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Make the Patent “Polluters” Pay: Using Pigovian Fees to Curb Patent Abuse

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INTRODUCTION

Patent reform bills, it seems, are suddenly falling like rain. On the heels of a widely reported uptick in egregious patent enforcement,³ members of congress introduced six bills in the last six months, proposing a wide variety of reforms⁴ in an attempt to stop so-called “patent trolls”—firms that acquire and

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3. Most notably, the widespread patent assertion activities of Innovatio and Project Paperless, which have collectively targeted thousands of small businesses nationwide. See Amended Complaint at 19, *Cisco Systems Inc. v. Innovatio IP Ventures LLC*, No. 1:11cv09309 (N.D. Ill. filed Dec 28, 2011) (“Innovatio has sent more than 8,000 threatening letters to licensing targets [end users of Wi-Fi technology] in all 50 states.”); Joe Mullin, *Patent Trolls Want \$1,000—For Using Scanners*, ARS TECHNICA (Jan. 2, 2013, 6:30 AM), <http://arstechnica.com/tech-policy/2013/01/patent-trolls-want-1000-for-using-scanners/>. The bills also follow news that in 2012 the number of patent suits filed by trolls exceeded the number filed by product-producing companies. See Sara Jeruss et al., *The AIA 500 Expanded: The Effects of Patent Monetization Entities*, UCLA J.L. & TECH. (forthcoming 2013) (finding that NPEs filed roughly 52% of patent suits in 2012).

4. Saving High-Tech Innovators from Egregious Legal Disputes (SHIELD) Act of 2013, H.R. 845, 113th Cong. (2013), available at <http://www.govtrack.us/congress/bills/113/hr845> (proposing a fee-shifting regime applicable to a subset of unsuccessful patent plaintiffs); Patent Quality Improvement Act of 2013, S. 866, 113th Cong. (2013), available at <http://www.govtrack.us/congress/bills/113/s866> (proposing the expansion of the scope and duration of the “transitional program for covered business method patents”); End Anonymous Patents Act, H.R.

enforce patents, but don't make products—from shaking down firms that *do* commercialize useful technology.

These proposed reforms primarily focus on reducing the high cost of patent litigation, and admirably so. Litigation cost is undoubtedly a major contributor to patent system abuse.⁵ But such singular focus on litigation is unwarranted. The patent troll problem is a multifaceted one, in need of a multifaceted response.

Notably, none of the proposals presently on the table strike at the heart of the mess we're in: a massive (and growing) glut of old high-tech patents that have long outlived the useful lifetime of the products they were initially intended to protect and thus, today, hold little practical value apart from use as vehicles for questionable enforcement.⁶

2024, 113th Cong. (2013), *available at* <http://www.govtrack.us/congress/bills/113/hr2024> (proposing requirements inducing patent owners to identify themselves); Patent Abuse Reduction Act, S. 1013, 113th Cong. (2013), *available at* <http://www.govtrack.us/congress/bills/113/s1013> (proposing a number of reforms, including a discovery cost-shifting regime and heightened pleading requirements for patent suits); Patent Litigation and Innovation Act of 2013, H.R. 2639, 113th Cong. (2013), *available at* http://www.govtrack.us/congress/bills/113/hr2639?utm_campaign=govtrack_feed&utm_source=govtrack/feed&utm_medium=rss (proposing heightened pleading requirements, codification of the customer suit exception, discovery stays triggered by certain motions, and mandatory consideration of Rule 11 sanctions in all adjudicated cases); Stopping the Offensive Use of Patents Act, H.R. 2766, 113th Cong. (2013), *available at* <http://www.govtrack.us/congress/bills/113/hr2766/text> (proposing reforms similar to those in the Patent Quality Improvement Act of 2013 and additionally directing the U.S. P.T.O. to work to expand pro bono programs for the benefit of retailers and end-users accused of infringement). On May 23, 2013, Rep. Bob Goodlatte, Chairman of the House Judiciary Committee, released a “discussion draft” of a to-be-introduced omnibus patent reform bill proposing a number of reforms, including a fee-shifting regime, a heightened pleading standard, patent ownership disclosure requirements, and codification of the customer suit exception. *See* Bob Goodlatte, Discussion Draft (May 23, 2013), *available at* <http://judiciary.house.gov/news/2013/05232013%20-%20Patent%20Discussion%20Draft.pdf>. In addition, on June 4, 2013 the President released a set of executive orders and “legislative recommendations” expressing his support for many of the provisions included in these bills. Press Release, The White House, Office of the Press Secretary, Fact Sheet: White House Task Force on High-Tech Patent Issues (June 4, 2013), *available at* <http://www.whitehouse.gov/the-press-office/2013/06/04/fact-sheet-white-house-task-force-high-tech-patent-issues>.

5. *See, e.g.,* Brian J. Love & James C. Yoon, *Expanding Patent Law's Customer Suit Exception*, 93 B.U. L. REV. (forthcoming 2013) (noting that the most profitable course of action “[f]or patentholders whose rights are worth relatively little compared to the costs of litigation—roughly between \$1 to \$3 million for even suits of modest complexity—[is] serial nuisance filings”).

6. *See* Brian J. Love, *No: Software Patents Don't Spur Innovation, but Impede It*, WALL ST. J., May 13, 2013, at R2 (noting that there are roughly 400,000 software patents presently in force); Christina Mulligan & Timothy B. Lee, *Scaling the Patent System*, NYU ANN. SURV. AM. L. (forthcoming 2013) (estimating that, currently, about 40,000 software patents issue annually); James Bessen & Robert M. Hunt, *An Empirical Look at Software Patents*, 16 J. ECON. & MGMT. STRATEGY 157 (2007) (finding that, circa 2004, roughly 20,000 software patents issued annually).

I.

USING FEES TO SHRINK THE PATENT THICKET AND TROLLS' BOTTOM LINES

In addition to litigation-oriented reforms, we believe Congress should attack the patent troll problem by strategically increasing Patent Office fees—a reform that would actually help trim the impenetrable “thicket” of patents presently discouraging (or outright preventing) entrepreneurs from bringing new products to market.⁷

Patent “maintenance fees”—periodic fees patent owners must pay to prevent their rights from expiring prematurely—offer a powerful, but so far mostly overlooked, tool that could be used to curb patent abuse without unduly limiting the rights of companies engaged in vigorous research and design.⁸

The reason why is straightforward: legitimate innovators and patent trolls enforce their patent rights on very different timelines. This difference is so great that all suits asserting the average product-company patent are resolved before the average troll-owned patent is asserted for the first time.⁹ In fact, companies that own patents purely for the sake of enforcement are responsible for more than two-thirds of suits, and for more than four-fifths of all individual infringement claims, filed in the last five years of the asserted patent's term.¹⁰ Additionally, many product-producing companies enforcing old patents are likewise up to no good. Like trolls, many assert high-tech patents acquired specifically for use in litigation against competitors.¹¹ Worse still, others are slowly transforming into trolls themselves.¹²

This divergence in patent assertion timing is striking because the overwhelming majority of troll-owned patents cover technology in high-tech

7. See generally Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting*, in 1 INNOVATION POLICY AND THE ECONOMY 119 (Adam B. Jaffe et al. eds., 2000). In addition to trimming the large thicket of *issued patents*, increasing maintenance fees would likewise induce some inventors who are presently prosecuting (or considering whether to file) low value applications to abandon their efforts and, thereby, also reduce the large backlog of *pending applications* clogging the U.S. Patent and Trademark Office (PTO). See, e.g., Dennis Crouch, *The USPTO Patent Backlogs: Falling and Rising*, PATENTLY-O (May 9, 2012 1:24 PM), <http://www.patentlyo.com/patent/2012/05/the-uspto-patent-backlogs-falling-and-rising.html>.

8. Much of the discussion that follows also supports reducing the patent term, something for which one of us has previously argued. Brian J. Love, *An Empirical Study of Patent Litigation Timing: Could a Patent Term Reduction Decimate Trolls Without Harming Innovators?*, 161 U. PA. L. REV. 1309 (2013). However, an across-the-board term reduction is likely an infeasible reform at this time. *Id.* at 1357 (noting that “the United States is a party to the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS), which requires WTO member nations to offer a minimum of twenty years’ patent protection.”).

9. *Id.* at 1309.

10. *Id.*

11. *Id.* at 1348-50.

12. *Id.* (noting, for example, software patent suits filed by now-bankrupt film and camera maker Kodak and similar suits filed by Encyclopaedia Britannica, which subsequently stopped producing new print editions).

fields with extremely short product life cycles.¹³ As a result, in the high-tech industry, large fees payable late in the patent term would almost exclusively target patentholders acting opportunistically, leaving legitimate innovators (who have long since moved on to new products protected, if at all,¹⁴ by new patents) largely unscathed. In other industries where product life cycles are longer, namely pharmaceuticals, even drastically-increased fees would be miniscule relative to profit margins, again leaving innovators substantially unaffected.¹⁵

II.

SETTING FEES TO CAPTURE THE COST OF PATENT TROLLING

Setting fees at socially optimal levels is likewise straightforward: patentees should pay an amount representing the deadweight loss of social welfare resulting from their patents. Patent owners who amass rights that may later on wind up in the hands of patent trolls are, in many respects, like consumers who buy aluminum cans or motor oil that may one day wind up in a river instead of a landfill or recycling center. Why not “tax” the former much like we routinely tax the latter to ensure that all the costs of their consumption are reflected in market prices?¹⁶

In other words, we could charge patent holders using patent fees, much as we do polluters, an amount reflecting the negative externalities they impose on society, a mechanism known as Pigovian taxation.¹⁷ A “Pigovian” patent fee

13 See James Bessen et al., *The Private and Social Costs of Patent Trolls*, REG., Winter 2011-2012, at 29, tbl. 2 (finding that 62 percent of patents litigated by NPEs between 1990 and 2010 were “software patents” and 75 percent covered “computer and communications technology”); Gordon E. Moore, *Progress in Digital Integrated Electronics*, IEDM TECH. DIGEST 11-13 (1975) (predicting correctly that computing power would double approximately every two years thereafter), reprinted in SSCS:IEEE SOLID-STATE CIRCUITS SOC’Y NEWS, Sept. 2006, at 36, 37.

14. Many high-tech innovators eschew patents entirely. See Stuart J.H. Graham et al., *High Technology Entrepreneurs and the Patent System: Results of the 2008 Berkeley Patent Survey*, 24 BERKELEY TECH. L.J. 1255, 1262, 1289–90 (2009) (finding in a survey of start-up companies that (1) first mover advantage, not patent protection, was the most “important” means to “capture competitive advantage” in the software industry; and (2) the majority of start-up companies in the software industry hold no patents at all).

15. See *infra*, note 31 and accompanying text.

16. California, for example, charges an “Oil Spill Response, Prevention, and Administration Fee” of \$0.065 per barrel of oil, *Tax Rates—Special Taxes and Fees*, CALIFORNIA STATE BOARD OF EQUALIZATION, http://www.boe.ca.gov/sptaxprog/tax_rates_stfd.htm#16 (last visited May 30, 2013), as well as a fee of “5 cents for each container under 24 ounces and 10 cents for each container 24 ounces or greater” for numerous recyclables, including aluminum cans. See *Frequently Asked Questions*, CALIFORNIA DEPARTMENT OF RESOURCES RECYCLING AND RECOVERY, <http://www.calrecycle.ca.gov/bevcontainer/ProgramInfo/FAQ.htm> (last visited May 30, 2013). Ideally, taxes like these shift the cost of pollution remediation from society as a whole to those who benefit from polluting products and, thereby, reduce the level of pollution to a socially optimal level.

17. See James Bessen, *Make the Polluters Pay!*, WIRED.COM (Sept. 6, 2012, 2:10 PM), <http://www.wired.com/opinion/2012/09/can-new-fees-fix-the-patent-system/> [hereinafter Bessen, *Makes the Polluters Pay!*]; James Bessen, Presentation at the Santa Clara University School of Law (Nov. 16, 2012), available at

structure would, in its simplest form, dictate that if the roughly 2.2 million patents presently in force¹⁸ drain the U.S. economy of about \$23 billion a year as a result of socially harmful patent litigation,¹⁹ then patent maintenance fees should, on average, cost about \$10,500 per year of protection. Mapping that figure onto our existing framework for fees—which incorporates the commonsense proposition that rates should start low to accommodate cash-strapped startups and increase over time as inventions (hopefully) mature into money-making products and then inevitably become obsolete—the fee structure would morph as shown in the middle column of the Figure below:

[http://law.scu.edu/hightech/file/2012%20Patent%20Conf/Bessen%20\\$\\$%20mightier%20than%20words.pdf](http://law.scu.edu/hightech/file/2012%20Patent%20Conf/Bessen%20$$%20mightier%20than%20words.pdf). Other economists have previously argued that renewal fees should be used to induce patentees to maintain their patent rights for a socially optimal period of time. See generally Suzanne Scotchmer, *On the Optimality of the Patent Renewal System*, 30 RAND J. ECON. 181 (1999); Francesca Cornelli & Mark Schankerman, *Patent Renewals and R&D Incentives*, 30 RAND J. ECON. 197 (1999).

18. See Dennis Crouch, *How Many U.S. Patents Are In-Force?*, PATENTLY-O (May 4, 2012, 10:19 AM), <http://www.patentlyo.com/patent/2012/05/how-many-us-patents-are-in-force.html> (estimating that there were about 2.1 million patents in force in May 2012); *U.S. Patent Statistics Chart Calendar Years 1963–2012 (2012)*, U.S. PATENT & TRADEMARK OFFICE, http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm (last visited July 23, 2013) (showing that 276,788 patents total were issued in 2012 compared to 121,696 in 1996).

19. Bessen and Meurer estimate that troll suits resulted in \$29 billion in direct costs to accused infringers in 2011. See James Bessen & Michael J. Meurer, *The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. (forthcoming 2014) (manuscript at 48) (on file with authors). They also estimate that up to 5 percent of this amount was transferred back to inventors from whom asserted patents were acquired and that another 15 percent was used to fund in-house invention programs carried out by a small number of trolls. *Id.* at *26. The numerical example presented above assumes both are socially valuable, though we are skeptical about the latter. For simplicity's sake, we also exclude all other sources of deadweight loss from the patent system, including troll defendants' indirect costs like "diversion of resources, delays in new products, and loss of market share," Bessen & Meurer, manuscript at 41, and deadweight losses attributable to patent disputes between product producing companies. See Bessen, *Make the Polluters Pay!*, *supra* note 17, even though both are likely quite large.

Present Fee Structure		“Pigovian” Level Fees (mapped to current fee structure)		“Pigovian” Level Fees (with add’l fees delayed to target bad actors)	
Periodic Fee ²⁰	Prorated annually	Periodic Fee	Prorated annually	Periodic Fee	Prorated annually
--	<i>Yrs. 1-3:</i> \$0	--	<i>Yrs. 1-3:</i> \$0	--	<i>Yrs. 1-3:</i> \$0
<i>Yr. 4:</i> \$1,600	<i>Yrs. 4-7:</i> \$400	<i>Yr. 4:</i> \$22,600	<i>Yrs. 4-7:</i> \$5,650	<i>Yr. 4:</i> \$1,600	<i>Yrs. 4-7:</i> \$400
<i>Yr. 8:</i> \$3,600	<i>Yrs. 8-11:</i> \$900	<i>Yr. 8:</i> \$51,000	<i>Yrs. 8-11:</i> \$12,750	<i>Yr. 8:</i> \$3,600	<i>Yrs. 8-11:</i> \$900
<i>Yr. 12:</i> \$7,400	<i>Yrs. 12-exp.:²¹</i> \$1,233	<i>Yr. 12:</i> \$104,900	<i>Yrs. 12-exp.:</i> \$17,483	<i>Yr. 12:</i> \$173,250	<i>Yr. 12:</i> \$2,750 ²² <i>Yr. 13:</i> \$5,500 <i>Yr. 14:</i> \$11,000 <i>Yr. 15:</i> \$22,000 <i>Yr. 16:</i> \$44,000 <i>Yr. 17:</i> \$88,000

Despite the marked increase from present levels, these proposed figures are hardly extreme by international or historical standards. It presently costs roughly as much to maintain widespread patent protection in Europe,²³ a region that remains popular with inventors and experiences far less patent troll behavior than the United States.²⁴ Additionally, patent maintenance fees in the

20 Only “large entities” pay fees at this level. “Small entities,” or patentees that have fewer than 500 employees, pay half as much, per 37 C.F.R. 1.27, and “micro entities,” which are small players new to the patent system and universities, pay a quarter as much. *See* Changes to Implement Micro Entity Status for Paying Patent Fees, 77 Fed. Reg. 75019 (Dec. 19, 2012). In our view, entity size distinctions shouldn’t apply to maintenance fee rates.

21 Most patents presently in force will receive a maximum possible term of about seventeen years from the date they issue. *See* 35 U.S.C. § 154(a)(2) (West 2012) (providing that the term of a patent currently lasts twenty years from filing). Older patents last a bit longer on average. *See* John R. Allison & Mark A. Lemley, *The Growing Complexity of the United States Patent System*, 82 B.U. L. REV. 77, 98 (2002) (finding that patents issued between 1996 and 1998 spent an average of 2.77 years in prosecution). Newer patents last for a bit less time. Dennis Crouch, *Average Pendency of U.S. Patent Applications*, PATENTLY-O (Mar. 20, 2013, 9:05 AM), <http://www.patentlyo.com/patent/2013/03/average-pendency-of-us-patent-applications.html> (noting that patents issued between January 2009 and January 2013 spent, on average, about 3.3 years in prosecution).

22 In this example, fees remain at present levels through year twelve, at which time the annual cost increases geometrically to reach the cumulative Pigovian target.

23. *See* Gaétan de Rassenfossé & Bruno van Pottelsberghe, *The Role of Fees in Patent Systems: Theory and Evidence 26* (Intellectual Prop. Research Inst. of Austl., Working Paper No. 7/10, 2010), available at http://www.ipria.org/publications/wp/2010/Working%20Paper%207_2010.pdf.

24. The European Patent Office saw a record number of applications in 2012, almost two-thirds of which were filed from abroad. *See* 2012 – A Record Year for the European Patent Office, EUROPEAN PATENT OFFICE (Mar. 6, 2013), <http://www.epo.org/news-issues/press/releases/archive/2013/20130306.html>. Compared to the United States, there are fewer patent disputes (per patent) in most European nations, and European patent disputes are cheaper than their U.S. counterparts. *See* Nicolas van Zeebroeck & Stuart J. H. Graham, *Comparing Patent*

United States have remained at or near an all-time low relative to GDP per capita for the last several decades and in the past have been up to ten times larger than recent levels.²⁵

Increasing maintenance fees in this manner—and, better yet, subdividing them into increasingly expensive annual payments, as shown in the third column in the chart *supra*—would cost trolls dearly. No longer could trolls purchase middle-aged patents and hold them cost-free. Maintenance fee payments of this magnitude would likely cost a large aggregator like Intellectual Ventures more than \$175 million annually.²⁶ Trolls with less capital would shutter their doors, and the growth of next-generation trolls would be stunted as more patents than ever before were allowed to expire before reaching the secondary market.²⁷

Legitimate innovators, on the other hand, would overwhelmingly avoid a similar fate. As mentioned above, product-producing companies usually finish enforcing their patents by nine years after issuance, while trolls rarely can acquire and enforce them any earlier.²⁸ Further, innovators who actually do rely on long-term protection overwhelmingly operate in fields—like pharmaceuticals—with extremely low patent density. While the iPhone might incorporate a quarter-million patented inventions,²⁹ the average pharmaceutical is protected by just a handful of patents,³⁰ which could be renewed quite cheaply relative to product revenue even after a fee increase.³¹ In any event,

Litigation Across Europe: A First Look, 5 n.4, 12-13 (Sept. 8, 2011), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1924124&download=yes.

25. de Rassenfosse & van Pottelsberghe, *supra* note 23, at 6.

26. Tom Ewing and Robin Feldman estimate that, as of May 2011, Intellectual Ventures (IV) owned approximately 10,000 issued U.S. patents and 4,400 pending U.S. patent applications, which collectively comprised about one-third of its overall worldwide patent portfolio. Tom Ewing & Robin Feldman, *The Giants Among Us*, 2012 STAN. TECH. L. REV. 1, 6-7 (2012). Since that time, IV's patent holdings have grown considerably. Today, IV purports to own roughly 70,000 acquired patents and applications, in addition to 3,000 more filed to protect inventions made in-house. Our Patent Portfolio, INTELLECTUAL VENTURES, <http://www.intellectualventures.com/index.php/inventions-patents/patent-portfolio> (last visited May 30, 2013). Assuming the proportion of U.S. patents in IV's portfolio has remained roughly constant over the last two years, the portfolio today contains about 17,000 issued U.S. patents.

27. Presently, about 50 percent of all issued patents expire for failure to make one of the three required payments. See Dennis Crouch, *Patent Maintenance Fees*, PATENTLY-O (Sept. 26, 2012, 9:51 PM), <http://www.patentlyo.com/patent/2012/09/patent-maintenance-fees.html>.

28. See Love, *supra* note 8, at 1335.

29. See, e.g., Brian J. Love, *Apple Bites Back: But Will the Company Come to Regret Its Huge Court Victory?*, L.A. TIMES, Aug. 30, 2012, at A15.

30. See, e.g., Lisa Larimore Ouellette, *How Many Patents Does It Take To Make a Drug? Follow-On Pharmaceutical Patents and University Licensing*, 17 MICH. TELECOMM. TECH. L. REV. 299, 316 (2010), available at <http://www.mttr.org/volseventeen/ouellette.pdf>.

31. Lipitor, for example, was covered by just five patents, the renewal of which would have cost Pfizer on average only \$52,500 per year under our proposed Pigovian regime. *Id.* at 316, n.101. By contrast, Pfizer was making more than \$5 billion per year in Lipitor sales, see *Pharmaceutical Sales 2010*, DRUGS.COM, <http://www.drugs.com/top200.html>, (last visited May 30, 2013), before patent rights to the drug expired in 2011. Josh Sanburn, *Lipitor Already Cheaper After Patent Expiration*, TIME.COM (Dec. 1, 2011), <http://business.time.com/2011/12/01/lipitor-patent-expiration->

simple modifications like excluding patents covering FDA approved products from these new fees entirely—perhaps combined with back loading fees even more so than at present—would ease (if not completely eliminate) product producers’ pain.

Finally, it is worth noting that maintenance fee reform has a number of advantages compared to other potential troll-fighting measures. For one, it does not turn on a statutory definition—such as one for “software patent” or “patent troll”—that future firms might evade, but rather targets aging patents directly regardless of their precise classification or owner. Likewise, fee reform doesn’t require fundamental changes to patent litigation or substantive patent law, but rather is readily adjustable (or even reversible). Fees can be tweaked on a regular basis as conditions change, perhaps under the auspices of an agency tasked with tracking patent system costs. Moreover, patent fee-setting authority presently exists in more than one branch of government—in patent reform legislation passed in 2011, Congress granted the Patent and Trademark Office independent (albeit somewhat limited) authority to set its own fees—a fact that provides an alternative avenue for at least modest reform,³² even if broader legislation ultimately stalls as it has in the past.³³

So in the fight against patent abuse, let’s not treat the symptoms of patent “pollution,” to the exclusion of their root cause. Policymakers take note: maintenance fee reform would make a simple, flexible, and—when properly formulated—uncontroversial addition to your toolkit for curbing patent abuse.

wont-mean-cheaper-generics-yet/.

32. See Brian J. Love, *Let’s Use Patent Fees to Stop the Trolls*, WIRED.COM (Dec. 20, 2012, 3:30 PM), <http://www.wired.com/opinion/2012/12/how-to-stop-patent-trolls-lets-use-fees/>.

33. A previous version of the SHIELD Act died in committee last year without a public hearing. Saving High-Tech Innovators from Egregious Legal Disputes Act of 2012, H.R. 6245, 112th Cong. (2012), available at <http://www.govtrack.us/congress/bills/112/hr6245>. Moreover, although Congress enacted patent reform legislation in 2011, the bill passed congressional scrutiny only after years of efforts; furthermore, revisions stripped virtually all serious reforms from the bill. See, e.g., Joe Mullin, *Senate Passes Patent Reform, After Stripping Out All Controversial Measures*, PAIDCONTENT (March 10, 2011, 10:40 AM), <http://paidcontent.org/2011/03/10/419-senate-passes-patent-reform-after-stripping-out-all-controversial-measu/>.