 2015), <http://www.uspto.gov/corda/dashboards/patents/main.dashxml?CTNAVID=1004>.

⁶⁰ See Patent Technology Monitoring Team, *supra* note 47; Patent Technology Monitoring Team, *supra* note 48 (“...design patent applications being only 6% of the total applications filed with the USPTO.”).

⁶¹ See Downes, *supra* note 45 (“Between 1997 [sic] [1977] and 2007, the number of design patents issued each year grew from under 2,000 to nearly 20,000, an order of magnitude increase.”); Dennis Crouch, *Counting Design Patents*, PATENTLY-O (Dec. 26, 2007), <http://patentlyo.com/patent/2007/12/counting-design.html>; *see also* Patent Technology Monitoring Team, *supra* note 47. For more accurate values, *see* Patent Technology Monitoring Team, *supra* note 48 (percentage data was extrapolated from the number of applications in the patent statistics published by the USPTO).

⁶² See Crouch, *supra* note 61 (“In 2007, Samsung Electronics received over 550 design patents — the most ever issued to a single company in one year.”); Patent Technology Monitoring Team, *Design Patents Report*, U.S. PAT. & TRADEMARK OFF. (last updated Oct. 21, 2015, 12:17 PM), <http://www.uspto.gov/web/offices/ac/ido/oeip/taf/design.htm>. Samsung continues to be a leader in design patent filing and granting today, setting a record of 836 granted design patents in 2014. Samsung Electronics Co., LTD. holds the most granted design patents, a total of 4733 prior to 2015 (figure does not include subsidiaries). Apple, though not as prominent, was granted 190, for a lifetime total of 1267. For comparative purposes, Samsung was granted 4936 utility patents in 2014, for a total of 50,611 lifetime grants, while Apple was granted 2003, for a total of 8458. *See* Patent Technology Monitoring Team, *All Technologies (Utility Patents) Report*, U.S. PAT. & TRADEMARK OFF. (last updated Oct. 21, 2015, 6:14 PM), http://www.uspto.gov/web/offices/ac/ido/oeip/taf/all_tech.htm.

pending⁶³ status, which, although has no legal effect, creates a meaningful significance in controlling the market space of a product.⁶⁴ The mere fact that a product might receive future patent protection “may have a chilling effect on competition” who then “may be reluctant to invest resources in a product that may infringe.”⁶⁵ Furthermore, “[c]onsumers may perceive ‘patent pending’ products as being more ‘cutting edge’ and unique, and therefore more valuable.”⁶⁶

Nonetheless, utility patents have been the weapon of choice for PAEs. While utility patents have enjoyed a greater relative increase in the rate of issuance by the USPTO than design patents, nearly a 300% increase since 1995 compared to design patents’ 200% increase in issuance, design patents still offer a higher issue rate overall.⁶⁷ While these values alone are not sufficient enough to determine future growth rates and the trend of prosecution and litigation practices for the next decade or so, it is reasonable to conclude that design patents are becoming a force to be reckoned with, especially considering the outcome of *Apple v. Samsung*. The total profit rule could be the tipping point that incentivizes trolls to venture deeper into design patent territory, ultimately providing an inexpensive means with quick turnaround, high rate of issue, low risk, and high reward, to assert malevolent claims against infringing patent holders.⁶⁸

B. *Development of Design Patent Infringement Legal Standards*

In order for the court to reach the decision in *Apple v. Samsung*, ultimately finding that Samsung’s Galaxy phone series had infringed on Apple’s product line of iPhones, it had to analyze years of precedent to determine what legal standard to use in determining infringement, and once infringement was found, how to apply damages. The standard the court used was a variation of the “ordinary observer” test.⁶⁹

⁶³ Patent pending describes the status of an application such that an invention has begun the review process with the USPTO, but has not yet been granted patent rights. *See Patent Pending*, WIKIPEDIA, https://en.wikipedia.org/wiki/Patent_pending (last visited Jan. 24, 2016).

⁶⁴ *See* Robert G. Oake, Jr., *DESIGN PATENT PERSPECTIVE: Why Get a Design Patent?*, INTELL. PROP. TODAY (June 2012), http://designpatentschool.com/assets/Oake_JUN12%20V1.pdf; *see also* Gene Quinn, *Design Patents: The under Utilized and Overlooked Patent*, IP WATCHDOG (Dec. 20, 2011), <http://www.ipwatchdog.com/2011/12/20/design-patents-the-under-utilized-and-overlooked-patent/id=21337/>.

⁶⁵ Oake, *supra* note 64.

⁶⁶ *Id.*

⁶⁷ Note that rate of issuance is not equal to issue/grant rate. *See* Patent Technology Monitoring Team, *supra* notes 47–48 (percentage data was extrapolated from the number of applications in the yearly patent statistics published by the USPTO) (“[T]he rate of issuance for utility patents, roughly 47.1%, pales in comparison to the 76.9% grant rate of design patents.”).

⁶⁸ *See infra* Part II, Section B.

⁶⁹ For the “ordinary observer” standard *see* *Apple Inc. v. Samsung Electronics Co.*, 786 F.3d 983, 999–1000 (Fed. Cir. 2015), stating that a design patent is infringed if an ordinary observer would have been deceived, even in absence of actual deception. *See also* *Egyptian Goddess v. Swisa*, 543 F.3d 665, 672 (Fed. Cir. 2008) (“[W]hether an ordinary observer, familiar with the prior art,

1. History of “Ordinary Observer” Test

The development of the legal standard used by the court in *Apple v. Samsung* to determine infringement of a design patent has its origins in *Gorham Co. v. White*.⁷⁰ There, in a case involving the design of flatware handles, the Supreme Court meted out the standard for design patent infringement:

[T]he court (1) rejected the notion that design patent infringement should be decided through the eyes of an expert, and rather left the decision to the ordinary observer; (2) rejected a design patent infringement test that required exactitude, instead opting for a test only requiring substantial identity in appearance; and (3) affirmed that design patents, as set forth in the acts of Congress, provide a meritorious service to the public.⁷¹

Over one hundred years later, in the 1984 decision of *Litton Sys., Inc. v. Whirlpool Corp.*,⁷² the Federal Circuit added the “point of novelty” test as an additional required standard alongside the “ordinary observer” test wrought from *Gorham*.⁷³ The “point of novelty” test stated that “[f]or a design patent to be infringed, however, no matter how similar two items look, ‘the accused device must appropriate the novelty in the patented device which distinguishes it from the prior art.’”⁷⁴ Nearly two decades after *Litton*, the Federal Circuit further substantiated the infringement tests derived from *Gorham* and *Litton* in *Contessa Food Prods., Inc. v. Conagra, Inc.*,⁷⁵ declaring that “[c]omparison to the accused product includes two distinct tests, both of which must be satisfied in order to find infringement: (a) the ‘ordinary observer’ test, and (b) the ‘point of novelty’ test.”⁷⁶ On remand, in an attempt to clarify the “point of novelty” test for the lower court to determine whether infringement occurred, the Federal Circuit noted “[t]he overall features of . . . the accused products must be compared with the patented design as a whole as depicted in all of the drawing figures to determine infringement.”⁷⁷

Six years later, in *Egyptian Goddess v. Swisa*, the Federal Circuit attempted to dissect the ambiguous design patent legal standard that had

would be deceived into thinking that the accused design was the same as the patented design.”).

⁷⁰ See *Gorham Co. v. White*, 81 U.S. 511 (1871).

⁷¹ Christopher V. Carani, *Apple v. Samsung Design Patents Take Center Stage*, 5 A.B.A. LANDSLIDE (Jan./Feb. 2013) (citing *Gorham v. White*, 81 U.S. at 524–525) (internal quotations omitted).

⁷² See *Litton Sys., Inc. v. Whirlpool Corp.*, 728 F.2d 1423 (1984).

⁷³ See *id.* at 1444.

⁷⁴ *Id.* (citing *Sears, Roebuck & Co. v. Talge*, 140 F.2d 395, 396 (8th Cir. 1944); *Horwitt v. Longines Wittnauer Watch Co.*, 388 F. Supp. 1257, 1263 (S.D.N.Y. 1975)).

⁷⁵ See *Contessa Food Prods., Inc. v. Conagra, Inc.*, 282 F.3d 1370 (Fed. Cir. 2002).

⁷⁶ *Id.* at 1377.

⁷⁷ *Id.* at 1381.

been used for over a century.⁷⁸ The court recognized the ambiguity created by the “point of novelty” test in *Litton*, and held “that the ‘ordinary observer’ test should be the sole test for determining whether a design patent has been infringed.”⁷⁹ The court further specified “that the preferable way to achieve that purpose [(to determine infringement)] is to do so directly, by relying on the ordinary observer test, conducted in light of the prior art.”⁸⁰ Reiterating its opinion from *Egyptian Goddess* as good law two years later in *Richardson v. Stanley Works, Inc.*,⁸¹ the court emphasized that infringement is based on design patent appearance, rather than function of the device, and that “infringement cannot be found unless the accused product creates an appearance deceptively similar to the claimed design.”⁸² It is this refined “ordinary observer” test, read in light of prior art to determine deceptively similar appearance, that was used as the legal standard in *Apple v. Samsung*.⁸³

2. *Apple, Inc. v. Samsung Electronics Co*

While this Note does not purport to show whether the courts erred in finding that Samsung’s products infringed Apple’s design patents, an understanding of what is actually being infringed upon is useful preparation for discussing damages and analyzing the consequences of *Apple v. Samsung* from an economic viewpoint.

i. Overview of Infringed Patents

The four design patents that Apple claimed Samsung was infringing were U.S. Patent D504,889 (the D’889 patent), U.S. Patent D593,087 (the D’087 patent), U.S. Patent D618,677 (the D’677 patent), and U.S. Patent D604,305 (the D’305 patent).⁸⁴ The D’889 patent describes “the ornamental design for an electronic device, substantially as shown and described” in Exhibit 1, Figures 1 and 2.⁸⁵ The D’889 patent was not at issue on appeal, as it was determined in the lower court that Samsung’s products did not infringe on the D’889 patent.⁸⁶ It is of note that the D’889 patent dealt with claims for a tablet, whereas the other three asserted design patents dealt with phones.⁸⁷ The D’087 patent claims “[t]he ornamental design of an electronic device,

⁷⁸ See *Egyptian Goddess, Inc. v. Swisa, Inc.*, 543 F.3d 665, 670 (Fed. Cir. 2008).

⁷⁹ *Id.* at 678.

⁸⁰ *Id.* For a discussion on what is considered prior art, see Gene Quinn, *What is Prior Art?*, IP WATCHDOG (Oct. 2, 2010), <http://www.ipwatchdog.com/2010/10/02/what-is-prior-art/id=12677/>.

⁸¹ See *Richardson v. Stanley Works, Inc.*, 597 F.3d 1288 (Fed. Cir. 2010).

⁸² *Id.* at 1296 (citing *Egyptian Goddess*, 543 F.3d at 681).

⁸³ See *Apple, Inc. v. Samsung Electronics Co.*, 786 F.3d 983, 999 (Fed. Cir. 2015).

⁸⁴ See *supra* note 4.

⁸⁵ See *infra* Exhibit 1, Figures 1–2; see also U.S. Patent No. 558,756 figs. 1–8 (filed Jan. 5, 2007), <https://patents.google.com/patent/USD558756S1/en>.

⁸⁶ See *Apple v. Samsung*, 786 F.3d at 989.

⁸⁷ See Carani, *supra* note 71.

substantially as shown” in Exhibit 2, Figures 19, 23, and 24,⁸⁸ described as six different embodiments directed at a front face with an outer bezel for an electronic device.⁸⁹ The D’677 patent claims “[t]he ornamental design of an electronic device, as shown and described” in Exhibit 3, Figures 3, 7, and 8,⁹⁰ or more specifically, “a single embodiment directed to the appearance of a front face of a device.”⁹¹ The D’305 patent claims “[t]he ornamental design for a graphical user interface for a display screen or portion thereof, as shown and described” in Exhibit 4, Figure 1.⁹²

A design patent can claim multiple embodiments regarding the shape, color, ornamentation or texture of an article of manufacture.⁹³ In particular, and of great importance in *Apple v. Samsung*, the type of lines shown in claimed figures change the breadth of the claimed invention. Solid lines determine exactly what is being claimed, whereas broken or dashed lines refer to what the rest of the drawing may look like, showing unclaimed subject matter.⁹⁴ In terms of rights granted, fewer solid lines and more dashed lines generally create a more powerful design patent covering a wider range of embodiments.⁹⁵ Recognizing the power of the dashed line, Apple refiled the initial suit against Samsung which alleged infringement of U.S. Patent D558,756 (the D’756 patent),⁹⁶ and instead alleged infringement of the D’087 patent, a broader version of the original iPhone D’756 patent.⁹⁷ Under the D’756 patent, Apple would have been unlikely to succeed in claiming infringement.⁹⁸ However, as shown by the outcome of the case on appeal, Apple succeeded in proving infringement largely due to the breadth of the claims as established by the broken lines of the D’087 patent.⁹⁹

⁸⁸ See *infra* Exhibit 2, Figures 19, 23, 24; see also U.S. Patent No. 593,087 figs. 1–48 (filed July 30, 2007), <https://patents.google.com/patent/USD593087S1/en>.

⁸⁹ See Carani, *supra* note 71.

⁹⁰ See *infra* Exhibit 3, Figures 3, 7, 8; see also U.S. Patent No. 618,677 figs. 1–6 (filed Nov. 18, 2008), <https://patents.google.com/patent/USD618677S1/en>.

⁹¹ See Carani, *supra* note 71.

⁹² See *infra* Exhibit 4, Figure 1; see also U.S. Patent No. USD 604,305 figs. 1–2 (filed June 23, 2007), <https://patents.google.com/patent/USD604305S1/en>.

⁹³ See Mark Nowotarski, *Strong Design Patents: The Power of The Broken Line*, IP WATCHDOG (July 30, 2013), <http://www.ipwatchdog.com/2013/07/30/strong-design-patents-the-power-of-the-broken-line/id=44215/>; see generally U.S. PAT. & TRADEMARK OFF., Chap.1500 Design Patents, MANUAL OF PATENT EXAMINING PROCEDURE (Mar. 2014), <http://www.uspto.gov/web/offices/pac/mpep/mpep-1500.html> (last visited Jan. 24, 2016).

⁹⁴ See Nowotarski, *supra* note 93.

⁹⁵ See *id.*

⁹⁶ “We claim the ornamental design for an electronic device, substantially as shown and described.” U.S. Patent No. D558,756 (filed Jan. 5, 2007), <https://patents.google.com/patent/USD558756S1/en>; see *infra* Exhibit 5.

⁹⁷ See Nowotarski, *supra* note 93.

⁹⁸ *Id.*

⁹⁹ See *Apple, Inc. v. Samsung Electronics Co.*, 786 F.3d 983, 998 (Fed. Cir. May 18, 2015).

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On August 5, 2015, the Central Reexamination Division of the USPTO issued a non-final action in the reexamination of D'677, rejecting the validity of Apple's design patent.¹⁰⁰ In its non-final rejection, the examiner states the D'677 patent rejection was obvious based on four separate rejections of validity under the obviousness doctrine.¹⁰¹ Two of the rejections are due to combinations of prior art with Apple's own design patents, U.S. Design Patent No. D602,014 and U.S. Design Patent No. D618,204.¹⁰² Thus, D'305 and D'087 are the only two valid design patents that entitled Apple to all of Samsung's profit generated by its infringing products.¹⁰³

ii. Procedural History, Issues, and Outcome

On April 15, 2011, Apple, Inc. filed suit against Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Telecommunications America, LLC (collectively "Samsung").¹⁰⁴ In the initial hearing on April 19, Apple filed and was granted a motion for expedited discovery regarding five of Samsung's products: the Galaxy S2 cell phone, the Galaxy Tab 8.9 tablet computer, the Galaxy Tab 10.1 tablet computer, the Infuse 4G cell phone, and the 4G LTE (or "Droid Charge") cell phone.¹⁰⁵ In addition to those Samsung products, Apple claimed the following Samsung products infringed on its design and utility patents: Admire, Galaxy Nexus, Galaxy Note, Galaxy Note II, Galaxy SII Epic 4G Touch, Galaxy SII Skyrocket, Galaxy SIII, Galaxy Tab II 10.1, and Stratosphere.¹⁰⁶ Samsung counterclaimed stating that nine Apple phones and tablets infringed upon two of Samsung's patents: iPhone 4, iPhone 4S, iPhone 5, iPad 2, iPad 3, iPad 4, iPad mini, iPod touch (5th generation), iPod touch (4th generation), and MacBook Pro.¹⁰⁷

¹⁰⁰ See Mueller, *supra* note 16.

¹⁰¹ See 35 U.S.C. § 103 (1952) ("A patent for a claimed invention may not be obtained . . . if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date [if AIA, or at the time of invention if pre-AIA] of the claimed invention to a person having ordinary skill in the art"); *2141 Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103*, U.S. PAT. & TRADEMARK OFF., <http://www.uspto.gov/web/offices/pac/mpep/s2141.html> (last visited Jan. 24, 2016). For the standard in determining obviousness, see *Graham v. John Deere Co.*, 383 U.S. 1 (1966) and *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007).

¹⁰² See Mueller, *supra* note 16; U.S. Patent No. D602,014 (filed Aug. 31, 2007), <https://patents.google.com/patent/USD602014S1/en>; U.S. Patent No. D618,204 (filed June 27, 2007), <https://patents.google.com/patent/USD618204S1/en>.

¹⁰³ See generally Mueller, *supra* note 16.

¹⁰⁴ See *Apple Inc. v. Samsung Electronics Co.*, No. 11-cv-01846, 2011 U.S. Dist. LEXIS 53233, at *2 (N.D. Cal. May 18, 2011).

¹⁰⁵ *Id.*

¹⁰⁶ *Apple-Samsung Legal War Puts Patents in the Crosshairs*, N.Y. POST (Mar. 31, 2014), <http://nypost.com/2014/03/31/apple-samsung-legal-war-puts-patents-in-the-crosshairs/>.

¹⁰⁷ *Id.* For a side-by-side visual comparison of some of Apple's products versus the respective infringing Samsung products, see *infra* Exhibit 6.

During the litigation, some troubling accusations were put forth, with both sides alleging doctoring of photos and figures to create the illusion that the other party's products and design patents were either similar or dissimilar in appearance. While there were some contentions by those skilled in the art suggesting that Apple and Samsung did alter photos of the claimed design patent figures and product images,¹⁰⁸ Judge Koh,¹⁰⁹ ultimately overruling Samsung's objection, stated that there was no credible evidence to support this accusation.¹¹⁰

Other problems arose regarding possibly case-deciding evidence when Samsung, attempting to rebut the allegation of copying, was not able to include testimony on its independent development of the F700¹¹¹ phone that pre-dated the iPhone.¹¹² Whether the F700 may have actually anticipated some of Apple's design patents, though heavily contested,¹¹³ is irrelevant due to evidentiary rules in this litigation. Initially, Samsung failed to introduce evidence of the F700 phone in a timely fashion, and was forced to rely on expert testimony.¹¹⁴ Unfortunately for Samsung, the court also precluded the testimony into evidence because "Samsung's witness did not design any of the accused devices and was unaware that any of the accused devices was based on the F700" and therefore "lacked first-hand knowledge relevant to the underlying issue."¹¹⁵

Additionally, Apple caused some suspicion when it originally included infringement claims for additional phones, but then dropped

¹⁰⁸ See Daniel Cooper, *Did Apple Alter Photos of the Samsung Galaxy Tab 10.1 in Its Injunction filing?*, ENGADGET (Aug. 15, 2011, 4:11 PM), <http://www.engadget.com/2011/08/15/did-apple-alter-photos-of-the-samsung-galaxy-tab-10-1-in-its-inj/>; Adrian Kingsley-Hughes, *Apple Accused of Doctoring Image to Sink Galaxy Tab 10.1 in Europe – UPDATE*, ZDNET (Aug. 16, 2011, 5:14 PM), <http://www.zdnet.com/article/apple-accused-of-doctoring-image-to-sink-galaxy-tab-10-1-in-europe-update/>.

¹⁰⁹ Koh, a judge for the United States District Court for the Northern District of California, San Jose Division, dealt with the initial suit filed. See *Apple v. Samsung*, 2011 U.S. Dist. LEXIS 53233, at *1 (N.D. Cal. May 18, 2011).

¹¹⁰ See Daniel Eran Dilger, *Judge Says Samsung's Accusations That Apple Doctored Evidence "Not Credible"*, APPLE INSIDER (Aug. 07, 2012, 1:10 PM), http://appleinsider.com/articles/12/08/07/judge_says_samsungs_accusations_that_apple_doctored_evidence_not_credible.

¹¹¹ For specifications on the F700, see *Samsung F700*, GSMARENA, http://www.gsmarena.com/samsung_f700-1849.php (last visited Jan. 24, 2016).

¹¹² See *Apple Inc. v. Samsung Electronics Co.*, 786 F.3d 983, 1000–1001 (Fed. Cir. 2015).

¹¹³ See Cory Gunther, *Who Was Really First? Apple vs Samsung F700 Story Truly Debunked*, ANDROID COMMUNITY (Apr. 20, 2011), <http://androidcommunity.com/who-was-really-first-apple-vs-samsung-story-truly-debunked-20110420/> (arguing that notice to public and timing suggests the iPhone actually anticipates the F700); Nilay Patel, *Let's Talk About This Picture of a Samsung F700*, VERGE (Apr. 20, 2011, 2:48 PM), <http://www.theverge.com/2011/04/20/talk-picture-samsung-f700> (arguing that the F700 phone does not anticipate the iPhone design patents since there are too many differences, e.g. the F700 has no applications on its home screen).

¹¹⁴ See *Apple v. Samsung*, 786 F.3d at 1000 ("The evidence on the F700 was previously excluded as a prior art reference under a Rule 37 sanction due to Samsung's failure to timely disclose the evidence during discovery, which Samsung does not challenge.")

¹¹⁵ *Id.* at 1000–1001.

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the suit to allege infringement of only four phones.¹¹⁶ While some Apple representatives state that the infringement claims for the additional phones were dropped to simplify litigation, there is evidence to suggest that Apple did not include its prior art for the other phones to prevent weakening their own argument.¹¹⁷ In essence, the courts may have found that the additional prior art actually anticipated and thus invalidated Apple's own design patents that it was relying on.¹¹⁸

There is some significance to these procedural aspects, as they shed light on how one or two seemingly trivial issues could have affected the outcome of the case. While only speculation, it may be inferred that had one of the aforementioned procedural issues been resolved in favor of the other party, infringement may not have been found, and therefore the total profit rule may not have been reached and ultimately affirmed on appeal. Thus, it is of concern that such a powerful damages rule could be affirmed based upon otherwise trivial procedural issues.

Apple initially brought suit in April 2011 seeking over \$2 billion in damages for all alleged utility and design patent infringements.¹¹⁹ On August 24, 2012, the first jury reached a verdict that a number of Samsung products infringed Apple's patents and awarded over \$1 billion in damages.¹²⁰ The jury found that Samsung infringed design patents D'677, D'087, and D'305, in addition to three utility patents U.S. Patents 7,469,381 ('381 patent), 7,844,915 ('915 patent), and 7,864,163 ('163 patent), which claim certain features in the iPhone's user interface.¹²¹

Following the first jury trial, the district court upheld the jury's infringement and validity findings over Samsung's post-trial motion.¹²² The district court also upheld \$639,403,248 in damages, but ordered a

¹¹⁶ See *Apple Inc. v. Samsung Electronics Co.*, No. 11-cv-01846, 2011 U.S. Dist. LEXIS 53233, at *2 (N.D. Cal. May 18, 2011).

¹¹⁷ See Martyn Williams, *Apple, Samsung Drop Some Patent Claims as Trial Approaches*, PC WORLD (June 23, 2012 1:50PM), http://www.pcworld.com/article/259687/apple_samsung_drop_some_patent_claims_as_trial_approaches.html. For review on the design patents that the USPTO cites as prior art for invalidating the D'677 patent, see Mueller, *supra* note 16.

¹¹⁸ See *id.*

¹¹⁹ See Mikey Campbell, *USPTO Finds Apple iPhone Design Patent Invalid in Court Fight Against Samsung*, APPLE INSIDER (Aug. 17, 2015, 11:12 PM), <http://appleinsider.com/articles/15/08/17/uspto-finds-apple-iphone-design-patent-invalid-in-court-fight-against-samsung>.

¹²⁰ See *Apple Inc. v. Samsung Electronics Co.*, 920 F. Supp. 2d 1079, 1089 (N.D. Cal. 2013).

¹²¹ See *id.*; see also U.S. Patent No. 7,469,381 (filed Dec. 14, 2007) (list scrolling and document translation, scaling, and rotation on a touch-screen display), <https://patents.google.com/patent/US7469381B2/en>; U.S. Patent No. 7,844,915 (filed Jan. 7, 2007) (application programming interfaces for scrolling operations), <https://patents.google.com/patent/US7844915B2/en>; U.S. Patent No. 7,864,163 (filed Sept. 4, 2007) (portable electronic device, method, and graphical user interface for displaying structured electronic documents), <https://patents.google.com/patent/US7864163B2/en>.

¹²² See *Apple*, 920 F. Supp. 2d at 1089.

partial retrial on the remainder of the damages.¹²³ Upon partial retrial, the jury awarded Apple \$290,456,793, which the district court upheld over Samsung's second post-trial motion.¹²⁴ In early March, 2014, the district court entered a final judgment in Apple's favor, and Samsung subsequently filed a notice of appeal for issues of error finding infringement and damages.¹²⁵ On appeal, the Federal Circuit affirmed-in-part, reversed-in-part, vacated-in-part, and remanded the district court's judgment that Samsung infringed design patents D'677, D'087, and D'305, as well as utility patents '381, '915, '163.¹²⁶ In terms of infringed Apple products, Samsung was found to have infringed on D'677 with its Fascinate, Galaxy S 4G, Galaxy S II for AT&T, Galaxy S II for T-Mobile, Epic 4G Touch, Skyrocket, Showcase, Infuse 4G, Mesmerize, and Vibrant smartphones.¹²⁷ In two cases, the Galaxy S2 Skyrocket and Galaxy S2 Epic 4G, the jury based infringement findings solely on the D'677 patent.¹²⁸ As a result of the reexamination of the D'677 patent, Samsung is currently seeking further reduction of its damages.¹²⁹ The United States Supreme Court is set to rule upon the issue of damages sometime in December or January.¹³⁰

Regardless of what Samsung may ultimately be responsible for in terms of damages after resolution of the D'677 patent issue, the legal standard wrought from this case remains the same. The Federal Circuit has fully adopted the total profit as the legal remedy upon a finding of design patent infringement.¹³¹ Additionally, the court held that actual deception need not be found to determine whether infringement of design patents exists.¹³²

C. *The Total Profit Rule and Its Effects on Trolling Thus Far*

The total profit rule, as upheld in *Apple v. Samsung*, has its origins in 35 U.S.C. § 289:

¹²³ See *id.*

¹²⁴ See *id.*

¹²⁵ See *Apple Inc. v. Samsung Electronics Co.*, 786 F.3d 983, 990 (Fed. Cir. 2015).

¹²⁶ See *id.* at 1005.

¹²⁷ See Campbell, *supra* note 119.

¹²⁸ See *id.*

¹²⁹ See Mueller, *supra* note 16.

¹³⁰ See Jordan Golson, *Supreme Court Oral Arguments in Samsung v. Apple Set for October 11th*, THE VERGE (July 14, 2016, 12:53 PM), <http://www.theverge.com/2016/7/14/12189222/samsung-v-apple-supreme-court-oral-arguments-october-11>.

¹³¹ See *Apple v. Samsung*, 786 F.3d at 1001.

¹³² “[I]f the accused design has copied a particular feature of the claimed design that departs conspicuously from the prior art, the accused design is naturally more likely to be regarded as deceptively similar to the claimed design, and thus infringing.” *Apple Inc. v. Samsung Electronics Co.*, 786 F.3d 983, 999 (Fed. Cir. 2015) (citing *Egyptian Goddess, Inc. v. Swisa, Inc.*, 543 F.3d 665, 678 (Fed.Cir.2008)).

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Whoever during the term of a patent for a design, without license of the owner, (1) applies the patented design, or any colorable imitation thereof, to any article of manufacture for the purpose of sale, or (2) sells or exposes for sale any article of manufacture to which such design or colorable imitation has been applied shall be liable to the owner to the extent of his total profit, but not less than \$250, recoverable in any United States district court having jurisdiction of the parties. Nothing in this section shall prevent, lessen, or impeach any other remedy which an owner of an infringed patent has under the provisions of this title, but he shall not twice recover the profit made from the infringement.¹³³

Section 289 entitles a design patent holder to the entire profits gained by the infringing article of manufacture. As such, apportionment is not an appropriate remedy according to the court.¹³⁴ On the other hand, Samsung argued that the damages should have been limited to the profit attributable to the infringement due to basic causation principles, and that Apple failed to show that the design patent infringement had caused Samsung to gain any sales or profit.¹³⁵ Samsung contended that it was a variety of other factors, not the infringing design aspects of the articles of manufacture, which caused consumers to buy their products.¹³⁶ The Federal Circuit rejected Samsung's contentions, reasoning that such causation arguments advocate the same apportionment requirement that Congress explicitly rejected in The Design Patent Act of 1887.¹³⁷ The Act of 1887, which was enacted partially in response to *Dobson v. Dornan*,¹³⁸ "removed the need to apportion damages and provided that the infringer should be liable for the total profit made by him from the manufacture or sale of any article to which the design had been applied, with a minimum liability of \$250."¹³⁹

Apart from inferring antiquated congressional intent, one minor factor that may have affected the court's rationale in opposing apportioned damages and affirming the total profit rule is the way the

¹³³ See 35 U.S.C. § 289 (1952).

¹³⁴ See *Apple v. Samsung*, 786 F.3d at 1001–1002.

¹³⁵ See *id.* at 1001.

¹³⁶ See *id.*

¹³⁷ See *Nike, Inc. v. Wal-Mart Stores, Inc.*, 138 F.3d 1437, 1441 (Fed. Cir. 1998) ("Apportionment . . . required [the patentee] to show what portion of the infringer's profit, or of his own lost profit, was due to the design and what portion was due to the article itself. . . . The Act of 1887, specific to design patents, removed the apportionment requirement"); see generally Frederic H. Betts, *Some Questions Under the Design Patent Act of 1887*, 1 YALE L.J. 5 (May, 1892), <http://www.jstor.org/stable/pdf/782528.pdf?acceptTC=true>.

¹³⁸ *Dobson v. Dornan*, 118 U.S. 10 (1886) (Court found infringement of a carpet design patent but awarded damages of only six cents because the patentee could not adequately show that the value of the infringing carpets was attributable to the patented design).

¹³⁹ See Colin B. Harris & Andrew M. Ollis, *Design Patent Damages*, 2 A.B.A. LANDSLIDE (May/June 2010) (footnote omitted), <http://www.oblon.com/publications/design-patent-damages/>.

USPTO describes the design patent in relation to the object that the design is affixed to: “A design for surface ornamentation is inseparable from the article to which it is applied and cannot exist alone.”¹⁴⁰ Essentially, this means that but for the existence of the article of manufacture, the ornamentation defined in a design patent would not exist.¹⁴¹ Reversing the relationship between the product and the claimed design creates the assumption that if not for the existence of the design patent, the article of manufacture would not exist individually. This logic supports the notion of the total profit rule, such that the design patent is the foundation of the entire invention and therefore entitles a plaintiff to all of the profits gained from an infringing product. However, the court misinterpreted the functional meaning of the USPTO’s words. This illogically mirrored relationship cannot be true, since many articles of manufacture exist without the attachment of a claimed design. This is in part illustrated by an inventor’s ability to reap the financial and brand benefits of being first-to-market, relinquishing any rights to later obtain a patent, thus creating an article of manufacture without the use of a design or utility patent.¹⁴² Such minor factors may have subconsciously affected the courts’ reasoning when determining the type of damages to apply after finding Samsung’s products infringed Apple’s design patents.

Within the past few years that the Federal Circuit has fully accepted the total profit rule in *Apple v. Samsung*, experts and analysts have been wary of the potential repercussions of such a powerful rule. Some studies suggest that the ruling did not affect an expected increase in design patent litigation.¹⁴³ One possible reason for the yearly decline in design patent litigation from 2010 to 2015 could be that both NPEs and PAEs never expected Apple to prevail in its suit against Samsung. Additionally, talks by the USPTO and others about legislative reform in

¹⁴⁰ *Design Patent Application Guide*, U.S. PAT. & TRADEMARK OFF., <http://www.uspto.gov/patents-getting-started/patent-basics/types-patent-applications/design-patent-application-guide#def> (last visited Jan. 24, 2016).

¹⁴¹ *See id.*

¹⁴² When an inventor offers an invention for sale, the statutory clock for barring the inventor from obtaining a patent begins. *See* 35 U.S.C. §102(b) (2012) (statutory bar for “on sale”). Once the grace period for filing ends, the inventor is barred from obtaining patent rights. The reason behind this is policy-based, preventing an inventor from “double-dipping” and gaining the benefit of an invention for greater than 20 years. *See generally* *Egbert v. Lippmann*, 104 U.S. 333 (1881); *Pfaff v. Wells Electronics, Inc.*, 525 U.S. 55 (1998); *Abbott Labs. V. Geneva Pharm., Inc.*, 182 F.3d 1315 (Fed. Cir. 1999); *Metallizing Eng’g Co. v. Kenyon Bearing & Auto Part Co.*, 153 F.2d 516 (2d Cir. 1946).

¹⁴³ The number of design and utility patent infringement cases per year was analyzed. “In fact, the highest number of design patent litigation suits filed came in 2010, the year before the AIA was signed into law and Apple first filed suit against Samsung in the Northern District of California.” Andrew M. Ollis & Lisa M. Mandrusiak, *Design Patent Litigations Chart Their Own Course*, PROTECTING DESIGNS (July 28, 2015), <http://www.protectingdesigns.com/design-patent-litigations-chart-their-own-course>.

the wake of *Apple v. Samsung* may have had a chilling effect on PAEs and NPEs with respect to design patent infringement suits.¹⁴⁴ While no current trends have yet appeared through analytical and statistical studies of design patent litigation, the threat of the total profit rule and its potential abuse by trolls remains, if left unchecked.

II. ECONOMIC ANALYSIS AND FEASIBILITY OF DESIGN PATENT TROLLING

A. *Valuing a Patent*

In determining whether design patent trolling may be more feasible when adapted to preexisting utility patent assertion methods, an understanding of what economic factors go into assessing the value of each is required. This section illustrates how design patents, as a result of the courts' affirmation of the total profit rule, are now a much more feasible vehicle for patent trolling in terms of upfront cost, effort, risk, and reward.

1. Valuation Methods

The valuation of intangible assets, specifically intellectual property such as patents, plays an important role in corporate decision making, whether it is determining the worth of a company or deciding if asserting a patent against a potential defendant would be financially lucrative.¹⁴⁵ In the world of patents, three quantitative methods are often referred to in analyzing a patent's economic worth.¹⁴⁶

The first method, the cost based approach, is based on the historic cost of acquisition, or when such information is not available, an

¹⁴⁴ See Harry C. Alford, *War Between Apple v. Samsung*, SOUTH JERSEY JOURNAL (June 8, 2015, 1:23 PM), <http://southjerseyjournal.com/news/2015/jun/08/war-between-apple-v-samsung/> ("Because of the court's unfortunate ruling, we can only hope that Congress will override this damaging interpretation of the law through a legislative fix. Without this step, there is a substantial chance that the very patent trolls that both the House and Senate are currently working so hard to cripple will simply shift from their current tactics to design patent litigation."); see also Julie Hopkins, *Don't Neglect Design Patents in the Next Round of Reform*, REPUBLIC 3.0 (July 2014), <http://republic3-0.com/design-patents-need-reform-julie-hopkins/> (suggesting that at a minimum, legislators should add transparency into the design patent prosecution process, similar to that granted to utility patents, to ensure the issuance of quality patents).

¹⁴⁵ See, *Intangible Asset*, INVESTOPEDIA, <http://www.investopedia.com/terms/i/intangible-asset.asp> (last visited Jan. 24, 2016); see also Ryan Goodrich, *What Are Intangible Assets?*, BUS. NEWS DAILY (Nov. 26, 2013, 11:16 PM), <http://www.businessnewsdaily.com/5532-intangible-assets.html> (discussing amortization of patents).

¹⁴⁶ See *Four Elements Used in Determining a Patent's Value*, AXIAL (June 26, 2011), <http://www.axial.net/forum/four-elements-used-determining-patents-value/>; Chizoba Morah, *Patents Are Assets, So Learn How to Value Them*, INVESTOPEDIA, <http://www.investopedia.com/articles/fundamental-analysis/09/valuing-patent.asp> (last visited Jan. 24, 2016); *Patent Valuation*, Wikipedia, https://en.wikipedia.org/wiki/Patent_valuation (last visited Jan. 24, 2016); Robert Pitkethly, *The Valuation of Patents*, U. OXFORD (Mar 18, 1997), <http://users.ox.ac.uk/~mast0140/EJWP0599.pdf>.

estimation is made on the basis of the costs that would be spent to obtain an equivalent patent with similar use or function.¹⁴⁷ A cost based analysis is not entirely helpful in assessing the litigation worth of a patent, since they make no allowance for the future benefits which might accrue from the patent, such as licensing and royalties.¹⁴⁸

The second method, a market based approach, aims to value assets by studying the prices of comparable assets which have been traded between parties at arm's length in an active market.¹⁴⁹ To perform this type of analysis, the existence of an active market as well as knowledge of past transactions of comparable property, such as licensing agreements, is required.¹⁵⁰ While a better estimation than a cost based approach, the market approach similarly suffers from the same inability to predict future worth.¹⁵¹ Furthermore, although such a method would be, in the very least, somewhat helpful in valuing utility patents, design patents do not have the benefit of a large existing market, and precedent of litigation and licensing transactions are slim in comparison, thus making the market approach ineffective for valuing design patents.

The third method is the income approach, which seeks to predict the future income from a patent and thus some appreciation of the value of the patent as opposed to just its estimated market price or its cost.¹⁵² The analysis is similar to how the reasonable royalty rates for damages in a utility patent infringement suit are determined, which suffers from inaccuracy of predictions and vague hypothetical value ranges. Also, like the market method in the field of design patents, the income method may suffer from a lack of comparative precedent upon which to base future projections.¹⁵³

While these basic methods may be a quick indication for how corporations value their intellectual property, they alone are inadequate in determining whether a patent is worth bringing suit against a potential infringer. For this reason, a more qualitative approach encompassing a variety of factors is employed by practicing entities and NPEs alike to ascertain a patent's worth and whether an infringement claim should be pursued.¹⁵⁴ A thorough qualitative valuation analysis

¹⁴⁷ See Morah, *supra* note 146; *Patent Valuation*, *supra* note 146.

¹⁴⁸ See Axial, *supra* note 146; Pitkethly, *supra* note 146.

¹⁴⁹ See Pitkethly, *supra* note 146 ("Market based valuation methods may also be based on comparable royalty rates.").

¹⁵⁰ See *id.*

¹⁵¹ See *id.*

¹⁵² See Axial, *supra* note 146; Pitkethly, *supra* note 146.

¹⁵³ See *id.*

¹⁵⁴ For a more detailed step-by-step approach to valuing patents, see J. Timothy Cromley, *20 Steps for Pricing a Patent*, J. ACCT. (Nov. 1, 2004), <http://www.journalofaccountancy.com/issues/2004/nov/20stepsforpricingapatent.html>; see also Axial, *supra* note 146; *Chapter 12 - Valuing Patents*, FISH & TSANG INTELL. PROP. L., <http://www.fishiplaw.com/chaper-12-valuing-patents> (last visited Jan. 24, 2016); Ian Cockburn, *Assessing the Value of a Patent: Things to Bear*

involves investigating a patent's scope including detailed claim and specification analysis,¹⁵⁵ validity, whether blocking and foreign patents exist, the remaining life of the patent, any prior royalties paid, any actual or threatened litigation, alternative technologies and future research, prior art, demand, market size, and profit maximization, all in conjunction with either a market or income approach valuation.¹⁵⁶

While such an extensive qualitative approach to patent valuation may be more trouble than it is worth to many practicing entities in terms of time and cost, this is the detailed type of analysis that PAEs have implemented in their everyday business practices, making them both effective and dangerous to the credibility of the patent system.¹⁵⁷

2. PAEs Focused on Utility Patents

Traditionally, NPEs have focused their attention on utility patents.¹⁵⁸ Thus far, one of the main reasons that NPEs have shied away from being a more prominent figure in the design patent field is based on a sheer numbers game.¹⁵⁹ A little over one percent of all issued patents are litigated,¹⁶⁰ based on the number of design patents issued in 2014, it can be estimated that 350 were litigated.¹⁶¹ While this may seem like a decent amount of precedent, it pales in comparison to the overwhelming amount of case law for utility patents. With such little design patent precedent to establish a clear prediction of how courts would rule when faced with infringement claims, it is no wonder patent trolls have mainly dealt with utility patents. The existence of precedent is one of the most important pieces of information used in valuing a patent and analyzing whether an infringement suit is a financially sound decision.¹⁶² Without a significant body of precedent, market and income approaches to valuation become difficult or meaningless. Therefore, a qualitative valuation of a design patent will be generally less accurate than a qualitative valuation of a utility patent, suggesting that utility patents remain the safer, more predictable option for trolling.

Additionally, there has traditionally been more monetary incentive and gain in asserting utility patents. With utility patents, there is a much broader variety than design patents which focus mainly on ornamental

in Mind, WIPO, http://www.wipo.int/sme/en/documents/valuing_patents_fulltext.html (last visited Jan. 24, 2016); Pitkethly, *supra* note 146.

¹⁵⁵ Strict attention to the doctrine of equivalents is especially necessary in avoiding patent invalidity. See *Chapter 12 - Valuing Patents*, *supra* note 154.

¹⁵⁶ See Axial, *supra* note 146; Pitkethly, *supra* note 146.

¹⁵⁷ See *supra* note Section I, Part A.

¹⁵⁸ See Lemley, *supra* note 31.

¹⁵⁹ See Pitkethly, *supra* note 146.

¹⁶⁰ See Mark A. Lemley & Carl Shapiro, *Probabilistic Patents*, 19.2 J. ECON. PERSP. 75 (2005).

¹⁶¹ See Patent Technology Monitoring Team, *supra* note 47 (estimation based on 1% of the 35,378 design patents issued in 2014. For reference, 578,802 utility patents were issued in 2014).

¹⁶² See Pitkethly, *supra* note 146.

appearance. This allows trolls more opportunities to enter and specialize in a variety of areas, asserting patents in complex fields such as electrical, chemical, pharmaceutical, biomedical, and software.

However, as the amount of precedent grows and further solidifies standards like in *Apple v. Samsung*, design patent infringement suits may begin to look more predictable, and qualitative analyses may eventually become as accurate as utility patent analyses. With better qualitative analysis tools in their belts, NPEs may not be as hesitant to venture into design patent territory.

B. *Design Versus Utility Patents Analysis*

1. Prosecution Costs and Benefits

Although not a major factor in a NPE's decision to traditionally favor asserting utility patents over design patents, upfront costs and maintenance fees may play a role in future NPEs' assessments of assertion viability.¹⁶³ There are two types of fees associated with upfront costs when filing and prosecuting a patent: lawyers' fees and USPTO fees.¹⁶⁴ In terms of lawyers' fees, on average, a utility patent costs around five to six times more than a design patent, largely due to the complexity of utility patents and the relative simplicity of design patents.¹⁶⁵ More complex patents take more time for a lawyer to draft, and therefore require higher fees.¹⁶⁶ Indeed, some firms explicitly separate their fees based upon the type of invention, since some fields are inherently more complex than others.¹⁶⁷

Additionally, due to their inherent complexity, utility patents generally incur more USPTO prosecution fees, especially in light of the average number of rejections and amendments.¹⁶⁸ This is illustrated by the time it generally takes for a utility patent to be successfully prosecuted, which is six months longer than a design patent from the time of filing.¹⁶⁹ The simplicity factor, in addition to the USPTO examiners' less-than-familiar relationship with design patents, also allows design patents to enjoy an increased rate of issue, 76.9% over the last twenty years, as compared to the utility patent's 47.1%.¹⁷⁰

¹⁶³ See generally *Patent Statistics*, *supra* note 46.

¹⁶⁴ See *USPTO Fee Schedule*, *supra* note 55; see also *How Much does a Patent Cost?*, RICHARDS PAT. L., <http://www.richardspatentlaw.com/faq/have-an-idea/how-much-does-a-patent-cost/> (last visited Jan. 24, 2016).

¹⁶⁵ See *id.*

¹⁶⁶ See *id.*; Quinn, *Cost of Obtaining a Patent in the US*, *supra* note 57.

¹⁶⁷ See *How Much Does a Patent Cost?*, *supra* note 57; Quinn, *Cost of Obtaining a Patent in the US*, *supra* note 57.

¹⁶⁸ See *id.*

¹⁶⁹ See *Design First Office Action Pendency and Design Traditional Total Pendency*, *supra* note 59; *First Office Action Pendency and Traditional Total Pendency*, *supra* note 59.

¹⁷⁰ See *U.S. Patent Statistics Chart Calendar Years 1963 – 2015*, *supra* note 47; *U.S. Patent*

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Furthermore, apart from any fees sustained from having to amend an application, design patents require no maintenance fees, whereas utility patents require maintenance fees of \$1,600, \$3,600, and \$7,400 issued at the 3.5, 7.5, and 11.5 year marks respectively.¹⁷¹ Currently, design patents also have the benefit of no transparency to the public during the prosecution of the patent, whereas utility patents are disclosed to the public after eighteen months upon filing with the USPTO.¹⁷²

The only measureable benefit the utility patent has over the design patent in the context of prosecution is that it lasts five to six years longer.¹⁷³ However, the lack of transparency during prosecution, short time to issue, much lower upfront costs, and no maintenance fees may be significant factors that NPEs take into account when performing a qualitative analysis valuing a design patent's worth and whether investment in design patents for assertion purposes is financially beneficial.

2. Infringement Legal Standard

The modern legal standard to determine infringement of a design patent, the “ordinary observer” test, was set forth in *Egyptian Goddess*.¹⁷⁴ The fledgling standard for determining infringement on design patents is somewhat volatile, hinging on both obviousness and the reasonableness of a fact finder to determine who an “ordinary observer” actually is. Although *Egyptian Goddess* has eliminated some of the ambiguity and narrowed the infringement standard by removing the “point of novelty” test,¹⁷⁵ the “ordinary observer” test remains

Activity - Calendar Years 1790 to the Present, *supra* note 48.

¹⁷¹ *USPTO Fee Schedule*, *supra* note 55 (value of the fee shrinks if eligible to be recognized as a smaller sized firm); see Lemley & Melamed, *supra* note 31, at 2120–21 (citing Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U. L. Rev. 1495, 1498–99 (2001)) (“Obtaining a patent costs roughly \$20,000, and maintaining it to the end of term costs roughly another \$5,000, depending on the size of the patent holder.”); see also *Maintain Your Patent*, U.S. PAT. & TRADEMARK OFF., <http://www.uspto.gov/patents-maintaining-patent/maintain-your-patent> (last visited Jan. 24, 2016).

¹⁷² See Julie Hopkins, *Don't Neglect Design Patents in the Next Round of Reform*, REPUBLIC 3.0 (July 2014), <http://republic3-0.com/design-patents-need-reform-julie-hopkins/>. (noting that this transparency issue benefitting design patents needs to be removed because it “shut[s] out public participation and prompt[s] fears of unknowing infringement, thereby stifling growth” and hurting innovation).

¹⁷³ See U.S. Patent and Trademark Office, *Design Patents*, §1502, MANUAL OF PATENT EXAMINING PROCEDURE, <https://www.uspto.gov/web/offices/pac/mpep/s1502.html#d0e150263> (last modified Nov. 4, 2015).

¹⁷⁴ See *Egyptian Goddess v. Swisa*, 543 F.3d 665, 668 (Fed. Cir. 2008).

¹⁷⁵ “Without the point of novelty test, a competitor can no longer copy many elements of a patented design and only leave out a few novel features to circumvent that test. Indeed, under the modified ordinary observer test, the scope of the patented design is considered in light of the prior art.” Christopher P. Foley & Elizabeth D. Ferrill, *Five Years Later, Did Egyptian Goddess Live Up to the Hype?*, BNA'S PAT., TRADEMARK & COPYRIGHT J. (Sept. 13, 2013), <http://www.finnegan.com/resources/articles/articlesdetail.aspx?news=6c7c72d4-87d2-4be3-b459-dab9ab402d7a>.

somewhat open-ended, leaving the opportunity for continued frivolous lawsuits by trolls. Under the contemporary “ordinary observer” test for design patent infringement, which has not endured the same rigorous refinement process as has the test for utility patent infringement,¹⁷⁶ there exists some judicial flexibility, potentially allowing cases to be decided upon who has the best lawyers and most resources.¹⁷⁷ While *Egyptian Goddess* attempted to improve over the previous standard involving point of novelty, discussion of what constitutes “deceptively similar” only acts to confuse the fact finder.¹⁷⁸ The Federal Circuit concluded in *Apple v. Samsung* that actual deception is not needed for a finding of infringement and therefore does not narrow the standard.¹⁷⁹ However, if not meant to narrow the standard, the concept of actual deception in an infringement inquiry serves no purpose, and therefore only muddies the litigation waters of the untested standard.¹⁸⁰

The ambiguity of the infringement standard leaves a lot to be desired. Hardly any precedent exists, *Apple v. Samsung* included, defining or providing any insight as to what “deceptively similar” means.¹⁸¹ The “ordinary observer” is likewise riddled with ambiguity, so much so that alternative infringement standards are being proposed, such as the informed user test.¹⁸² Furthermore, under the ordinary

¹⁷⁶ “[D]esign patent infringement cases are rare compared to utility patent cases, and very few design patent infringement cases make it to the summary judgment stage, much less to the jury. As a result, surveys of design patent cases have always suffered from a small sample size,” *id.*

¹⁷⁷ See generally Amy Rees Anderson, *Nothing Is More Expensive Than a Cheap Lawyer*, FORBES (June 4, 2013, 11:23 PM), <http://www.forbes.com/sites/amyanderson/2013/06/04/nothing-is-more-expensive-than-a-cheap-lawyer/>.

¹⁷⁸ See *Egyptian Goddess*, 543 F.3d at 678; Kenneth Winterton, *Major New Decision for Determining Design Patent Infringement*, HOLLAND & HART, <https://www.hollandhart.com/files/EgyptianGoddess.pdf> (last visited Nov. 16, 2016) (“Yet, despite the potential difficulties, the situation is much improved from the hardships faced by a patent holder under the ‘point of novelty’ test.”); see also Foley & Ferrill, *supra* note 175. (agreeing that *Egyptian Goddess* is an improvement, but the remaining ambiguous standard is not an issue, stating that “[i]n just over 70 percent of cases following *Egyptian Goddess*, district courts granted defendants’ motion for summary judgment of noninfringement.”).

¹⁷⁹ See *Apple Inc. v. Samsung Electronics Co.*, 786 F.3d 983, 1000 (Fed. Cir. 2015).

¹⁸⁰ See generally Christopher J. Renk, *Design Patent Litigation and Procurement Post-Egyptian Goddess*, U. TEX. SCH. L. (2010), https://bannerwitcoff.com/media/_docs/library/articles/Design%20Patent%20Litigation%20and%20Procurement%20Post-Egyptian%20Goddess.pdf (potential prosecution and litigation strategies are given in response to the ruling in *Egyptian Goddess*).

¹⁸¹ See *id.*

¹⁸² The informed user standard is a heightened standard, attempting to more accurately reflect the knowledge of a normal consumer regarding an invention. (“The ordinary observer test is too restrictive and does not give consumers enough credit for knowledge they have about the products they choose to buy. An ordinary observer is neither an expert, nor a savvy consumer. . . . While both the ordinary observer test and informed user test evaluate the consumer’s position in purchasing a product and comparing it with prior art or other products with similar design, the informed user standard attributes a greater amount of intelligence and savvy to the consumer.”). Danielle E. Baudhuin, *Siri v. Google: Updating the “Ordinary Observer” Test for Design Patent Litigation in the United States in Response to the Apple v. Samsung Disputes*, 33 WIS. INT’L L.J. 290, 312–13 (2015).

observer test, it is likely that a jury would be biased in the weight it accredits a design patent over a utility patent. This is due to their lack of knowledge and interpretation skills regarding the specification of a utility patent. Alternatively, the standard for infringement analysis for a utility patent is heightened to a person of ordinary skill in the art, someone typically with years of professional experience in a certain field.¹⁸³ Because of its ability to better comprehend a design patent than a utility patent, a jury may attribute more of the overall inventive aspect of the article of manufacture to the design patent, therefore steering towards a finding of infringement.¹⁸⁴

On account of the disparity between infringement standards, design patent infringement being based upon an ordinary observer, or rather, an ordinary nonprofessional person, and utility patent infringement adhering to a more difficult standard of one skilled in the art, it is clear that a potential plaintiff, in this case a NPE, would prefer the standard set forth in *Egyptian Goddess*. Thus, NPEs, when asserting patents, may reap the benefits of a lowered standard when dealing with design patents as opposed to utility patents. However, this alone does not expressly suggest that NPEs will take advantage of design patents. To bolster this theory is the issue of damages.

3. Damages

It is known that the almost strict liability “all or nothing” total profit rule for design patent infringement far exceeds the remedy for infringement of utility patents: lost profits and reasonable royalties.¹⁸⁵ Reasonable royalty represents the minimum that a utility patent owner may receive in compensation for infringement of its patent.¹⁸⁶ In an attempt to recover more, the patent owner may try to seek its lost profits, though such a finding may only be reached upon sufficient

¹⁸³ See *Apple v. Samsung*, 786 F.3d at 1002.

¹⁸⁴ See Baudhuin, *supra* note 182, at 314–15. The author explains that although not a standard, UK courts recognize and coined the bias that the consumer has when purchasing a product, essentially giving more weight to design patents in an infringement case, *id.* “Eye appeal is actually, as one court stated, more important than the operational or manufacturing technology of the product. The court went so far as to say that while functionality is important, eye appeal is a must for the product,” *id.* at 315.

¹⁸⁵ See 35 U.S.C. § 284 (1952). Lost profits and reasonable royalties are derived from 35 U.S. Code § 284 (“Upon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court. When the damages are not found by a jury, the court shall assess them. In either event the court may increase the damages up to three times the amount found or assessed. Increased damages under this paragraph shall not apply to provisional rights under section 154 (d). The court may receive expert testimony as an aid to the determination of damages or of what royalty would be reasonable under the circumstances.”).

¹⁸⁶ See *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1157 (6th Cir. 1978) (“When actual damages, e.g., lost profits, cannot be proved, the patent owner is entitled to a reasonable royalty.”).

evidence. While difficult to meet the standard for lost profits, reasonable royalties assure that the patent holder does not go home empty-handed, awarding a market-dictated rate based on hypothetical licensing agreements between the patent holder and infringer.¹⁸⁷

C. *Design Patents in Traditional Economic Trolling Models*

While high damages awards may seemingly be enough to incentivize trolls to assert more design patents, it is important to note which economic trolling models design patents can effectively be assimilated into.

1. “Lottery-ticket” Trolling

“Lottery ticket” trolls, as the name suggests, desire to win large damages awards through litigation.¹⁸⁸ These trolls seek to obtain patents that broadly read on large fields of technology in the hopes of targeting multiple key market players.¹⁸⁹ As such, the targeted companies who control the majority of that specific market would likely be unwilling to settle when confronted with an infringement suit. This is especially true if the defendants to the suit are practicing entities fighting to keep control of their technology for purposes of royalties.¹⁹⁰ These types of trolls seek strong patents with a low chance for invalidity.¹⁹¹ The additional level of scrutiny by a court during litigation makes this trolling method generally more costly and less certain than other non-litigation based methods, but the higher risk generally comes with a higher reward.¹⁹²

The potential addition of design patents to the “lottery ticket” trolling model is expected. The very nature of the total profit rule gives a litigant the ability to be awarded massive payouts based on a single design patent, as shown by the initial result in *Apple v. Samsung*. Thus, trolls seeking a handful of very large damages awards without having to spend vast amounts on large patent portfolios would undoubtedly add design patents to their arsenal.

¹⁸⁷ See Zelin Yang, *Damaging Royalties: An Overview of Reasonable Royalty Damages*, 29 BERKELEY TECH. L.J. 647, 652 (2014), <http://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?article=2032&context=btlj>.

¹⁸⁸ See Lemley & Melamed, *supra* note 31, at 2126.

¹⁸⁹ See *id.*

¹⁹⁰ See *id.* at 2134 (“Because [trolls’] interest is in generating cash and their business models often depend critically on cash flow from patent assertions, they have no incentive to prefer running royalties and, if anything, are likely to prefer lump-sum payments. By contrast . . . practicing entities are far more likely to insist on running royalties because they might have a strategic interest in raising the marginal cost of their competitors’ products.”).

¹⁹¹ See *id.* at 2126.

¹⁹² See *id.*

2. “Bottom-Feeder” Trolling

In contrast to lottery ticket trolling, the “bottom-feeder” trolling model seeks to avoid litigation costs and force settlements.¹⁹³ This group, whose acts are sometimes likened to extortion,¹⁹⁴ do not seek the high quality patents that the “lottery ticket” trolls need to withstand a challenge of validity during litigation. Instead, these trolls “rely on the high cost of patent litigation—a median of \$5.5 million for substantial cases that go to trial . . . —to induce the parties they sue to settle for small amounts of money rather than pay millions to their lawyers.”¹⁹⁵ The “bottom-feeder” model is economically viable because the trolls can sue multiple defendants on a single overly broad patent.¹⁹⁶

Adding design patents into this method of trolling is not as obvious as the “lottery ticket” model. If an alleged infringer views a troll’s claim as valid, they would be encouraged to settle to avoid the potential windfall of the total profit rule. The potential inclusion of design patent infringement would serve to bolster the settlement amounts from practicing entities who have made profits with potentially infringing products. However, if a troll is suing because a company made a significant profit on a product, and they seek to obtain that profit via design patent infringement, settling is not guaranteed. Assuming the profit made or royalties to be earned by the alleged infringing company is greater than the litigation costs, a suit involving design patent infringement may have the opposite effect desired by bottom-feeder trolls: companies would litigate to keep their large profits. Considering the typical lower quality of patents that bottom-feeder trolls pad their portfolios with, the current model may disfavor the inclusion of design patents. Nonetheless, the increased risk of litigation when total profits are on the line simply requires trolls to be more selective with who they sue.

3. “Patent Aggregator” Trolling

The “patent aggregator” model of trolling involves building a portfolio of hundreds, if not thousands, of patents.¹⁹⁷ This business model involves threatening to sue potential infringers if they do not pay royalties to license the troll’s portfolio.¹⁹⁸ Similar to the bottom-feeder model, patent aggregators seek to avoid litigation. The sheer size of a troll’s portfolio may be enough to encourage settling, since a defendant

¹⁹³ *See id.*

¹⁹⁴ *See* Lemley & Melamed, *supra* note 31, at 2127.

¹⁹⁵ *See* Lemley & Melamed, *supra* note 31, at 2126.

¹⁹⁶ *See id.*

¹⁹⁷ *See id.*

¹⁹⁸ *See* Lemley & Melamed, *supra* note 31, at 2126–27.

may be hesitant to challenge an entire portfolio of similar patents.¹⁹⁹ For similar reasons in the bottom-feeder model, design patents may make settling and licensing more difficult here, depending on the amount being sought. However, the effect of a large portfolio may be enough to curb potential litigation, and the added threat of the total profit rule may make licensing the better alternative.²⁰⁰ The addition of design patents in these large portfolios also has the potential benefit of increasing the royalty amounts agreed upon in light of the amount that could be lost to the total-profit rule in the alternative.

Thus, the lottery-ticket model is the most viable vehicle for design patent trolling, solely due to the fact that a troll stands to gain the most through litigation with the total profit rule. The bottom-feeder and patent aggregator models stand to gain less from adding design patent to their portfolios, as they rely on the riskier threat of the total profit rule for the purpose of obtaining higher settlements and royalties.

III. PROPOSED LEGAL RULE FOR DAMAGES

A. *Why the Total Profit Rule Does Not Work*

In conjunction with the aforementioned reasons why the total-profit rule tips the scale in favor of trolls asserting design patents as part of a larger portfolio, the Federal Circuit Court may have erred in affirming the total profit rule for additional reasons.

The Federal Circuit, in attempting to boil design patent infringement down to a simple causation argument (but-for the existence of the design patent, the patent holder would have been entitled to all the profits of the infringing products), fail to recognize the future implications in applying the total profit rule. The total profit rule ventures well beyond the remedy of the lost profit rule; the main reason being that a finding of total profit under the infringement standard for design patents is much more lax than the standard for utility patents, which requires an explicit showing of lost profits. A blanket application of the total profit rule promotes economic windfall based upon a strict liability standard. Upholding the total profit rule essentially allows a plaintiff to claim the benefit of the infringer's utility patents without doing any of the work or investment required to obtain said utility patents. A mere portion of a product, however remotely insignificant, may entitle a company to damages as if a company infringed on every patent of a product. Additionally, the total profit rule gives more to the

¹⁹⁹ See Lemley & Melamed, *supra* note 31, at 2127.

²⁰⁰ See *id.* Unlike the bottom-feeder method, these trolls sometimes follow through with litigation, *id.* "Successful patent aggregators can generate a great deal of licensing revenue with little or no actual litigation, though they may have to file some suits from time to time just to show they are serious about enforcement," *id.*

plaintiff than what their actual profit would be had the infringer's product not been sold. Because there are typically more than two competitors in a single market, it is illogical to assume that all "missed" profits would have been earned by one single company had the infringing product not been sold. Moreover, adherence to the total profit rule, especially when asserted in the case of utility patents regarding the same article of manufacture, would greatly diminish the value of utility patents.

The Federal Circuit's only reason for affirming the total profit rule seems to be what they infer from congressional intent over one hundred years old. The total profit rule is not inherently detrimental to the world of design patents per se, but rather the way the court interprets the rule may be harmful. What is supposedly seen as a traditionalist approach to honor the intent of the legislators leaves many unanswered questions. The court offers no other reasoning for taking this approach, and makes no mention of how the least destructive alternative could potentially be a remedy system similar to that of utility patent infringement. Trying to correctly apply the intent of Congress from over a century ago to today's technologically complex society is a fruitless endeavor. The removal of one section, albeit express deletion of apportionment, holds little meaning, as it can be equally plausible that legislators may have thought it obvious that "to the extent of" could encompass some, not necessarily all, profit, instead of exclusively the total.²⁰¹

Additionally, it is highly unlikely that creators of the Act of 1887 had planned for litigation of products involving hundreds if not thousands of patents, especially in light of complex patents dealing with software.²⁰² The world they lived in dealt more with purely mechanical inventions, and to suggest that they intended a statute to strictly control and absorb the patent rights of unfathomable technology created long after their time is implausible.

B. *Apportioned Damages*

As it stands, without legislation otherwise countering the effects of recent rulings, trolling of patent law in the context of design patents seems a very plausible future practice by both traditional trolls and select practicing entities. One preventative measure to curb the risk of an influx in such practices is to make the prospects of trolling appear less lucrative. Curtailing the incentive post-*Apple v. Samsung* by limiting the damage for design patent infringement is one such anticipatory measure.

²⁰¹ See 35 U.S.C § 289 (1952).

²⁰² See generally Jason Rantanen, *35 USC 289 – After Apple v. Samsung, Time for a Better-Crafted Judicial Standard for Awarding "Total Profits"?*, PATENTLY-O (Aug. 14, 2015), <http://patentlyo.com/patent/2015/08/griswold-patent-damages.html>.

Despite the recent decision of *Nordock, Inc. v. Systems, Inc.* where the Federal Circuit affirmed that there is no apportionment of total profits awards under section 289 in design patent infringement, the rule remains outlandish in the patent world, and if left unchallenged by future decisions, would establish a more troll friendly environment.²⁰³ If not total profits, then the damages rule for design patent infringement falls to the remaining remedies: lost profits, reasonable royalties, or apportioned damages. Too far in the opposite end of the spectrum stands lost profits, where “the patent owner must show causation in fact, establishing that but for the infringement, he would have made additional profits.”²⁰⁴ Thus, standardizing the lost profits rule would place too heavy a burden on the plaintiff, and while it would drastically reduce trolling, the injustice against legitimate non-trolling PAEs would create as many issues as the total profit rule.

Reasonable royalties, which look more like fees obtained from a licensing of patent rights agreement, asks relatively the same questions that would be asked in a discussion of apportioned damages.²⁰⁵ The Federal Circuit did not adequately provide legitimate reasons—apart from unconvincing legislative history—as to why reasonable royalty damages could be allowed for infringement of utility patents, but then not have the same apportionment logic apply to infringement of design patents.²⁰⁶ To limit the encroachment on a single product’s utility patent rights when its design patents have been infringed, the remedy for such infringement should be more similar to that of infringement on utility patents. Thus, if unable to calculate the infringer’s profit when determining apportionment values, discussions of reasonable royalties should follow.

The proposed damages rule for design patent infringement, then, is apportionment as the standard, with a reasonable royalty minimum if unable to accurately apportion. With this rule, the burden of proof belongs to both parties much more equally than the extremes required of total profits or lost profits: the plaintiff seeks to obtain as high a remedy as possible, in this case through apportionment, and the defendant seeks to mitigate the damages by establishing reasonable royalties as the more accurate result. This creates an unbiased middle ground that is more representative of actual damages caused by infringement of a design

²⁰³ See *Nordock, Inc. v. Systems, Inc.*, 803 F.3d 1344, 1362 (Fed. Cir. 2015); see also, Christopher B. McKinley, *Show Me The Money: Reasonable Royalty Damages Vacated Due to Much Higher Infringer’s Total Profits*, FED. CIR. IP BLOG (Oct. 2, 2015), <http://federalcircuitipblog.com/2015/10/02/show-me-the-money-reasonable-royalty-damages-vacated-due-to-much-higher-infringers-total-profits/>.

²⁰⁴ *Grain Processing Corp. v. American Maize-Products Co.*, 185 F.3d 1341, 1349 (Fed. Cir. 1999).

²⁰⁵ See Harris & Ollis, *supra* note 139.

²⁰⁶ See *Apple, Inc. v. Samsung Electronics Co.*, 786 F.3d 983, 1001 (Fed. Cir. 2015).

patent, much more akin to utility patent infringement remedies.

While it may be argued that determination of apportioned damages is not an exact science, and left to the mercy of the fact finder, the alternative of total profits is far worse. True, litigation costs would increase as compared to total profits, requiring further evidence to determine the purpose and value of a design in the overall patent portfolio of an invention. But to weigh economic efficiency against more justifiable remedies is not the purpose of this Note. Nonetheless, an increase in litigation costs may encourage settlement, which would still more accurately represent the actual damages of design patent infringement than the total profit rule. Unfortunately, such costs also do not favor small-to-medium sized business, whose helplessness against NPEs would remain unchanged by switching to an apportionment rule. Fortunately, at least for large practicing entities who are financially endowed and do not pursue the economic benefit of design patent infringement damages, seeking to eliminate competition via excessive assertion of patents as in *Apple v. Samsung* seems to be a diminishing occurrence. Under guidance of new management post-Steve Jobs' reign, Apple wants to focus on innovation and cooperation between large key market corporations, as shown by the winding down of the U.S. suit in terms of damages and their dropping of international lawsuits.²⁰⁷

CONCLUSION

PAEs still remain a threat to businesses and the legitimacy of the patent system. While there has been some indication that trolling has been on a decline,²⁰⁸ the Federal Circuit and USPTO need to stay vigilant in the fight against frivolous suits, such that trolls are not given any openings to return to a growing market.²⁰⁹ Design patents may now be viable trolling mechanisms implemented in traditional utility patent economic trolling methods, or in the very least, beneficial and easy enough to obtain for the purposes of bolstering an already ample patent portfolio. Thus, PAEs may find design patents much more financially worthwhile. This would not be a cause for concern if not for what trolls stand to gain in putting forth such little effort, legally exploiting the patent system to its fullest. The relative ease of obtaining design patents and assimilating them into preexisting trolling methods, their low cost, the suboptimal legal infringement standard as set forth in *Egyptian Goddess* as compared to the standard for utility patents, and most

²⁰⁷ See King, *supra* note 6.

²⁰⁸ See Joe Mullin, *Original "Patent Troll" May Call It Quits, Says There's No Money in It*, ARS TECHNICA (June 10, 2015, 12:43 PM), <http://arstechnica.com/tech-policy/2015/06/original-patent-troll-may-call-it-quits-says-theres-no-money-in-it/>.

²⁰⁹ For an analysis of how trolls continue to negatively affect startup companies, see Chien, *supra* note 21.

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importantly, the increase in liability in terms of damages post *Apple v. Samsung* all incentivize PAEs to flock to design patent assertion.

If PAEs begin to more actively assert design patents, they would do so exactly as in *Apple v. Samsung*, using a “lottery ticket” economic trolling model to attach infringement claims of a design patent onto a product that is the amalgamation of hundreds of utility patents. In conclusion, the effect of the apportionment rule with a reasonable royalty floor would significantly hinder the immediate incentive for trolling design patents as compared to utility patents. In more accurately representing the actual damages of design patent infringement, the application of an apportionment rule would simultaneously stifle “lottery ticket” trolling that may otherwise occur under the total profit rule.

*Timothy Coughlin**

* *Associate Editor*, CARDOZO ARTS & ENT. L.J. Vol. 35, J.D. Candidate, Benjamin N. Cardozo School of Law (2017); M.S., Electrical Engineering, University of Massachusetts Lowell (2014); B.S., Electrical Engineering, Merrimack College (2010). I would like to thank the AELJ Vol. 34 & 35 staffs and editorial boards for their insights and editorial contributions to this Note. Finally, I would like to thank the faculty members of the Cardozo Intellectual Property Program for their academic mentorship, namely Professor Michael Burstein. © 2016 Timothy Coughlin

Exhibit 1

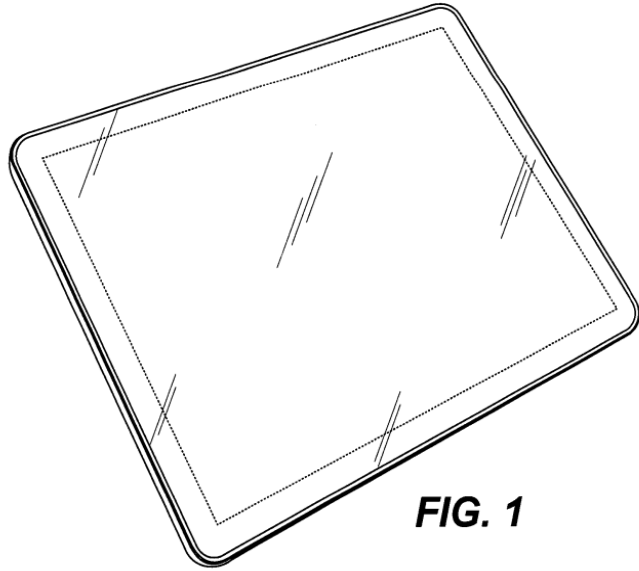


FIG. 1

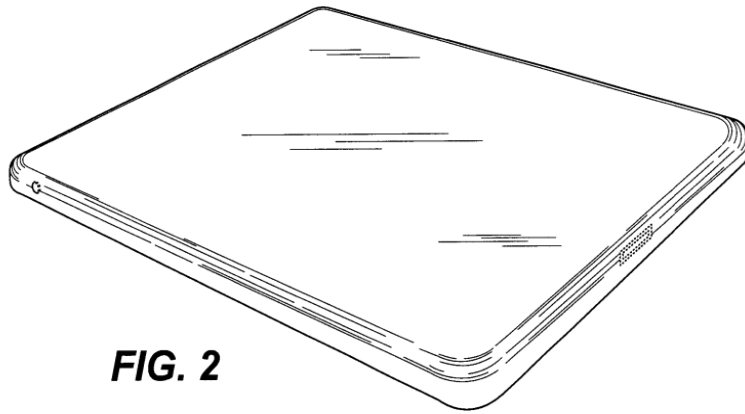


FIG. 2

Exhibit 2



FIG. 19



FIG. 23



FIG. 24

Exhibit 3

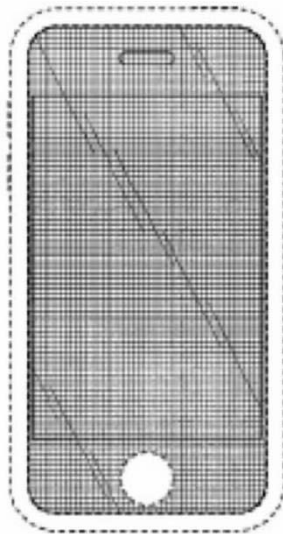


FIG. 3



FIG. 7

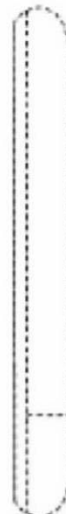


FIG. 8

Exhibit 4



FIG. 1

Exhibit 5

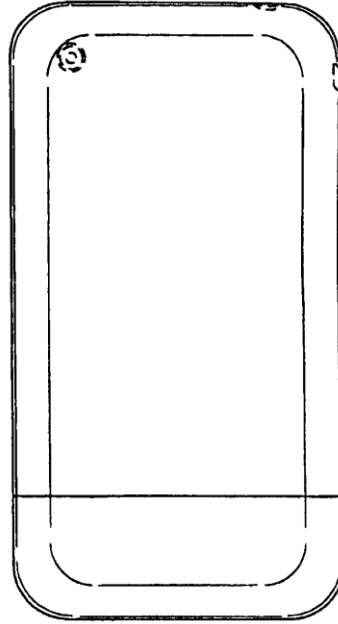
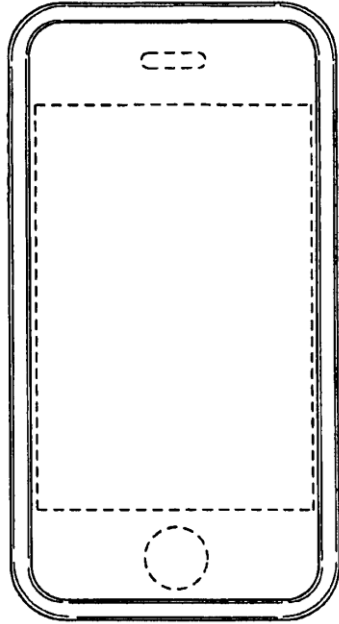


Exhibit 6

