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## PATENT REVERSION: AN EMPLOYEE-INVENTOR'S SECOND BITE AT THE APPLE

Richard A. Kamprath\*

### INTRODUCTION

The United States of America has a large, technology-driven economy and its continued success can be partially attributed to the strong patent system controlled by the United States Patent and Trademark Office (“USPTO”).<sup>1</sup> For the past thirty-five years, though, the United States has slowly been losing its grip as the world’s leader in technology and innovation.<sup>2</sup> American investment in science and engineering education, research, and development has not kept pace with the rest of the world and this will eventually erode our technological advantage.<sup>3</sup> Whether this is caused by lack of interest in technical fields of study, increased global competition, or a combination of multiple

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<sup>1</sup> See INTELLECTUAL PROPERTY AND DEVELOPMENT 298 (Carsten Fink and Keith E. Maskus eds., 2005) (“There is a strong positive relationship between patent strength and real per capita gross national product (GNP): Patent = -0.51 + 0.49xGNP.”).

<sup>2</sup> THE TASK FORCE ON THE FUTURE OF AMERICAN INNOVATION, THE KNOWLEDGE ECONOMY: IS THE UNITED STATES LOSING ITS COMPETITIVE EDGE? 1 (2005). The Task Force, comprised of technology companies and organizations, devised a list of benchmarks to help define how the United States is performing against other nations in technology innovation. The benchmarks are in education, science and engineering workforce, scientific knowledge creation, R&D investments, high-tech investment, and specific high-tech sector economic output. According to all of the benchmarks, the United States is losing ground to the European Union and Asia. The Task Force concluded, “our advantage is eroding rapidly as other countries commit significant resources to enhance their own innovative capabilities.” *Accord* TAPPING AMERICA’S POTENTIAL: THE EDUCATION INNOVATION INITIATIVE, GAINING MOMENTUM, LOSING GROUND 6-7 (2008). Tapping America’s Potential is another group of technology companies and organizations with the goal of increased U.S. investment in science and engineering education. See also Henrik D. Parker, *Reform for Rights of Employed Inventors*, 57 S. CAL. L. REV. 603, 603 n.1 (1984) (quoting Federal Incentives for Innovation: Hearings Before the Special Subcomm. On Science, Technology, and Commerce of the Senate Comm. On Commerce, 93rd Cong., 1st Sess. 35 (1973) (remarks of R. Kuntz, Pres. & Nat’l Dir., Cal. Soc’y Prof. Eng’rs). Innovation and Patent Law Reform: Hearings Before the Subcomm. On Courts, Civil Liberties, and the Admin. Of Justice of the Comm. On the Judiciary, 99th Cong. 1st Sess. (1984) (remarks by Rep. Robert W. Kastenmeier, Chairman of the Subcomm.) (“Between 1972 and 1980, the number of patents to American citizens declined dramatically from 225 per million persons to 169 per million. The percentage of U.S. patents issued to foreign persons...increased from 25 percent of the total to nearly 40 percent of the total....These statistics raise a profound question about why we appear to be losing our edge in the intellectual property marketplace.”).

<sup>3</sup> TASK FORCE ON THE FUTURE OF AMERICAN INNOVATION, *supra* note 2, at 1. See also Peter Caldwell, *Employment Agreements for the Inventing Worker: A Proposal For Reforming Trailer Clause Enforceability Guidelines*, 13 J. INTELL. PROP. L. 279, 293 (2006). The ratio of American citizen-filed U.S. patent applications to foreign-filed U.S. patent applications has steadily decreased over the past four decades as well.

factors, the effect remains the same: each year relatively fewer and fewer American inventions are being created and patented.<sup>4</sup> The social cost created by an increased dependence on foreign technological know-how and products is the eventual erosion of America's dominant economic position.

This underproduction of innovation can be partially attributed to the fact that American companies employing scientists and engineers overwhelmingly require their employees to pre-assign all inventions to their employer.<sup>5</sup> Because of their asymmetrical bargaining power, the technology companies can usually demand all prospective employees sign such an assignment of patent rights.<sup>6</sup> In many circumstances, these assignments could even be considered adhesion contracts because they leave no alternative for a prospective employee.<sup>7</sup> This creates a large disincentive for technical employees to innovate and participate in the patenting process because the personal benefit they would have enjoyed from a patent has been taken away.<sup>8</sup> Because employee-inventors are methodically undercompensated, it should come as no surprise that the brightest American students would rather be doctors and attorneys than scientists or engineers.<sup>9</sup>

The employer's role in the marketplace, however, cannot be overlooked in the rush to advocate for the employee-inventor. In bringing products to market, especially in high technology fields, all of the costs and risk of failure appear to fall on the shoulders

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<sup>4</sup> See Parker, *supra* note 2, at 603.

<sup>5</sup> See Robert P. Merges, *The Law and Economics of Employee Inventions*, 13 HARV. J.L. & TECH. 1, 7 (1999); Innovation and Patent Law Reform: Hearings Before the Subcomm. On Courts, Civil Liberties, and the Admin. Of Justice of the Comm. On the Judiciary, 99th Cong. 1st Sess. (1984) (remarks by Rep. Robert W. Kastenmeier, Chairman of the Subcomm.). With the passage of the Leahy-Smith America Invents Act, the statutory impetus for individuals to navigate the patent process on their own erodes even further. See Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 341 (codified as amended in scattered sections of 35 U.S.C.). The AIA implements a 'first to file' system, which grants patent protection to the first person to file an application covering an innovation. *Id.* at § 3. This system favors those entities that can dedicate fiscal resources and personnel solely to creating patent applications as fast as possible. Competing against large corporations and universities, America may very well see the death of the individual inventor.

<sup>6</sup> Parker, *supra* note 2, at 608. Some states have imposed limitations on employer's power to contract away employee invention rights through pre-assignments. See Merges, *supra* note 5, at 9 n.30. Other countries go even further. "Japan severely restricts the use of pre-invention assignment agreements, as discussed *infra*. The agreements may only include inventions that result from an employee's duties and that relate to the employers' businesses." Parker, *supra* note 2, at 608 n.35 (quoting Parsons, *U.S. Lags in Patent Reform*, 15 IEEE Spectrum, March 1978 at 60, 64). The German Employee Inventions Act of 1957, as discussed *infra*, requires, "the employer separately compensate each employee who invents in the course of employment....The general approach is to pay each employee-inventor as if he held ownership rights and had entered into an arm's length licensing agreement with the employer." Merges, *supra* note 5, at 42-43.

<sup>7</sup> Parker, *supra* note 2, at 625; See Jay Dratler Jr., *Incentives for People: The Forgotten Purpose of the Patent System*, 16 HARV. J. ON LEGIS. 129, 144 (1979). This is especially true for engineers and scientists that work at large research and development companies or universities.

<sup>8</sup> Accord Parker, *supra* note 2, at 625. It could be argued that inventive employees have the option of starting their own company based on their innovation, but as will be discussed *infra*, this is an illusory dream because of the common law assignment of inventions or pre-assignment contracts required of most technological employees. Cf. Merges, *supra* note 5, at 45.

<sup>9</sup> Ann Bartow, *Inventors of the World Unite! A Call for Collective Action by Employee-Inventors*, 37 SANTA CLARA L. REV. 673, 683 (1997).

of the employer.<sup>10</sup> Pharmaceuticals are an excellent example of how expensive and financially risky research and development in cutting edge technology can be. The cost to bring one new drug to market is around \$800 million when the costs of research and failures are taken into account.<sup>11</sup> “[F]ewer than one in five drug candidates that make it out of the laboratory survive this process and reach the marketplace in the form of FDA-approved pharmaceuticals.”<sup>12</sup> Patent protection, through the grant of an exclusive monopoly, allows an innovator the opportunity to recover the costs of research, development, and testing.<sup>13</sup> To recoup these expenses and hopefully make a profit, companies necessarily rely on assignment of the patents underlying their products. Furthermore, one could argue that the employer provides adequate compensation to the employee-inventor in the form of increased wages, bonuses, and stock options proportional to the probability of a successful invention by the employee.<sup>14</sup> In practice, however, the market continues to leave the employee-inventor undercompensated for his inventive contributions because of the unequal bargaining position held by his employer.<sup>15</sup>

In an attempt to more fully compensate employee-inventors without harming the return on investment of employers, this article proposes a joint ownership patent reversion modeled after that already in place in copyright law.<sup>16</sup> In Section I, the background of the relationship between employer and employee-inventor is discussed in terms of patent rights. This section outlines the problems inherent in the pre-assignment status quo of these rights from employees to employers. Section II begins with Part A, which is a review of previously proposed solutions to the undercompensation of employee-inventors and why they have not been sufficient. The second part of Section II begins with a discussion of the proposed patent reversion and why it should be implemented. Part B(i) discusses the reversion found in copyright which terminates

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<sup>10</sup> Cf. Yuval Feldman, *An Experimental Approach to the Study of Social Norms: The Allocation of Intellectual Property Rights in the Workplace*, 10 J. INTELL. PROP. L. 59, 68 (2002) (“[E]ven in the context of fairness, some argue that, given that employers internalize the risks of employing many engineers that invent nothing, it is fair that they should at least get rewarded for their better choices.”).

<sup>11</sup> See e.g. Joseph A. DiMasi, Ronald W. Hansen, and Henry G. Grabowski, *The Price of Innovation: New Estimates of Drug Development Costs*, 22 JOURNAL OF HEALTH ECONOMICS 2 151 (2003); *In re Bilski*, 545 F.3d 943, 1006 (Fed. Cir. 2008) (Mayer, J. dissenting), *cert. granted*, 129 S.Ct. 2735 (U.S. Jun 01, 2009) (NO. 08-964), *aff’d but criticized*, 130 S.Ct. 3218 (U.S. Jun 28, 2010) (NO. 08-964).

<sup>12</sup> *In re Bilski*, 545 F.3d at 1006 (Mayer, J. dissenting) (citing Jay Dratler, Jr., *Alice in Wonderland Meets the U.S. Patent System*, 38 Akron L. Rev. 299, 313-314 (2005) (footnotes omitted).

<sup>13</sup> *Id.*

<sup>14</sup> See Feldman, *supra* note 10, at 68 n.33; Hearings Before the Subcomm. On Courts, Civil Liberties, and the Admin. Of Justice of the Comm. On the Judiciary, 99th Cong. 1st Sess. (1984) (remarks by Donald W. Banner, IPO, Inc.) (“[S]alaries of creative employees are adjusted in proportion to the value of their contributions.”).

<sup>15</sup> See Bartow, *supra* note 9, at 683 (“[F]oreign scientists and engineers...gladly accepted meager wages in exchange for the opportunity to live in the United States for a few years, enhance their resumes, and perhaps make professional connections that would lead to more lucrative employment later, either in this country or abroad. The willingness of...noncitizens to be exploited in this manner undoubtedly serves to depress wages for all technical professionals, and to limit the employment opportunities available for American citizens or others with long term commitments to the U.S.”).

<sup>16</sup> 1976 Copyright Act (Title 17) (Oct. 19, 1976, Pub.L. 94-553, § 101, 90 Stat. 2541 to 2598). Discussed *infra* at note 94.

transfers and licenses granted by the author based on a statutorily defined process and time period. Part B(ii) of Section II proposes applying a reversion of patent rights to the inventor during the last part of the patent's exclusivity period. Part (1) defines the patent reversion and its framework. Part (2) lays out the benefits of the reversion to employers. Part (3) discusses both the theoretical and practical considerations associated with a patent reversion along with how the reversion can be implemented to create solutions. In Section III, the conclusion gives a brief outline of what was discussed and proposes that a patent reversion should be implemented in the future.

### I. THE PLIGHT OF THE EMPLOYEE-INVENTOR AND THE NEED FOR A CHANGE IN THE LAW

In exchange for making their knowledge public and encouraging technological innovation, an inventor is given a statutorily protected monopoly to exclude others from making, using, or selling a patented invention.<sup>17</sup> With the rise of specialization in the workplace, large corporations dominate research and development. In many advanced technological fields, such as integrated circuits, pharmaceuticals, and the defense industry, these corporations also file the overwhelming majority of patent applications each year.<sup>18</sup>

Employee-inventors have not been able to represent themselves in the political or legislative process because of their diversity. In addition to working for a myriad of technology companies with domestic and international principle places of business, employee-inventors have diverse citizenship, resident status, cultural, and ethnic backgrounds that make coordinated political involvement practically impossible. The dissimilar backgrounds and interests of the science and engineering population prevent the cohesion required to form a political voice capable of being heard.<sup>19</sup>

In response, the common law evolved to define the ownership of patents created in the workplace. Initially, the common law divided the ownership rights of patents developed by employee-inventors based on three factors: "(1) the nature of employment, (2) the relation [of the invention] to the normal scope of the employer's business, and (3) the extent to which the resources of the employer were used in the conception and development of the invention."<sup>20</sup> Using these factors, the common law gave inventors

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<sup>17</sup> 35 U.S.C. § 271(a) (2003).

<sup>18</sup> Jean E. Healy, *The Application of Japanese Article 35 Regarding 'Reasonable Compensation for Patents by Employed Inventors in Syuji Nakamura v. Nichia Corporation*, 17 PACE INT'L L. REV. 387, 388 (2005). ("In Japan, 'the ratio of patent applications by corporations and government offices to the total of patent applications is approximately 97%.')."

<sup>19</sup> In this sense, employee-inventors may fall into the category of "discrete and insular minorities. . . which tends seriously to curtail the operation of those political processes ordinarily to be relied upon to protect minorities." *United States v. Carolene Products Co.*, 304 U.S. 144, 153 n.4 (1938).

<sup>20</sup> Parker, *supra* note 2, at 607-08. The first factor, the nature of employment, was further broken down into separate categories. In common law, if an employee-inventor was hired to invent, the employer owned the invention. Inventions outside the scope of employment but made using the employer's assets granted a shop right, or a non-transferable license, to the employer. Inventions made outside the scope of employment without the use of the employer's assets were owned solely by the employee. The second factor is the relation of the invention to the normal scope of the employer's business. The employer's

employed in research and development no ownership of their invention in the majority of circumstances.<sup>21</sup> Partially in response to ambiguities in the common law, and partially because no force opposed a race to the bottom, employers began requiring employees to pre-assign their rights to any inventions as a pre-requisite to their employment.<sup>22</sup> Today, the consequences of the race can be seen in the limited bargaining power of employee-inventors and the almost universal use of pre-assignment of inventive rights.

The patent laws of the United States were created based on the underlying assumption that an inventor would share his knowledge and apply for a patent because of the incentive of a monopoly gained from the exchange.<sup>23</sup> “Our society has long recognized the intensely personal nature of an invention and the importance of providing stimulation and encouragement to inventors.”<sup>24</sup> By requiring pre-assignment of patent rights, employers arguably ‘usurp the inventive bounty’ intended for inventors themselves.<sup>25</sup> “Assignment agreements...remove a powerful economic incentive from the people who do the day-to-day work of innovation.”<sup>26</sup> For example, an employee-inventor working for American Cyanamid reported not being compensated at all for an invention that was bringing the company over \$50 million a year in sales.<sup>27</sup> Another employee-inventor working for Lockheed Corporation was ultimately compensated a total of \$21,250 for an invention worth \$50 million.<sup>28</sup> Similarly, in Japan, an employee-inventor who created the high intensity blue LED was compensated \$180 by his employer Nichia Corporation for an invention worth an estimated \$1.14 billion.<sup>29</sup> In the aggregate, many employers around the world could conceivably be undercompensating

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interest in an employee’s invention increases the closer the invention comes to the employer’s business practice. Finally, the third factor was the amount of the employer’s resources that were used by the employee to create the invention. Like the second factor, the more employer resources used by the employee to invent, the greater the employer’s interest in the invention. The resources include the time, tools, and facilities of the employer. *Merges, supra* note 5, at 17.

<sup>21</sup> As discussed in the previous note, an employee hired to invent retained no common law rights in his inventions. An invention by a non-R&D employee related to his job or created using the employer’s resources gave the employer a shop right. Only inventions unrelated to the employee-inventor’s job and created without use of the employer’s resources were retained by the employee. *See Merges, supra* note 5, at 5-7; *Parker, supra* note 2, at 606-08.

<sup>22</sup> *Parker, supra* note 2, at 608.

<sup>23</sup> *Bartow, supra* note 9, at 676. As mentioned *supra*, the benefits include a monopoly on the technology for twenty years.

<sup>24</sup> *Ingersoll-Rand Co. v. Ciavatta*, 542 A.2d 879, 887 (N.J. 1988).

<sup>25</sup> *Bartow, supra* note 9, at 682.

<sup>26</sup> *Dratler, supra* note 7, at 147-48.

<sup>27</sup> *Bartow, supra* note 9, at 693.

<sup>28</sup> *Id.*

<sup>29</sup> *Healy, supra* note 18, at 403. The employee eventually filed suit in Japan and while a settlement for \$8.1 million was reached, the Tokyo District Court initially awarded him half of the anticipated profits, or \$570 million. While his employer seemed to disregard his role in the invention, the technological community took note of Mr. Nakamura: he was subsequently awarded the Millennium Technology Prize for his contributions to science. Millennium Technology Prize Website, <http://www.millenniumprize.fi/index.php?page=104> (last visited March 11, 2010).

employees for the rights to their inventions because mandatory pre-assignment contracts give employees little recourse.<sup>30</sup>

The American patent system and corporate intellectual property practices do not sufficiently encourage employee-inventors to create new patents.<sup>31</sup> There are three main justifications for doing away with the employee-inventor status quo—which are shaped by fairness and efficiency: (1) employers own all of the intellectual property rights through stronger bargaining positions, (2) employers define the amount, if any, of the compensation, and (3) maximizing the profits of the business do not necessarily coincide with the fair use of an invention. First, almost all technical companies require their employees to sign pre-assignment agreements as a condition to receiving employment.<sup>32</sup> If a job-seeker wants to work in the technology field, he must sign such an agreement because there is no other option. Therefore, job-seeking inventors are at a bargaining disadvantage to their prospective employers from the beginning of their relationship.<sup>33</sup> Mandatory pre-assignment contracts marginalize the “extraordinary amounts of time, education, training, intellect, energy, and waking and sleeping thought” expended by the employee-inventor in inventing, and this is unfair to inventors.<sup>34</sup>

Because of this stronger bargaining position, employers can define the compensation paid to employee-inventors.<sup>35</sup> Many companies reward inventive employees through bonus programs or reward systems.<sup>36</sup> These can be divided into four separate categories: “(1) implicit career-path progressions that reward significant inventions through a series of implicit promotions, (2) spot bonuses given for significant inventions, (3) output-based bonus schemes, and (4) more elaborate reward systems based on an administrative assessment of invention value.”<sup>37</sup> While these programs seem to address the unfair compensation of employee-inventors, they only mask the problem. Employer defined reward programs are usually discretionary and frequently can be modified at the whim of the employer.<sup>38</sup> In addition to the theoretical failings of these

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<sup>30</sup> Japan and Germany have statutorily protected employee-inventors as discussed *infra* notes 86-90 and accompanying text. Other compensation measures initiated by employers are usually at the discretion of the employers, which could be argued as illusory. This is discussed *infra* notes 35-47 and accompanying text.

<sup>31</sup> *Ingersoll-Rand*, 542 A.2d at 887; see Richard S. Gruner, *Corporate Patents: Optimizing Organizational Responses to Innovation Opportunities and Invention Discoveries*, 10 Marq. Intell. Prop. L. Rev. 1, 30-31 (2006) (detailing the practices and reasons for corporate compensation for inventions)

<sup>32</sup> Parker, *supra* note 2, at 608 n.11 (citing Allen, *Invention Pacts: Between the Lines*, 15 IEEE SPECTRUM, March 1978, at 54 (detailing a survey which showed that approximately nine out of ten companies having over 250 employees required patent assignment agreements)); William Hubbard, *Inventing Norms*, 44 Conn. L. Rev. 369, 389 n.125 (stating that many employers require employees to assign patents rights); Merges, *supra* note 5, at 7.

<sup>33</sup> *Id.*

<sup>34</sup> Bartow, *supra* note 9, at 675.

<sup>35</sup> See Dratler, *supra* note 7, at 147-48.

<sup>36</sup> Merges, *supra* note 5, at 39-40.

<sup>37</sup> *Id.*

<sup>38</sup> Parker, *supra* note 2, at 626 (“Existing reward plans, however, are discretionary, subject to the employer’s changes of policy, and have not improved the declining United States patent balance or the inadequate patent productivity per dollar.”). There are limited examples of fair compensation for employee-inventors through employer initiated compensation programs as discussed *infra* note 63 and accompanying text. In addition, a situation could be hypothesized wherein an employee-inventor has academic or

plans, they also have not stymied the declining U.S. patent balance in practice.<sup>39</sup> current compensation systems do not appear to create an effective incentive to invent for an employee-inventor.<sup>40</sup>

Another problem is that there may be dissonance in a company's decision between making a profit and promoting an employee's invention. A corporation that has a well-entrenched market share with heavy investment in manufacturing, personnel, advertising, and marketing may realize, "it is more profitable to suppress innovation than to retool and begin advertising and marketing a new or substantially changed product, even when the new or changed product is technologically superior."<sup>41</sup> Therefore, an inventive corporation may have a rational economic reason to suppress innovation where an individual inventor would not.<sup>42</sup> Enforcement of assignment agreements thus reinforces the concentration of technological power in large-scale research and development entities.<sup>43</sup>

Similarly, a pre-assignment of patent rights also takes control of patent prosecution out of the hands of the employee-inventor and gives it to the employer. An employer's subsequent interest, or lack thereof, in an invention may be due to its individual economic situation rather than the possible benefit to society.<sup>44</sup> An employer may choose not to patent or exploit a proposed invention due to a lack of financial capital or because the idea was not part of the employer's business model.<sup>45</sup> "It is unfortunate that one company's determination may cause a socially valuable invention to be

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industrial weight to more fairly bargain for his own invention compensation. Such a situation, however, does not address the overall lack of bargaining power of the employee-inventor group as a whole. *See* Parker, *supra* note 2, at 608 ("[I]nventors who demand unusual contract terms may reduce their opportunities to change jobs because employers are wary of inventors who try to obtain more than the traditional rewards for their inventions.").

<sup>39</sup> *Id.*

<sup>40</sup> *Cf.* Merges, *supra* note 5, at 3. Merges argues that employee reward programs and the possibility of leaving an employer to begin a startup sufficiently induce employee-inventors to invent. Some reward systems appear to fairly compensate the employee-inventor, such as BMC's. *See* note 63, *infra*. However, as discussed *infra*, these inadequately compensate inventors or require the employee-inventor to make business decisions that the employer is in a better position to make.

<sup>41</sup> Bartow, *supra* note 9, at 690.

<sup>42</sup> Dratler, *supra* note 7, at 174-75 n.189. ("The monopoly power of a patent in the hands of a corporation may retard innovation in three ways. First, by refusing to license a dominant patent to holders of patents on improvements...a corporation can prevent the practice of innovation by others which might render its products less attractive or obsolete. Secondly, through patent-pooling and cross-licensing, one corporation or a small oligopoly can dominate an entire area of commerce or technology and prevent entry by innovative newcomers. Finally, economic reliance on the monopoly power may reduce the corporation's incentive to better its own products.").

<sup>43</sup> *Id.* at 147.

<sup>44</sup> *See* Parker, *supra* note 2, at 624. This is especially true if the invention is a radical breakthrough or if its importance is outside the corporation's industry. *See* Bartow, *supra* note 10, at 691.

<sup>45</sup> Dratler, *supra* note 7, at 176.

ignored.”<sup>46</sup> If the employer decides not to patent an employee-inventor’s invention, the employee has no recourse if he has signed his patent rights away.<sup>47</sup>

On the other hand, there are very compelling reasons for keeping the currently working, albeit flawed, status quo of employee-inventor patent assignment rights. Professor Robert Merges lists four categorical factors that mitigate for not changing the status quo: “(1) strategic bargaining analysis, (2) team production theory, (3) principal-agent theory, and (4) common sense analysis of the bargain struck between employer and employee.”<sup>48</sup> These arguments against changes to the current employee-inventor compensation system are also based on fairness and efficiency. Strategic bargaining analysis argues against awarding an employee a property right that could be used to holdup an employer after investment in a patented product.<sup>49</sup> Such a right could drastically increase transaction costs associated with new technology and create bottlenecks to market exploitation.<sup>50</sup> Team production theory also argues that individual compensation for joint inventions may be hard to define for members of research and development groups.<sup>51</sup> Another argument for keeping the status quo is principal-agent theory, which suggests that an employee-inventor will spend time on inventing to the detriment of more germane, but necessary, work.<sup>52</sup> Finally, Professor Merges argues that analysis of the bargain struck between employer and employee is already market efficient because it takes into account, “...the high cost of failed inventions, the stability of employee salaries over time, and the firm’s need to recoup the costs of failed inventions via ownership of those that are successful.”<sup>53</sup> Employee salaries, it could be argued, are market-adjusted proxies for the expected value of all employee inventions and thus employee-inventors are already fully compensated for the probability of inventing something of value.<sup>54</sup>

Professor Merges’ factors clearly discern four different areas of interaction regarding the relationship of employer and employee-inventor. The factors, however, should be used to define a solution to the undercompensation of the employee-inventor, not as reasons for the continued status quo. Applied in this manner, the inadequacies of the solutions that have been previously proposed are reaffirmed because they do not address strategic bargaining analysis, team production theory, principal-agent theory, and

<sup>46</sup> Parker, *supra* note 2, at 624.

<sup>47</sup> Neal Orkin, *The Legal Rights of the Employed Inventor: New Approaches to Old Problems (Part I)*, 56 J. PAT. OFF. SOC’Y 648, 659 (1974).

<sup>48</sup> Merges, *supra* note 5, at 2.

<sup>49</sup> *Id.* at 13. This is similar to the anti-commons theory articulated by Heller. Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 3 621, 645 (1998).

<sup>50</sup> See Merges, *supra* note 5, at 12. Merges goes on to argue that, “employer ownership is more efficient for two transaction-related reasons: (1) it occurs at the commencement of employment and thus is far simpler than deals struck after an employee makes a specific invention, and (2) it eliminates the possibility of holdups by employee-inventors, thereby making it more attractive for a firm to invest in research and development by employees in the first place.”

<sup>51</sup> *Id.* at 12; see also Feldman, *supra* note 10, at 69.

<sup>52</sup> Merges, *supra* note 5, at 26. “Employees will maximize their own utility, rather than their employer’s, which is problematic when employees have multiple responsibilities.”

<sup>53</sup> *Id.* at 12.

<sup>54</sup> *Id.* at 16; see also Feldman, *supra* note 10, at 68-69.

common sense bargain analysis. At the same time, the benefits of a patent reversion become even more apparent when viewed through the scope of the Merges factors.<sup>55</sup>

## II. SOLUTIONS TO THE UNDERCOMPENSATION OF EMPLOYEE-INVENTORS

There have been many suggestions of how to stymie America's loss of its technological advantage.<sup>56</sup> These range from organic solutions among the employer and the employee-inventor to common law and statutory solutions.<sup>57</sup> Other countries have also proposed and implemented different systems to address this problem.<sup>58</sup> Subsection A discusses other current proposals, and Subsection B then proposes and discusses a reversion of patent rights to the original inventor.

### A. *Current Proposals for Fairly Compensating Employee-Inventors*

Some employers have recognized the need to compensate inventive employees and have implemented reward systems to spur innovation and the creation of inventions.<sup>59</sup> Compensation systems come in all different shapes and sizes from cash bonuses per patent to career advancement.<sup>60</sup> Some companies may offer stock options for employee inventions.<sup>61</sup> The façade these programs create, however, does not hide their overall impotence. It has been pointed out that, “[e]xisting reward plans are discretionary, subject to the employer's changes of policy, and have not improved the declining U.S. patent balance.”<sup>62</sup> Any reward program does not address the underlying imbalance of power held by the employer and therefore is an illusory solution at best. In addition, most employer-defined reward programs do not fairly compensate employee innovation, let alone cure the patent balance problem.<sup>63</sup>

The other fallacy in employer-defined reward programs is that the decision to patent and the patent prosecution are controlled exclusively by the employer.<sup>64</sup> An

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<sup>55</sup> This is discussed further *infra* notes 142-46 and accompanying text.

<sup>56</sup> See Merges, *supra* note 5, at 38; Bartow, *supra* note 9, at 715; Dratler, *supra* note 7, at 190; and the discussion of university and state solutions *infra* notes 76-79 and accompanying text.

<sup>57</sup> Merges, *supra* note 5, at 38.

<sup>58</sup> See the discussion on foreign state solutions *infra* notes 86-90 and accompanying text.

<sup>59</sup> Merges, *supra* note 5, at 38; see Hearings Before the Subcomm. On Courts, Civil Liberties, and the Admin. Of Justice of the Comm. On the Judiciary, 99th Cong. 1st Sess. (1984) (remarks by Donald W. Banner, IPO, Inc.) (“[I]t is sound policy for companies to have awards programs for inventors and other creative employees. Many companies have had such programs in place for years....The employer is in the best position to judge the relative importance of the contributions made by the inventor.”).

<sup>60</sup> Merges, *supra* note 5, at 38

<sup>61</sup> Stock options are an indirect means to tie an employee-inventor's work product to the company's bottom line. In effect, stock options return some of the ownership interest in the patent back to the employee-inventor by giving equity in the employer. This may appear to be a solution to the undercompensation of employee-inventors, but like other employer-defined rewards programs, without an impetus to the employer to fairly compensate the employee-inventor, stock option compensation is only theoretical.

<sup>62</sup> Parker, *supra* note 2, at 626.

<sup>63</sup> Merges, *supra* note 5, at 40-41. There are some employer defined innovation reward programs that do fully compensate employee inventors. “BMC Software... stated in its annual report that it had paid \$4.9 million in royalty compensation and that some individual programmers were earning more than \$1 million per year because the products they developed were so profitable.”

<sup>64</sup> Parker, *supra* note 2, at 624.

employer's lack of business interest or insufficient intellectual property funding, "stifle commercial exploitation of inventions by blocking employee's pursuit of further development or receipt of additional financial reward."<sup>65</sup> It is socially inefficient to put the control of patent prosecution in the hands of an entity whose agenda may not be aligned with the inventor.<sup>66</sup>

In a more proactive call for change, Ann Bartow suggested that the employee-inventors of the world should unite and create patent collectives.<sup>67</sup> This idea is based on the age-old bargaining tactic of collective organization or unionization.<sup>68</sup> Scientists and engineers are not apt to unionize though, because of a myriad of factors not applicable to other bargaining groups—such as aspirations of management.<sup>69</sup> While unionization is not a realistic probability, a collective patterned after copyright collectives could give employee-inventors the bargaining power to more fairly allocate compensation for inventions by employees.<sup>70</sup> In the absence of legislative or judicial action, this may be the best way to change the status quo.<sup>71</sup> The grassroots nature of the idea, however, requires massive organization and cohesiveness among the members which may prevent a collective from ever becoming powerful enough to rebalance the bargaining positions of employer and employee-inventor.

Because no change has been initiated by the parties themselves, Jay Dratler Jr. posited that patent rights could be divided and reallocated between the employer and employee-inventor so as to better promote innovation.<sup>72</sup> This would create a system of shared patent rights in both parties. Bargaining between the employer and the employee, whether privately or through compulsory arbitration, would accurately compensate both players for minimal transaction costs.<sup>73</sup> By presuming ownership of an invention by the

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<sup>65</sup> *Id.*

<sup>66</sup> See *Ingersoll-Rand Co. v. Ciavatta*, 542 A.2d 879, 887 (Sup. Ct. N.J. 1988).

<sup>67</sup> Bartow, *supra* note 9, at 715. Accord Dratler, *supra* note 7, at 157.

<sup>68</sup> IRVING BERNSTEIN, *THE NEW DEAL COLLECTIVE BARGAINING POLICY* 1 (1950) ("In a few years following the first inauguration of Franklin D. Roosevelt, public policy with respect to collective bargaining crystallized. The right of employees to organize and bargain collectively through representatives of their own choosing was underwritten by the federal government in Section 7(a) of the National Industrial Recovery Act, in Public Resolution No. 44, in the 1934 amendments to the Railway Labor Act, in the Guffey Act, and in the Wagner Act.").

<sup>69</sup> Dratler, *supra* note 7, at 157-58 ("First, they consider unionization unnecessary and demeaning to their status as white collar employees and independent professionals. Second, many inventors aspire to management positions and have no desire to alienate their superiors. Third, even when inventors attempt to organize, conflicts with blue collar workers create difficulties in defining the appropriate bargaining unit, because those workers, represented by existing unions, often do similar or related work. Finally, when technical personnel do join existing unions, the patent rights issue is of concern only to a minority of union members, and so falls to the bottom of the agenda."); Parker, *supra* note 2, at 609 ("Many [scientists and engineers] hope to become managers and do not want to risk alienating their superiors. Even when a union exists, the issue of inventor's rights will in practice be dropped quickly due to strong employer resistance.").

<sup>70</sup> Bartow, *supra* note 9, at 715-16 ("[C]opyright holders...become members of copyright collectives by granting them the non-exclusive right to license the public performance of their musical compositions; the collectives, in turn, license rights to radio and television stations, nightclubs, hotels and other venues.").

<sup>71</sup> Cf. *Carolene Products*, 304 U.S. at 153 n.4.

<sup>72</sup> Dratler, *supra* note 7, at 190.

<sup>73</sup> Bartow, *supra* note 9, at 195-96.

employee-inventor, reallocation of patent rights could be seen as a compulsory license in the employee's favor. But because the employee-inventor needs the employer to exploit the invention, Dratler reasons that the parties will work with each other to maximize their profits.<sup>74</sup> While this theory sounds plausible in an academic sense, whether such a system could work in practice seems doubtful because of the implementation and holdup problems that would arise.<sup>75</sup>

Many state universities have chosen to compensate their faculty- and research-inventors for their pre-assignment patent rights. The University of California system requires pre-assignment of all patent rights but also has a compulsory royalty sharing plan.<sup>76</sup> If the University's technology transfer office patents the invention, 35% of net royalties are automatically paid to the inventor.<sup>77</sup> In addition, the University may release patent rights back to the inventor if the University decides not to pursue a patent or if equity calls for such a release.<sup>78</sup> M.I.T., Texas A&M, and other major research university systems have similar royalty sharing provisions.<sup>79</sup> Compulsory royalty sharing plans may appear to be fairer to the employee-inventor, but they suffer from some of the same problems as other employer-defined compensation systems: the employer totally controls the system and the employee-inventor has no recourse if left out in the cold.

Heeding a call from their electorates, both states and the federal government have also attempted to step in to protect employee-inventors. Eight states have passed legislation limiting pre-assignment agreements as of 2001, but these restrictions are usually only aimed at protecting an employee-inventor's invention made on his own time

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<sup>74</sup> *Id.* at 197.

<sup>75</sup> See Heller, *supra* note 49, at 645; see also note 143, *infra*. The problem of holdup is maximized in a shared rights system. While holdup remains an issue in patent reversion, it is not as great of a concern because the patent rights are never shared, as discussed *infra* notes 141-45 and accompanying text.

<sup>76</sup> U.C. Patent Policy, [http://www.ucop.edu/ott/genresources/pat-pol\\_97.html](http://www.ucop.edu/ott/genresources/pat-pol_97.html) (last visited March 7, 2010).

<sup>77</sup> *Id.* at Statement of Policy, Subsection C (“Subject to restrictions arising from overriding obligations of the University pursuant to gifts, grants, contracts, or other agreements with outside organizations, the University agrees, following said assignment of inventions and patent rights, to pay annually to the named inventor(s), or to the inventor(s)' heirs, successors, or assigns, 35% of the net royalties and fees per invention received by the University. An additional 15% of net royalties and fees per invention shall be allocated for research-related purposes on the inventor's campus or Laboratory.”).

<sup>78</sup> *Id.* at Statement of Policy, Subsection B (“In the absence of overriding obligations to outside sponsors of research, the University may release patent rights to the inventor in those circumstances when: (1) the University elects not to file a patent application and the inventor is prepared to do so, or (2) the equity of the situation clearly indicates such release should be given, provided in either case that no further research or development to develop that invention will be conducted involving University support or facilities, and provided further that a shop right is granted to the University.”). While such a release could be implemented as a means to give employee-inventors greater control and interest in patenting their own inventions, such a release scheme does not address the major issue: employee-inventors are undercompensated by their employers for *successful* patent inventions.

<sup>79</sup> Guide to the Ownership, Distribution, and Commercial Development of M.I.T. Technology § 4.7(3), <http://web.mit.edu/tlo/www/community/guide4.html> (last visited March 7, 2010) (“Distribute one-third of the Adjusted Royalty Income to the inventors/authors. This distribution shall be contingent upon the inventors/authors adherence to the obligations of any applicable sponsored research agreement.”); Texas A&M Intellectual Property Management and Commercialization 4.8.2 Step 2, <http://www.tamus.edu/offices/policy/policies/pdf/17-01.pdf> (last visited March 7, 2010) (“Distribute thirty-seven and one-half percent (37.5%) of net income to the creator(s) as personal income.”).

without company resources.<sup>80</sup> All state legislation, thus far, allows a pre-assignment of patent rights if a sufficient nexus exists between the invention and the employer's research and development.<sup>81</sup> Congress also has endeavored to create employee-inventor protections with proposed amendments to the patent law.<sup>82</sup> Under one such proposal, employees who assigned their patent rights were entitled to the fair market value of those rights.<sup>83</sup> If the parties could not come to an agreement on compensation, an arbitration board designated by the statute was to decide on the dispute.<sup>84</sup> Ultimately this bill was not passed, and the employee-inventor status quo remained unchanged.<sup>85</sup>

Other industrialized countries have addressed the inequity of the employee-inventor bargaining position as well. Japan's Article 35 of the patent law grants the right to "reasonable remuneration for employed-inventors when the employee transfers the property right of the patent...based on the profits of the employer and the proportionate

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<sup>80</sup> Donald J. Ying, *A Comparative Study of the Treatment of Employee Inventions, Pre-Invention Assignment Agreements, and Software Rights*, 10 U. Pa. J. Bus. & Emp. L. 763, 766-67 (2008). These states are California, Delaware, Illinois, Kansas, Minnesota, North Carolina, Utah, and Washington. Some would argue that only inventions made by employees on their own time and unrelated to their employer's business should remain the property of the employee-inventor. This overlooks the fact that usually scientists and engineers have educational backgrounds generally directed toward their employer's businesses. It is not a large leap to assume that a large percentage of inventions will therefore be related to their employer's businesses because inventors have technical training in that particular field.

<sup>81</sup> Parker, *supra* note 2, at 613.

<sup>82</sup> H.R. 3285, 98th Cong. 1st Sess. (1983); H.R. 3286, 98th Cong. 1st Sess. (1983). This bill would have added §§ 221-223 to Title 35. Section 222 would have added, "(4) the term 'employment invention' means an invention that is made by an employee during a term of employment—(a) as a result of the employee's normal or specifically assigned duties; or (b) based in significant part upon or suggested by technical data or information of the employer which is not generally known to the public; or (c) when the invention is related to the employer's actual or contemplated business known to the employee; or (d) with substantial use of the employer's time, materials, facilities, or funds" Section 223 would have imposed a limitation upon terms of an employee preinvention assignment agreement: "(a) A preinvention assignment agreement shall not be enforceable to transfer any rights to the employer in any invention that is not an employment invention....(c) A preinvention assignment agreement shall not be enforceable to transfer any rights to an employer in any invention that is conceived by an employee of the employer after termination of employment with the employer. (d) In case of any disagreement or conflict with respect to the rights or obligations created by any provision of this chapter, the matter shall be settled by arbitration in the State in which the employee is employed in accordance with the Patent Arbitration Rules of the American Arbitration Association, at the request of either part." *See also* H.R. 4932, 88th Cong. 1st Sess. (1973). This proposed bill would have modified 29 U.S.C. § 185-87 as follows: "It shall be unlawful for an employer to require as a condition of employment that any prospective employee of his or any of his employees agree to assign any patent or patentable invention to the employer or to maintain or enforce any agreement with any of his employees to assign any patent or patentable invention to the employer where such agreement was a condition of employment."

<sup>83</sup> H.R. 3285, 98th Cong. 1st Sess. (1983); *See* Hearings Before the Subcomm. On Courts, Civil Liberties, and the Admin. Of Justice of the Comm. On the Judiciary, 99th Cong. 1st Sess. (1984) (remarks by Donald W. Banner, IPO, Inc.) ("The remaining bills relating to regulation of inventors' rights are H.R. 3285, which would create a comprehensive federal system for determining the amount of compensation to be paid to employees who make inventions, and H.R. 3286, which would set federal standards for contracts between employers and employees regarding ownership of inventions made by employees.")

<sup>84</sup> H.R. 3286, 98th Cong. 1st Sess.

<sup>85</sup> *Id.* The bill was referred to the House Committee on the Judiciary, who referred it to the Sub-committee on Courts, Civil Liberties, and the Administration of Justice. No major action was taken.

contribution by the employee to the invention itself.”<sup>86</sup> Germany grants an employee-inventor, “a share of the value of the invention in addition to salary.”<sup>87</sup> This share of the value is defined as if the employee-inventor, “held ownership rights and had entered into an arm’s length licensing agreement with the employer.”<sup>88</sup> When put in practice,

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<sup>86</sup> Japanese Patent Act, Act No. 121 of 1959, art. 35 (“(1) An employer, a juridical person or a national or local government (hereinafter referred to as “employer, etc.”), where an employee, an officer of the juridical person, or a national or local government employee (hereinafter referred to as “employee, etc.”) has obtained a patent for an invention which, by the nature of the said invention, falls within the scope of the business of the said employer, etc. and was achieved by an act(s) categorized as a present or past duty of the said employee, etc. performed for the employer, etc. (hereinafter referred to as “employee invention”) or where a successor to the right to obtain a patent for the employee invention has obtained a patent therefore, shall have a non-exclusive license on the said patent right. (2) In the case of an invention by an employee, etc., any provision in any agreement, employment regulation or any other stipulation providing in advance that the right to obtain a patent or that the patent rights for any invention made by an employee, etc. shall vest in the employer, etc., or that an exclusive license for the said invention shall be granted to the employer, etc., shall be null and void unless the said invention is an employee invention. (3) Where the employee, etc., in accordance with any agreement, employment regulation or any other stipulation, vests the right to obtain a patent or the patent right for an employee invention in the employer, etc., or grants an exclusive license therefore to the employer, etc., the said employee, etc. shall have the right to receive reasonable value. (4) Where an agreement, employment regulation or any other stipulation provides for the value provided in the preceding paragraph, the payment of value in accordance with the said provision(s) shall not be considered unreasonable in light of circumstances where a negotiation between the employer, etc. and the employee, etc. had taken place in order to set standards for the determination of the said value, the set standards had been disclosed, the opinions of the employee, etc. on the calculation of the amount of the value had been received and any other relevant circumstances. (5) Where no provision setting forth the value as provided in the preceding paragraph exists, or where it is recognized under the preceding paragraph that the amount of the value to be paid in accordance with the relevant provision(s) is unreasonable, the amount of the value under paragraph (3) shall be determined by taking into consideration the amount of profit to be received by the employer, etc. from the invention, the employer, etc.’s burden, contribution, and treatment of the employee, etc. and any other circumstances relating to the invention.”) (unofficial translation); *See also* Healy, *supra* note 18, at 394; Ying, *supra* note 80, at 773-75.

<sup>87</sup> Healy, *supra* note 18, at 388; Gesetz über Arbeitnehmererfindungen [German Law of Employee’s Inventions], July 25, 1957, Bgbl. I at 756 as last amended by Law December 22, 1997 (“Chapter 2, Section 12 Ascertaining or Fixing Compensation: (1) The nature and amount of compensation shall be established by agreement between the employer and the employee within a reasonable time after the claim to a service invention. (2) Where two or more employees have contributed to a service invention, compensation shall be determined separately for each of them. The employer must notify the employees of the total amount of compensation awarded and of the share assigned to each inventor. (3) Where no compensation agreement is concluded within a reasonable time after a claim to a service invention was made, the employer shall fix the amount of compensation, giving his reasons in writing to the employee, and shall pay in accordance with his settlement. For unlimited claims to a service invention, compensation must be fixed within three months from the grant of the industrial property protection; for limited claims, it must be fixed within three months from when the invention began to be used. (4) An employee who disagrees with the settlement may object thereto in writing within two months. If he does not object, the settlement shall be binding upon both parties. (5) Where two or more employees have contributed to the service invention, the settlement shall not bind any of them if one of them objects on the ground that his contribution to the service invention has been incorrectly determined. In this case, the employer may make a new compensation settlement for all parties. (6) Both the employer and the employee may require the other to consent to a different compensation arrangement, if a substantial change has occurred in the circumstances essential to ascertaining or fixing the compensation. A refund of compensation payments already received may not be requested. Subsections (1) to (5) shall not be applicable.”).

<sup>88</sup> Merges, *supra* note 5, at 43.

however, there are many detractors to these government run compulsory licenses.<sup>89</sup> The general language of the statutes and lack of specific definitions as to ‘reasonable remuneration’ leave many employee-inventors in limbo as to their rights in their inventions.<sup>90</sup> The parties’ freedom to contract is also totally replaced with the heavy hand of government intervention. In addition, arbitration boards introduce uncertainty into ownership of patent rights, which is something the patent law strives to discourage.

Because employer-defined compensation leaves power exclusively in the hands of the employer, the employee-inventor’s problems and the derivative social loss created call for external intervention. To preserve the free market structure, however, government intervention should be kept as minimally intrusive as possible.<sup>91</sup> The tradeoff between these two elements proposed by current solutions leaves something to be desired and thus a different solution is advised.

*B. A New Solution: Patent Reversion*

In response to the declining American patent balance, and to address the inequity in bargaining position held by the employee-inventor, a reversion of patent rights is proposed. Other solutions presented above have too many drawbacks.<sup>92</sup> Employer-defined compensation systems leave control in the hands of employers who routinely undercompensate employee-inventors. Compulsory licenses suffer from costly government intervention in the form of arbitration boards and uncertainty in the law. Additionally, none of these solutions specifically address the problem that employee-inventors are routinely undercompensated by an amount proportionate to their successful technological innovations. A delicate balance must be found in the form of regulation that more fairly compensates employee-inventors without being overbearing on employers. This section first reviews the reversion in copyright and then proposes that a similar reversion should be implemented in patent law.

*i. The Reversion in Copyright*

A reversion of ownership to the original author of a work has been in place in copyright law for over 220 years.<sup>93</sup> The 1976 Copyright Act<sup>94</sup> terminates transfers and licenses granted by the author for five years beginning thirty-five years after the date of

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<sup>89</sup> *Id.* at 43-44.

<sup>90</sup> *Id.*

<sup>91</sup> See LOUIS KAPLOW AND STEVEN SHAVELL, MICROECONOMICS 31 (2004).

<sup>92</sup> See the discussion on previously proposed solutions, *supra* notes 55-90 and accompanying text. Professor Merges’ factors argue against the implementation of all previously proposed solutions as well, *supra* notes 48-54 and accompanying text.

<sup>93</sup> Copyright Act of 1790. Originally, a copyright had a two-term renewal system in which the author could renew his exclusive use of a work. “Theoretically, the right of renewal gave the author or his statutory heirs a chance to renegotiate the terms of a license or transfer with the enhanced leverage of knowing the market valuation of the copyrighted work.” Adam R. Blankenheimer, *Of Rights and Men: The Re-Alienability of Termination of Transfer Rights in Penguin v. Steinbeck*, 24 BERKELEY TECH. L.J. 321, 325 (2009). Blankenheimer provides a great history of the copyright renewal and reversion system.

<sup>94</sup> 1976 Copyright Act; It has evolved into 17 U.S.C. § 203 (2002).

execution of the grant.<sup>95</sup> While this reversion is subject to conditions, “[t]ermination of the grant may be effected notwithstanding any agreement to the contrary.”<sup>96</sup> The effect of such a termination is that, “[u]pon the effective date of termination, all rights...that were covered by the terminated grants revert to the author.”<sup>97</sup> An author of a successful copyright may apply to have the assignment rights revert back to him so that he or his family may reap some of the rewards of the creation.<sup>98</sup> While the author is not entitled to the lifetime profits of his creation, this reversion allows some compensation to the author while allowing the employer to recoup investment costs and make a profit as well. The reversion in copyright takes effect thirty-five years after the original grant or, if the right of publication was included, the shorter of thirty-five years after the date of publication or forty years after the original grant.<sup>99</sup> As copyrights created after January 1, 1978 subsist for the life of the author plus seventy years after the author’s death, a reversion after thirty-five years of a grant gives the original author a significant opportunity to exploit their creative work.<sup>100</sup>

During the reversion, an author is free to renegotiate licenses on terms that more accurately reflect the market value of a copyrighted work. The negotiation process for licensing the reverted rights may actually start before the reversion: “[t]he future rights that will revert upon termination of the grant become vested on the date the notice of termination has been served.”<sup>101</sup> Coupled with the requirement that “notice shall be served not less than two or more than ten years before [the five year reversion period],”<sup>102</sup> a window to negotiate the reverted copyright is opened. This allows the author to assign the copyright reversion interest before the reversion actually takes place. The notice restriction also prevents an employer from requiring pre-assignment of copyrights as a condition to employment because the rights do not vest until notice is served.<sup>103</sup>

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<sup>95</sup> 17 U.S.C. § 203(a)(3) states in pertinent part, “Termination of the grant may be effected at any time during a period of five years beginning at the end of thirty-five years from the date of the execution of the grant[.]” *Id.*

<sup>96</sup> 17 U.S.C. § 203(a)(5). Some of the conditions to reversion are laid out in 17 U.S.C. § 203(a)(4): “The termination shall be effected by serving an advance notice in writing, signed by the number and proportion of owners of termination interests required under clauses (1) and (2) of this subsection.” *Id.* The House of Representatives Committee on the Judiciary noted the active steps required by the original author to enable the reversion as opposed to automatic reversion of the previous provision. *See* Notes of Comm. on the Judiciary, H.R. 94-1476.

<sup>97</sup> 17 U.S.C. § 203(b).

<sup>98</sup> *See* Blankenheimer, *supra* note 93, at 321. (“With the copyright back in hand and knowledge of its fair market worth, the author has a second opportunity to sell it for a price that better reflects the work’s value.”)

<sup>99</sup> *See* 17 U.S.C. § 203(a)(3).

<sup>100</sup> 17 U.S.C. §§ 203(b)(6) & 302(a).

<sup>101</sup> 17 U.S.C. § 203(b)(2).

<sup>102</sup> 17 U.S.C. § 203(a)(4)(A).

<sup>103</sup> *See* 17 U.S.C. § 203(a)(5). While there could be a Constitutional question over the inability of an author to transfer or assign a reversion, the Supreme Court has held that the reversion is an, “inalienable authorial right.” *New York Times Co., Inc. v. Tasini*, 533 U.S. 438, 496 n.3 (2001); *Accord* *Stewart v. Abend*, 495 U.S. 207, 230 (1990).

## PATENT REVERSION

The copyright reversion was created to give an author a second bite at the apple.<sup>104</sup> It addresses the unequal bargaining position employers have in relation to employee-authors by statutorily trumping any pre-assignment contracts for a definite period of time.<sup>105</sup> When a work is created, neither the author nor the employer can accurately predict the value of such a work over its lifetime.<sup>106</sup> Because of these factors, authors routinely assign their copyrights for a fraction of their actual worth.<sup>107</sup> The House of Representatives Committee on the Judiciary noted its reasoning for a reversion:

A provision of this sort is needed because of the unequal bargaining position of the authors, resulting in part from the impossibility of determining a work's value until it has been exploited. Section 203 reflects a practical compromise that will further the objectives of the copyright law while recognizing the problems and legitimate needs of all interests involved.<sup>108</sup>

This underlies the problems of pre-assignment contracts: the employer has an overwhelmingly favorable bargaining position and the value of any creation is unknown until it is commercially exploited.<sup>109</sup> Congress believed that market forces were ineffective against these factors and implemented the hard paternalism of a copyright reversion in response.

As could be expected, the copyright reversion was strongly resisted by entities that employ authors such as publishers, producers, and movie studios.<sup>110</sup> They argued that since authors assumed none of the risk or financial burden required to exploit a copyrighted work, the profits should go to the publishers and producers who do.<sup>111</sup> Employers also argued that a statutorily defined reversion would interfere with the party's freedom of contract.<sup>112</sup> Despite these arguments, Congress chose to pass a reversion in copyright law because of the inequalities implicit on authors in the status quo.

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<sup>104</sup> See Stephen W. Tropp, *It Had to Be Murder or It Will Be Soon- 17 U.S.C. § 203 Termination of Transfers: A Call for Legislative Reform*, 51 J. COPYRIGHT SOC'Y U.S.A. 797, 799-800 (2004) ("The renewal term of copyright is the law's second chance to the author and his family to profit from his mental labors."); *id.* at 802-03 ("The goal of the reversion in this area was to protect that artist and to correct the problem, which, according to both the House and Senate reports, derived from both the artist's unique unequal bargaining power, and the inability to accurately determine the value of a work at the time of assignment."). The exact origin of the phrase 'second bite at the apple' or 'second bite of the apple' is unclear: As of March 2010, Westlaw has 3,839 state and federal cases that used the phrase.

<sup>105</sup> *Id.* at 806. ("Because most authors are in no position to insist on favorable conditions at the time they transfer their rights, and because the profit potential of a work is generally unknown at that time, the right to renegotiate their assignment is essential to author's interests."); see also Matthew R. Harris, *Copyright, Computer Software, and Work Made For Hire*, 89 MICH. L. REV. 661, 686 (1990).

<sup>106</sup> Tropp, *supra* note 103, at 799-800. ("Authors frequently assign their copyrights for sums which have no relation to the true monetary value of the work if it should be successful.")

<sup>107</sup> See *id.*

<sup>108</sup> Notes of Comm. on the Judiciary, H.R. 94-1476, *supra* note 96.

<sup>109</sup> See Tropp, *supra* note 103, at 806 ("[B]ecause most authors are in no position to insist on favorable conditions at the time they transfer their rights, and because the profit potential of a work is generally unknown at that time, the right to renegotiate their assignment is essential to author's interests.")

<sup>110</sup> See *id.*

<sup>111</sup> See *id.*

<sup>112</sup> See *id.*

While the reversion in copyright is beneficial to authors, it is severely limited by its inapplicability to works made for hire.<sup>113</sup> Section 101 of the Copyright Act defines a work made for hire as “(1) a work prepared by an employee within the scope of his or her employment or (2) a work specially ordered or commissioned.”<sup>114</sup> Because a work made for hire is statutorily defined to be the property of the employer or commissioner of the work, a reversion does not apply. Another problem that concerned the copyright community was reversion to authors of joint works.<sup>115</sup> Copyright law defines a joint work as, “a work prepared by two or more authors with the *intention* that their contributions be merged into inseparable or independent parts of a unitary whole.”<sup>116</sup> Basing joint authorship on the intention of the authors instead of something more definite opens the door to the possibility of subsequent abuse. Similarly, financially successful works can create disharmony among authors of a joint work in terms of licensing decisions. An accounting is due to all joint authors from any profits earned from exploiting a work.<sup>117</sup> A joint author of a work has an individual right to exploit the work or grant a nonexclusive license,<sup>118</sup> but an exclusive license requires the consent of all joint authors.<sup>119</sup> Because all authors must approve, an exclusive license may be extremely hard to bargain for with joint authors.<sup>120</sup> Without the consent of all authors, a license cannot be exclusive and is thus not as valuable to a potential licensee. All of these problems in copyright joint works have created a rich tapestry of common law which should be used as an example for defining a patent law reversion.<sup>121</sup>

Employers were also very concerned with the assignment rights associated with derivative works. A derivative work is, “based upon one or more preexisting works in any...form that may be recast, transformed, or adapted.”<sup>122</sup> If ownership of a copyrighted material reverted back to the original author, publishers and producers were concerned that the author may be able to block use of these derivative works during the reversion. Congress addressed this issue by including in the statute the following: “[a] derivative work prepared under authority of the grant before its termination may continue to be utilized under the terms of the grant after its termination, but this privilege does not extend to the preparation after the termination of other derivative works based upon the

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<sup>113</sup> 17 U.S.C. § 203(a).

<sup>114</sup> 17 U.S.C. § 101.

<sup>115</sup> See Harris, *supra* note 104, at 689. In the case of a successful work, it was also feared that more parties would come out of the woodwork and contend they were joint authors, but such a charge seems better suited to joint authorship law than the copyright reversion.

<sup>116</sup> 17 U.S.C. § 101 (2005) (emphasis added).

<sup>117</sup> 17 U.S.C. § 201 (1976); see also Notes of Comm. on the Judiciary, H.R. 94-1476, *supra* note 96. (“There is also no need for a specific statutory provision concerning the rights and duties of the co-owners of a work; court-made law on this point is left undisturbed. Under the bill, as under the present law, co-owners of a copyright would be treated generally as tenants in common, with each co-owner having an independent right to use or license the use of a work, subject to a duty of accounting to the other co-owners for any profits.”).

<sup>118</sup> *Community for Creative Non-Violence v. Reid*, 846 F.2d 1485, 1498 (D.C. Cir. 1988), *aff’d* by 490 U.S. 730 (1989).

<sup>119</sup> 17 U.S.C. § 204(a) (1976).

<sup>120</sup> See Harris, *supra* note 104, at 691.

<sup>121</sup> As discussed *infra*, notes 165-70 and accompanying text, the intention of the inventors is not a factor in defining joint works and thus many of these problems are not present in patent law.

<sup>122</sup> 17 U.S.C. § 101.

copyrighted work.”<sup>123</sup> This allows employers to continue to exploit derivative works without infringing the reverted copyright.

ii. A Patent Reversion

1. Structure of a Joint Reversion

Applying logic similar to that underlying the reversion in copyright law, the creation of a reversion of patent rights is proposed.<sup>124</sup> In this system, the patent rights assigned to the original employer revert to the original inventor in joint ownership with the employer-assignee toward the end of the patent term.<sup>125</sup> Such a reversion should increase American innovation and help rectify the current patent imbalance by giving back to inventors the incentive to create.

Under the proposed reversion, an inventor would be given a statutorily defined right to have a patented invention revert to joint ownership for the last two years of patent exclusivity.<sup>126</sup> The amount of time chosen for the reversion should be small enough to allow employers to make a return on their investment but long enough to allow employee-inventors a chance to financially appreciate the contribution their invention has made to society.<sup>127</sup> The reversion should also occur at the end of the patent’s term. This would allow both parties to know the value of the patent with precision by measuring sales of products that incorporate the invention, market share, and other financial data.

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<sup>123</sup> 17 U.S.C. § 203(b)(1). The notes of the House Committee on the Judiciary succinctly explained an example, “a film made from a play could continue to be licensed for performance after the motion picture contract had been terminated [by § 203] but any remake rights covered by the contract would be cut off.” Notes of Comm. on the Judiciary, H.R. 94-1476, *supra* note 96.

<sup>124</sup> While the similarities between inventors and authors are great, the differences between the two groups cannot be ignored. First, the originality requirement for copyrights and the nonobviousness requirement for patents are two separate standards. Patents build on one another, while copyrights usually do not (derivative works in copyrights and patents are discussed *infra*). Second, the inventions of a particular patent employed by a product are not as easily identifiable compared to copyrighted works. In other words, it may be very difficult to tell if a certain patent is used in a certain product without expensive and time consuming infringement analysis. With products that may use hundreds or thousands of patents, it may be near impossible to discern which patents could be infringed and which are not. The practical implications of these differences are discussed *infra*.

<sup>125</sup> To avoid the problem of distinguishing between an employee and an independent contractor, patent rights assigned to an assignee should revert to the original inventor regardless of the existence of an employment relationship between the parties.

<sup>126</sup> 35 U.S.C. § 154(a)(2) (2002) grants the holder of a patent twenty years of exclusive use. As discussed *infra*, the two year term of patent reversion may be too long in the eyes of the employer who owns the patent rights as based on the economics of their business model. If true, a shorter time period of patent reversion, such as one year, may be more appropriate. Without economic data, however, a two year window of reversion is proposed.

<sup>127</sup> An argument could be made that a patent is least valuable at the end of its life and thus even a two year reversion at the end of patent exclusivity would undercompensate an inventor. First, a limited reversion is the smallest paternalistic intrusion of the government into parties’ freedom of contract compared to a compulsory license or arbitration boards. Second, even a two year reversion is more compensation than no reversion at all. Refer to the discussion on industry specific problems with defining the correct term for reversion from the employer’s point of view, *infra* notes 175-76 and accompanying text. Third, a patent is usually most valuable to its owner. During the last part of the patent’s life, the research and development costs have usually been paid off and all royalty or production income based on the patent is pure profit.

Such a patent reversion would efficiently and effectively address the inequalities inherent in pre-assignment contracts currently in use by employers while trumping the ambiguities in common law assignment of patent rights.<sup>128</sup> Such a patent reversion would also compensate an employee-inventor by an amount directly proportional to their successful technological innovations.

The proposed patent reversion creates joint ownership of the patent in the original inventor and the employer. 35 U.S.C. § 262 states, “each of the joint owners of a patent may make, use, offer to sell, or sell the patented invention within the United States, without the consent of and without accounting to the other owners.”<sup>129</sup> This right is granted separately to each co-inventor which “allows co-owners to freely license others to exploit the patent without consent of other co-owners.”<sup>130</sup> While joint ownership of the reverted rights creates issues regarding licensing and infringement, it provides a solution to the undercompensation of employee-inventors without totally cutting out the employer as an exclusive reversion would. In this sense, a joint ownership patent reversion requires both parties to work together to fully exploit the value of the patent during the reversion period.

The employer has two concerns regarding the reversion: continued use of the patent by itself and use by third parties including the new joint owner. Because it remains a joint owner of the patent, the employer may continue to exploit the technology without fear of being sued for infringement. Therefore, there are no interruptions in production or manufacturing because ownership remains with the employer. In regard to use of the patent by third parties, the employer has three options. First, the employer can do nothing and allow the original inventor, who now is a joint owner, to license the patent. Second, the employer can work together with the original inventor in licensing the patent technology to third parties. Finally, the employer can buy the patent rights that reverted to the original inventor and continue to exclusively exploit the technology as it sees fit. While it may appear unnatural for an employee to negotiate with his employer over patent rights, this is no different than an employee’s negotiation over salary or benefits. Additionally, when combined with these other forms of compensation, an employer may be able to better determine an employee’s worth to the company based on the quality of inventive output. Ultimately, this is a problem that the market for the patent will decide based on the value of the technology at the time.

The potential situations in which joint ownership will pose a problem, however, are relatively small. In actual application, if a patent is valuable to an employer at the

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<sup>128</sup> As discussed above, the reversion in copyright law does not apply to works made for hire, which significantly restricts its application and usefulness. In order to address the inequalities in bargaining power between the employer and employee-inventor, the proposed patent reversion would apply to inventions created by employee-inventors within the scope of their employment. Therefore, while similar in theory to the reversion in copyright, the proposed patent reversion would be vastly different in its underlying rationale and in practice.

<sup>129</sup> 35 U.S.C. § 262 (1994).

<sup>130</sup> *Ethicon*, *supra* note 166, at 1468 (Fed. Cir. 1998) (quoting *Schering Corp. v. Roussel-UCLAF SA*, 104 F.3d 341, 344 (Fed. Cir. 1997)); *Tavory v. NTP, Inc.*, 297 Fed.Appx. 976, 982-83 (Fed. Cir. 2008) (“[A]ny of the co-owners of the patents-in-suit may license the patents-in-suit without obtaining the approval of, or accounting to, the other co-owners.”).

time of reversion—which is eighteen years after the filing of the patent application—it is because the employer has been exploiting the invention economically. Therefore, if a patent is still valuable to the employer, the employer has a large incentive to buy out the rights in the patent of the original inventor after the reversion occurs. This scenario is the anticipated conclusion of the majority of patent reversions.<sup>131</sup>

Licensing of a jointly owned invention creates problems for the licensee, licensor, and the other joint owners of the patent. “Each individual [owner] may only assign the interest he or she holds; thus, assignment by one joint [owner] renders the assignee a partial assignee. A partial assignee likewise may only assign the interest it holds; thus, assignment by a partial assignee renders a subsequent assignee a partial assignee.”<sup>132</sup> Without a license offer from all joint inventors, a patent is not worth as much to a prospective licensee.<sup>133</sup> On the other hand, if the co-inventors work together, or if one joint owner buys out the other, the monopoly remains intact that allows control of the technology by the joint owners for the remaining two years of the patent’s life. This puts the joint inventors in an advantageous economic bargaining position for negotiating the terms of a license if they work together. Therefore, there is an incentive for co-owners to band together and exclusively license their patent or for one joint owner to buy out the other.

While joint ownership allows for separate economic exploitation through licensing, enforcement of the patent in the form of litigation requires all joint owners to join the suit.<sup>134</sup> “Absent the voluntary joinder of all co-owners of a patent, a co-owner acting alone will lack standing [to sue for infringement].”<sup>135</sup> This creates a problem only if the joint owners do not work together, which again creates an incentive for one joint owner to buy out the other or for them to work together.

Similar to copyright law, a patent reversion would be available “notwithstanding any agreement to the contrary.”<sup>136</sup> Therefore, a patent would revert to the original inventor in joint ownership with the employer and override pre-assignment of patent rights to the employer. This would more fairly compensate an employee-inventor for his contribution by giving him a second bite at the apple.<sup>137</sup> It would also minimize the financial burden placed on the employer by limiting the scope of the reversion. By

<sup>131</sup> The economically logical outcome may not hold up for a variety of reasons including unreasonable or illogical demands made by the employer, greater economic feasibility of infringing the patent and fighting the patent rights, or alternate technology.

<sup>132</sup> MPEP § 301 IV.

<sup>133</sup> Joseph Yang, *Patent and Technology Licensing*, 995 PLI/Pat 75 2 (“A savvy third party will play the joint owners off against each other, to get the sweetest deal. Conversely, if one joint owner wants to sue (rather than license), any other joint owner can cut off the suit by refusing to join or by granting a license.”).

<sup>134</sup> *Israel Bio-Eng’g Project v. Amgen, Inc.*, 475 F.3d 1256, 1264 (Fed. Cir. 2007) (“Where one co-owner possesses an undivided part of the entire patent, that joint owner must join all the other co-owners to establish standing.”) (internal citations omitted); see Joseph Yang, *Patent and Technology Licensing*, 995 PLI/Pat 75 2 (2010) (“Further, the exploiting joint owner has no duty to share royalties with any other joint owner, Conversely, to enforce the patent, all the joint owners must join the suit.”).

<sup>135</sup> *Israel Bio-Eng’g Project*, 475 F.3d at 1264-65.

<sup>136</sup> 17 U.S.C. § 203(a)(4).

<sup>137</sup> See Bartow, *supra* note 9, at 693.

reviving an incentive to employee-inventors to invent, society is reaffirming its dedication to the individual inventor's role in technological progress.

Before the reversion could occur, advance notice of intent to have a reversion would need to be served on the employer and the USPTO and upon serving the notice, the future reversion rights would vest with the employee-inventor.<sup>138</sup> The timeframe for serving the notice should be enough to give the employer time to negotiate to retain the exclusive right to exploit the patent from the original inventor or make contingency plans. This could be accomplished in a notice period ranging from six to twelve months.<sup>139</sup> This notice period, before the reversion took effect, would also allow the employee-inventor to negotiate licenses of the future vested rights. Requiring notice gives both parties an opportunity before the reversion to decide what is in their best financial interests and pursue that end without a lapse in production. It also would prevent employers from requiring pre-assignment of patent reversion rights as a condition of employment because those rights would not vest until notice was served.<sup>140</sup>

In addition to creating a reversion interest in the patent for the employee-inventor, an incentive for the employer to buy out the interest of the employee-inventor could be created in the form of a tax break. The Internal Revenue Service applies 26 U.S.C. § 1235 to the transfer of a patent, which in pertinent part provides:

A transfer (other than by gift, inheritance, or devise) of property consisting of all substantial rights to a patent, or an undivided interest therein which includes a part of all such rights, by any holder shall be considered the sale or exchange of a capital asset held for more than 1 year.<sup>141</sup>

This means that in the sale of a patent held for more than one year, the transferor's income is taxed as capital gains and the transferee must amortize the cost over time. In the case of a patent reversion, a change to the tax code could allow the transferee-employer to elect to treat the cost of buying the reversion interest of the employee-inventor as an ordinary business expense and deduct the entire amount from its taxable income for that year. This in itself could be of great benefit to the employer as the cost of buying the employee-inventor's reversionary interest in the patent could be offset by the tax treatment.

## 2. Benefits of a Reversion

Employers would benefit from a patent reversion as well as employees. In addition to the proposed tax benefits, better compensation for inventions will encourage more employees to become inventors. In turn, this incentive will also encourage more of the top students to become the scientists and engineers of tomorrow. More inventors mean increased invention quality and quantity—which translates to increased employer profits. An increase in the number of patents filed may save research and development

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<sup>138</sup> Cf. 17 U.S.C. § 203(b)(2).

<sup>139</sup> Compare this to the notice required in copyright, discussed *supra* notes 100-102 and accompanying text.

<sup>140</sup> Cf. 17 U.S.C. § 203(a)(5).

<sup>141</sup> 26 U.S.C. § 1235(a) (1998).

expenses as more innovation will be available in the public domain.<sup>142</sup> A reversion may also increase employee loyalty because derivative products may be easier to develop and exploit with one employer.<sup>143</sup> If an employer makes more products based on an employee-inventor's patent, the patent itself becomes more valuable when the time comes to negotiate a license during reversion. Therefore, a patent reversion more closely aligns an employer's profits to the future profits of the employee-inventor to whom the patent will revert.<sup>144</sup> Such regulation is the best solution because the employer and employee-inventor relationship is not a zero-sum game: both parties benefit from a patent reversion.<sup>145</sup>

A patent reversion also solves many of the problems associated with the inequalities present in the current employee-inventor context. The four Merges categorical concerns for keeping the employee-inventor status quo—strategic bargaining analysis, team production theory, principal-agent theory, and common sense analysis—operate favorably through the implementation of a patent reversion.<sup>146</sup> While a patent reversion does give an employee-inventor a property right, that right is only asserted at the end of the term of exclusivity. Because this property right is never shared between the two entities, the tragedy of the anti-commons theory of split ownership does not come into play.<sup>147</sup> The employer has eighteen years from the date of filing to exclusively exploit the patent and make a profit before the employee-inventor's second chance. By partially transferring the patent rights associated with an invention back to the original inventors, an employer is free from creating a method to compensate individuals for their contribution to an invention: an inventor's compensation is based on their own ability to license the patent during the reversion.<sup>148</sup>

The fear of employee-inventors reallocating their time toward personal invention is partially mitigated by the fact that both the employer and the employee benefit by increased sales of current products based on the employee-inventor's patent. Thus, an employee-inventor has a vested interest in ensuring his employer's bottom line remains

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<sup>142</sup> The savings in research and development money may be partially offset by increased licensing costs.

<sup>143</sup> An employee who patents an invention may want to stay with the same employer in order to maximize the commercial exploitation of the original idea and its derivatives so that when the patent rights revert back to the employee he has a larger portfolio of products to negotiate over.

<sup>144</sup> This is the same effect the grant of stock options has on an employee as discussed *supra* note 14.

<sup>145</sup> One party does not have to lose for the other to win: they can both win with a patent reversion. The employer benefits from the increased quality and quantity of inventions under their control which boosts their profits. The employee-inventor benefits from the increased compensation for successful inventions.

<sup>146</sup> Merges, *supra* note 5, at 2-3.

<sup>147</sup> See Heller, *supra* note 49, at 645. An anti-commons occurs when rights, such as property rights, are split among a group of people with different interests. If any one of the rights holders wants to act, it requires the unanimous agreement of the group. In practice, such agreement almost never occurs and thus the common property is left undeveloped and never used. An example of this is what occurred in post-communist Russia. The government, in an attempt to fairly disperse what had been communal property, issued joint property rights in buildings and shops to individuals. Because the property rights holders could not come to an agreement on the use of the shops, the shops remained empty while street vendors lined the streets just outside. See *id.*

<sup>148</sup> The scope of inventorship, most commonly seen as disputes in joint authorship in copyright, is not as large of a concern in patent law and is discussed *infra* notes 167-72 and accompanying text.

strong now and into the future.<sup>149</sup> Lastly, the high cost of bringing a successful product to market, including research and development of failed inventions, will always be present in technologically advanced fields. A patent reversion, however, only impacts an employer's last two years of exclusivity, long after costs should have been recouped and a tidy profit made.<sup>150</sup> In addition, a patent reversion leaves the door open for the employer to bargain for an exclusive license of the employee-inventor rights and continue making money during this time.

### 3. Practical Considerations

The practical arguments against a patent reversion require examination as well. While many have been brought up in the copyright domain, these detractions are just as apropos when applied to a patent reversion. First, a patent reversion could be seen as paternal interference with the parties' freedom to contract.<sup>151</sup> The majority of employee-inventors, however, are required to sign pre-assignment agreements as prerequisites to employment.<sup>152</sup> Thus, the relationship between the parties does not truly allow both parties to freely negotiate their contract terms in the first place. While close scrutiny should be given to such a hard paternalistic intervention by the government, the unequal bargaining power of the employee-inventor and the adhesion-like pre-assignment contracts indicate a failure of the employment market, and public policy calls for some regulation or intervention.<sup>153</sup> By limiting the scope of the reversion, the inequality in the bargaining power of the employee-inventor is reduced while not over-empowering him at the same time: both of the parties are on more equal footing from the beginning of their relationship. Compared to other suggested systems to correct this imbalance, a patent reversion would be relatively more efficient and easier to implement as well.<sup>154</sup>

Second, the cost of doing business in high-tech areas could increase due to licensing costs of reverted patents or, in extreme cases, a type of holdup by the employee-inventor. Businesses whose income depends on patented technology may find themselves unable to retain exclusive use of what used to be their own patents. Friction

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<sup>149</sup> This is comparable to the effect that stock options would have on an employee-inventor. With a patent reversion, as opposed to stock options, however, the control of the compensation system is taken out of the hands of the employer.

<sup>150</sup> The timeframe on an employer's return on investment may be industry specific and is discussed *infra* notes 173-78 and accompanying text.

<sup>151</sup> Such a statutorily mandated interference with the freedom to contract could be a huge detriment to the parties' ability to negotiate the labor market for research and development. Compared to the compulsory licensing arrangements of Japan and Germany, *supra* notes 86-90 and accompanying text, a patent reversion is much less paternalistic and allows the parties to negotiate adequate compensation for inventions.

<sup>152</sup> Parker, *supra* note 2, at 608. This is also based on personal experience and discussions with other scientists and engineers while working in the technology industry.

<sup>153</sup> Dratler, *supra* note 7, at 145. In comparison to other forms of government intervention, a one-and-done regulation such as a patent reversion would be minimally invasive and would require relatively little continuing intrusion or oversight.

<sup>154</sup> *Cf.* Japanese Patent Law, *supra* note 86; German Patent Law, *supra* note 87. A patent reversion is designed to address the heart of the problem: inequality in the bargaining position of the employee-inventor. By directly dealing with the underlying inequality, a patent reversion is a cures the disease and not just the symptoms.

or secrecy between an employee-inventor negotiating with an employer may lead to inefficient production and loss of profits.<sup>155</sup> In the worst case scenario, the employee-inventor could license the patent to a competitor of his employer at a reduced cost. But this parade of horrors overlooks the symbiotic relationship between employer and employee-inventor. “The employer may have several natural advantages over competitors in bargaining for an exclusive license,” such as familiarity with the invention and its worth.<sup>156</sup> Realistically, the employer and employee-inventor have a codependent economic incentive to work together in the exploitation of a product.<sup>157</sup> The value of the patent in the reversion period is tied to the employer’s profits both before and after the reversion: the more money the employer makes the more money the employee-inventor will make during the reversion by licensing his patent.<sup>158</sup>

The largest practical problem with a patent reversion is a type of employee holdup in relicensing the patent.<sup>159</sup> While an employer would retain joint rights to the patent during the reversion period, an inventor could hold up the employer from retaining exclusive rights to exploit the patent by licensing the technology to a competitor. If an employee does not act rationally in bargaining for licenses of his reverted patent, the employer could lose out on the investment it had made in production of the invention. The cost of relicensing the patent during the reversion may be overstated, however, because the employer would probably be in the best financial position to offer the largest

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<sup>155</sup> See Parker, *supra* note 2, at 628; Catherine L. Fisk, *Credit Where It’s Due: The Law and Norms of Attribution*, 95 GEO. L.J. 49, 110-11 (2006); H.R. 3286, 98th Cong. 1st Sess. (1983) Exhibit C(3) (“If the invention is related to the employer’s business known to the employee, it is essential that the employment agreement be permitted to cover it irrespective of whether the employee enjoys a special position of trust, etc. In many corporations the research scientists and development engineers will be familiar with aspects of the employer’s business on which they may not be working any given time but as to which they may make an invention because of their knowledge of the internal corporate efforts. To prevent the employer from acquiring such inventions would force the corporations to limit the in-house flow of information to the obvious detriment of the overall industrial system. The employer who is paying for the full time effort and loyalty of its employees should be entitled to assignment of their business related inventions, otherwise there could be serious conflicts of interest between the employees and employer.”).

<sup>156</sup> Dratler, *supra* note 7, at 197 (“The employer is familiar with the inventor, the process of development, and the field of technology to which the invention relates, so it can better estimate the impact of the innovation and its economic worth and more efficiently develop it. Furthermore, the invention may relate to products in a market dominated by the employer, so the employer may be able to profit more from it than competitors and thus offer the inventor better terms. Indeed, technology is so specialized today that a particular employer may be the only firm which can in practice make use of an invention.”).

<sup>157</sup> See Parker, *supra* note 2, at 628.

<sup>158</sup> While this article assumes that the employee-inventor still works for the original employer, the same logic and rationale behind the reversion applies if the employee-inventor changes employers or if the employer sells its rights to the patent before the reversion. The employee-inventor will have an incentive to license the patent during the reversion to the owner of the patent at the time immediately before the reversion begins.

<sup>159</sup> See Merges, *supra* note 5, at 12 (“Holdups are common in the intellectual property context because discrete intellectual property rights often cover individual components of a complex, multicomponent product....Many employee inventions fit this pattern: they are one component of a complex, multicomponent product whose total market value often exceeds the value of the component standing alone. As a result, the associated patents could serve as the basis of a holdup strategy if the patents were owned by individual employees....[T]he ex ante consequence might be underinvestment in R&D.”). Strategic bargaining analysis, of which holdup is a subcategory, was touched upon *supra* notes 141-43 and accompanying text.

licensing fee to the employee-inventor.<sup>160</sup> With manufacturing infrastructure and resources already in place and the value of the patent clearly defined from eighteen years of sales, the original employer-assignee could set the market for the patent. At the same time, because the employer retains joint ownership rights in the patent, the employer will not offer to license the patent from the employee for an amount that will cause it to lose money during the reversion, so both the employer and employee-inventor should benefit. While a holdup is theoretically possible, it is not economically practical for either party and therefore is improbable.<sup>161</sup>

Employers have also argued that an employee-inventor risks none of his own money, pays none of the prosecution fees, and shares none of the losses associated with an employer's unsuccessful inventions.<sup>162</sup> But for the employer's resources, an employer may argue, the employee would never have invented.<sup>163</sup> "Recognizing the valuable resources that employers invest in an inventive employee's creative talent, it is still an employee's genius that coalesces concepts into inventions."<sup>164</sup> This one-sided viewpoint, however, overlooks the risks taken by the employee-inventors.<sup>165</sup> Novel inventions are not made by an assembly line, and inventors usually spend a considerable amount of personal time and resources conceiving of and developing their ideas.<sup>166</sup> These hypothetical fears may also be assuaged through the dual temporal limits on the proposed patent reversion: a patent would revert back to the original inventor only for two years and only after eighteen years at the end of patent exclusivity.<sup>167</sup>

Third, the reallocation of patent rights could create a massive drain of administrative and judicial resources. While notice papers would have to be filed and records kept of all inventors and assignees of patents, similar functions are already performed by the USPTO.<sup>168</sup> Another employee or someone else could also claim that

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<sup>160</sup> *Accord* Dratler, *supra* note 7, at 187.

<sup>161</sup> Theoretically, a holdup could occur in situations of employee-inventor spite or economically illogical behavior, but for the purposes of this article, it is assumed that the employee-inventor behaves as a rational actor in the relicensing of his reverted patent. Additionally, because holdup is a concern, the patent reversion is limited temporally in two ways: (1) it is only two years, which represents only 10% of the total patent's life, and (2) it only comes into effect at the end of the patent term, which is eighteen years after filing.

<sup>162</sup> Parker, *supra* note 2, at 626.

<sup>163</sup> Marc B. Hershovitz, *Unhitching the Trailer Clause: The Rights of Inventive Employees and Their Employers*, 3 J. INTELL. PROP. L. 187, 191 (1995); H.R. 3286, 98th Cong. 1st Sess. (1983) Exhibit C (4) ("If the employee makes substantial use of the employer's time, materials, facilities of [sic, or] funds, the employer should be entitled to the resulting invention. In this circumstance the employer has made everything possible. It not only paid the employee a salary; it also has given him the tools to make the invention; and it should benefit accordingly.").

<sup>164</sup> Hershovitz at 190.

<sup>165</sup> *See* Parker, *supra* note 2, at 627.

<sup>166</sup> Dratler, *supra* note 7, at 170; Bartow, *supra* note 9, at 674 ("The role of employee-inventors within their employing entities and within society is unique....A corporation cannot just build a laboratory, stock it with equipment, hire individuals proficient in the applicable technology and expect patentable inventions to be methodically produced.").

<sup>167</sup> *See supra* notes 10-14 and accompanying text.

<sup>168</sup> USPTO website, [www.uspto.gov](http://www.uspto.gov) (last visited March 6, 2010). The online Patent Application Information Retrieval ("PAIR") system allows users to view the status of patent application and the file history wrappers of issued patents including inventors, assignees, and all filings involved in prosecuting a

they participated in the conception of a successful invention.<sup>169</sup> Unlike copyright law, however, who is and who is not an inventor is more clearly defined both statutorily and in case law.<sup>170</sup> False claims of joint invention post-application may increase, but would not pose as large a problem.<sup>171</sup> The inventor of a patent is required to sign an oath stating that he is the correct inventor, and his name is then put on the patent application and later the patent.<sup>172</sup> The Federal Circuit defined what is required to be listed as a joint inventor:

he or she [must] (1) contribute in some significant manner to the conception or reduction to practice of the invention, (2) make a contribution to the claimed invention that is not insignificant in quality, when that contribution is measured against the dimension of the full invention, and (3) do more than merely explain to the real inventors well known concepts and/or the current state of the art.<sup>173</sup>

If the inventorship of an invention is contested, The Manual of Patent Examining Procedure (“MPEP”) § 1412.04 states that reissue is the vehicle for such a correction.<sup>174</sup> If reissue is unavailable, a court may add an omitted co-inventor to an issued patent.<sup>175</sup>

One problem that could arise is the employer changing who is listed as an inventor after the patent has issued and been assigned. Interestingly, “the [employer]-assignee of the entire interest [in a patent] can file a reissue to change the inventorship to one which the [employer]-assignee believes to be correct, *even though an [employee]-inventor might disagree.*”<sup>176</sup> This could allow some chicanery by employers, but MPEP § 1412.04 goes on to state that if an inventor has an ownership right in the patent, the inventorship may not be changed without the inventor’s consent.<sup>177</sup> Presumably, a patent reversion would qualify as such a property right. This language would seem to protect the inventor from post-assignment loss of rights.

patent. 35 U.S.C. § 261 (1982) requires all assignments to be made in writing and recorded with the United States Patent and Trademark Office within three months from the purchase.

<sup>169</sup> *Hess v. Advanced Cardiovascular Systems, Inc.*, 106 F.3d 976, 980 (Fed. Cir. 1997) (“[T]here is an equally strong temptation for persons who consulted with the inventor and provided him with materials and advice, to reconstruct, so as to further their own position, the extent of their contribution to the conception of the invention.”).

<sup>170</sup> *Cf.* 17 U.S.C. § 101; 35 U.S.C. § 116 (2002).

<sup>171</sup> 35 U.S.C. § 116 states, “When an invention is made by two or more persons jointly, they shall apply for patent jointly and each make the required oath[.]” 35 U.S.C. § 116 (2002). *Ethicon*, 135 F.3d at 1461 (“To show inventorship...the alleged co-inventor or co-inventors must prove their contribution to the conception of the claims by clear and convincing evidence.”).

<sup>172</sup> 35 U.S.C. § 115 (1998) (“The applicant shall make oath that he believes himself to be the original and first inventor of the [invention] for which he solicits a patent.”). 37 CFR § 1.63(a)(4) (2007) further requires that the inventor’s oath must, “state that the person making the oath or declaration believes the named inventor or inventors to be the original and first inventor or inventors of the subject matter which is claimed and for which a patent is sought.” *See* MPEP § 602 (2007) for more details on the oath.

<sup>173</sup> *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1351 (Fed. Cir. 1998).

<sup>174</sup> MPEP § 1412.04 II (2007). Reissue is an administrative process involving the USPTO in which a patent is issued again with substantive changes to the invention. The MPEP, while not mandatory authority, is very persuasive as the administrative guidelines used by the USPTO in patent prosecution and examination.

<sup>175</sup> 35 U.S.C. § 256 (2002).

<sup>176</sup> MPEP § 1412.04 II (emphasis added), *supra* note 169.

<sup>177</sup> *Id.* (referencing 37 CFR § 1.172(a) (2000)).

The next factor that would have to be considered is that business profitability timelines are nonlinear and extremely industry specific. A two year patent reversion assumes that an employer can recoup research and development costs and make a profit within the first eighteen years of patent exclusivity. But the recovery of these costs is not spread evenly over the exclusivity period. In some industries, only in the last few years do companies break even. For example, the pharmaceutical industry spends about \$800 million in development and marketing costs on each successful drug.<sup>178</sup> However, the first several years after patenting, a drug may actually lose money for a company as it looks to gear up for manufacturing, secure capital loans, and begin marketing campaigns.<sup>179</sup> Placing the reversion period at the wrong point in time could totally eliminate the profitability in creating new drugs which would stymie medical research and have a cooling effect on the entire health industry. The solution may be to carve out specific exceptions to the patent reversion for pharmaceuticals or other industries that can show a need for longer patent exclusivity based on economic analysis.<sup>180</sup> On the other hand, a patent reversion may force industries to become more efficient and lean in their pre-production stages of development as they would have an increased incentive to exploit technology early and often in the face of a reduced exclusive patent ownership period. In either case, more research may be needed before a one-size-fits-all reversion is put into place.<sup>181</sup>

Similarly, in many industries such as software, a large percentage of patents may not be very valuable after eighteen years. In many or most cases, it may not be worth the employee-inventor's time and money to secure the reversion rights. Because the value of the patent is not known until it has been exploited in the marketplace, only those inventions that are significantly lucrative would be subject to an employee exercise of his or her reversion right in practice. But, when an invention is worth enough money, and thus it is more just to compensate the original employee-inventor, the reversion will be exercised. This makes the proposed patent reversion more employer friendly because only successful patents will need to be relicensed.

The ownership of derivative inventions, those inventions that are based on improvements to an underlying patent, could also be an area of concern for employers.<sup>182</sup> While it is clear that the patent itself would revert to joint ownership by the employer and employee-inventor, the employer has presumably made products based on the invention and created a market for them. Often, a patented invention leads to further inventions which build on each other.<sup>183</sup> Difficulties may arise in determining which products use the reverted patent and this could lead to increased amounts of infringement litigation during the reversion. While the employer would retain joint ownership of the reverted

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<sup>178</sup> See DiMasi, *supra* note 11, at 151.

<sup>179</sup> *Id.* at 160.

<sup>180</sup> This raises a similar question of why patent exclusivity set to twenty years. The economic cost timelines and the history of patent exclusivity periods could be a point of future research.

<sup>181</sup> Again taking a note from the copyright reversion, a single patent reversion applicable to all patents would be the easiest to implement and require the least amount of oversight by the government.

<sup>182</sup> See *supra* notes 119-20 and accompanying text.

<sup>183</sup> This can be seen from the many continuation, continuation-in-part, and other derivative patent applications that are filed each year.

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patent, whether a particular product uses the patented technology and, thus, the value of the reverted patent, could become issues. Again, the symbiotic nature between the parties must be taken into account. The entity with the largest incentive to offer the highest license fee to the employee-inventor is probably his employer because the employer already has the infrastructure and resources in place to manufacture products based on the patented invention. Further, both parties should have intimate knowledge of products which incorporate the invention and their respective commercial success. An employee would have an incentive to license his reverted patent for enough money so that the employer still makes a profit and production is as high as possible. As a last resort, the patent litigation field is well established and infringement proceedings can be brought to award adequate compensation or a reasonable royalty.<sup>184</sup>

### CONCLUSION

This paper has proposed creating a patent reversion in which the last two years of patent exclusivity revert back to the original inventor, in joint ownership with the employer, thus giving him a second bite at the apple. The employee-inventor status quo is based on pre-assignment contracts involving inequality in bargaining power and unknown value of patented inventions. Additionally, an employer's business model may be adverse to new innovations that disrupt markets already in place. However, the reversion is designed so as to minimally affect the employer's ability to recoup costs and turn a profit. A patent reversion efficiently and effectively addresses all of these issues by giving the employee-inventor a chance to reap the rewards of his innovation.

While there are practical problems that will need to be addressed, the implementation of a patent reversion to the original employee-inventor would be beneficial to both parties along with the technological community as a whole. Not only would employee-inventors have an incentive to innovate, thereby increasing society's overall technical knowledge base, but more employees will want to invent knowing their inventions will be financially beneficial to them. In addition, more students may be inclined to become scientists and engineers thereby improving the quality of the available workforce in the future. Because of this, the number of American patented inventions should go up which is a boon to the economy as a whole. Employee-inventors would also have a personal interest in seeing the employer's sales and profits maximized thereby increasing the value of the underlying patent. Smarter scientists and engineers working harder to maximize business profits would be very beneficial for employers even if the tradeoff is a loss of patent exclusivity at the end of a patent's life. Finally, a tax incentive should be created along with the reversion for employers that buy back the reversion interest of their employee-inventors. This incentive would allow an employer to treat the cost of buying back the reversion as an ordinary business expense and deduct the entire amount from its taxable income. The benefits of a patent reversion to employee-inventors, employers, and society in general are important enough to warrant implementation. The status quo must be changed for employee-inventor rights in their inventions, and this can be accomplished by a patent reversion.

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<sup>184</sup> 35 U.S.C. § 284 (2000).