

Final Research Paper - An Exploration of the Patent Industry

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While many may have difficulty describing what exactly a patent entails, the rough explanation is not entirely difficult. A patent is granted by a state, to an inventor or a determined second party (such as their employer) for a [limited period of time](#) in exchange for public disclosure of an [invention](#), and grants a set of exclusive rights to this party. While this may be a simple explanation, the complex social factors at play and the effects of the patent industry on society are vast and complicated, with many lawyers devoting their lives to study of the system's intricacies. Many consider patents to be a restrictive barrier on the free flow of information and innovation, while others argue that it is the patent system itself that provides the majority of the incentive to create and innovate at all. Utilizing an exploration of the history of the patent, case studies and precedents, and an analysis of the current American (dominant in the world stage) patent system in comparison to its contemporaries, this paper seeks to further understanding of the complex issues surrounding the patent industry and how it is constantly affecting people's lives.

To gain a proper understanding of any subject or concept, one must be aware of its origins and intended purposes, in addition to any present context. In the case of the patent system, roots can be traced back as far as approximately 500BC, where "encouragement was held out to all who should discover any new refinement in luxury, the profits arising from which were secured to the inventor by patent for the space of a year." ([Anthon](#), 1841, p. 1273.) By and large, this sort of setup was mostly adhered to for the following 1800 years. Hulme (1896) finds instances of similar systems implemented by the British Crown in the 1300s, with grants "[containing] a general promise of privileges to all foreign weavers, dyers, and fullers, on condition of their settling in [the] country and teaching their arts to those willing to be instructed therein." (p. 142) These examples showcase how even at such an early stage of the development of the patent concept, the system

was largely utilized to provide incentive for invention and encourage investment from foreign interests to bring their improved systems abroad without fear of being cheated.

It was during the Renaissance however, that patents as we now know them began to truly take form. "The first record of a granted patent was that by the Republic of Florence in 1421 for a barge fitted with hoisting gear to load and unload marble. This first granted patent rewarded the inventor with an exclusive three year monopoly." (Skolnik, 1977) One of the most commercially and industrially active sites in 15th century Europe, The Republic of Venice, also granted similar monopolies, called privileges. Skolnik (1977) notes that "by 1550, over 100 patents had been granted in Venice under its patent law of 1474", although their laws were slightly more in line with that of modern copyright law. While the advantages of invention were indeed notable, they remained largely on a local scale, with regions and countries competing with each other to encourage the best minds to invest there by offering stronger monopolies or benefits, granting such advantages to those who could bring an invention to their jurisdiction. Skolnik (1977) states that "Johann Gutenberg's invention of movable type in the 1450's, for example, spread from Mainz, where Gutenberg had his printing plant, throughout Europe within 30 years, all without gain to Gutenberg." While this system has its merits of encouraging the spread of advancements in technology and providing localized benefits for inventors, it can definitely be argued as an unfair system for those who miss out on opportunities abroad.

Hulme (1896) finds that the beginnings of the English common-law patent system, as opposed to granted from the crown, were in 1601 with the concession of the Queen that "her grants should be left to the law *without the force of her prerogative*." (p. 151) and 1602 with the test case of *Darcy*

vs. *Allin*. This same era also brought about debates on the merits of specific types of patents. Hulme (1896) states that patents could be revoked if they prejudicially affected an existing industry, "as in the case of Lee's application for the stocking-frame, which is said to have been rejected on the ground that the machine proposed to supersede manual labour." (p. 152) Similar rejections included reasons such as "their improvements were not profitable to the state, and that the granting of licenses for small additions would breed confusion" (p. 152)

Again, there is a long period of relative consistency after this significant change. With a wider control of the issuing of patents than a contained crown based approval, a wider variety of reasons for approval as well as dismissal came about, with greater pressures from market forces and public opinion. The next significant change, observed by Merges (2000) was the corporatization of Industrial R&D, with the fact that "in 1885, only 12 percent of patents were issued to corporations. Slightly more than one hundred years later, the proportions had completely reversed: by 1998, only 12.5 percent of patents were issued to independent inventors." (p. 2215) Merges goes on to argue that "this rise in corporate inventorship spurred a rapid rise in the volume of patents during the early part of the century." (p. 2216) and that this in turn led to advancements and modernization of the Patent Office, professionalizing the classification, examination and approval methodologies. Along with these changes came a change in approach from the R&D industry. More and more, contracts were sought after that granted rights to corporations employing inventors and researchers to better deal with corporate team research on increasingly complex and multifaceted inventions, allowing more resources in terms of time, money, and manpower to be invested in such projects. Were the patent industry to have remained static in the face of such radical changes, the

complexities of bringing modern products to development, let alone to market, would be enormous.

Such changes have also brought with them many new challenges of their own. In a fiercely competitive market, Merges (2000) points out the desire of companies to rapidly invest in R&D in many different areas and gather patents to gain advantages over their rivals, often resulting in companies sitting on patents with no intention of following through on bringing such an invention to final fruition. This resulted in the expansion of an appeals process to deal with such situations. The final modern shift in Patent Law, that is still being debated and worked upon, deals with the modern idea based industries and computational abstractions. Merges(2000) cites a 1972 patent for a computer algorithm, *Gottschalk vs Benson*. as the first of its type to come before the supreme court. Justice Douglas, the presiding judge, found this patent invalid, stating algorithms in computer programs were akin to mathematical abstractions, which, being in the realms of “scientific principle”, “products of nature” and “pure mathematics” was unpatentable. As time progressed from this decision, it became a potentially dangerous precedent as many computer developers would indeed argue that programs are engineered rather than discovered. Nevertheless, the computer software industry managed to thrive in an absence of a patent protection system. Merges (2000) goes on to reference two later cases that led to a change towards patentization of software, through a focus on the “machine” aspects of the product, characterizing code as “a specific configuration of a general purpose computer” (p. 2230) or a particular configuration or layout of a data storage disk. The need for legal teams to have worked out such loopholes is debatable based upon the industry’s previous successes, but it is still too early to determine the true impact of such changes to the legal side of software development.

One of the most common complaints against patent systems in general, particularly in the American first-to-file system (examined in more depth later) is the power of a good legal team to obtain and enforce patents that may not be entirely legitimate. One of the most famous inventors who worked the patent system extremely well was Thomas Edison. In her book, *Empires of light: Edison, Tesla, Westinghouse, and the Race to Electrify the World (2004)*, Jill Jonnes examines the many conflicts both personal and legal between the three dominant electrical magnates of the late 1800s: Thomas Edison, Nicola Tesla, and George Westinghouse. She references Edison's unleashing of his top-dollar lawyers in 1885 when competitors began to hurt his business.

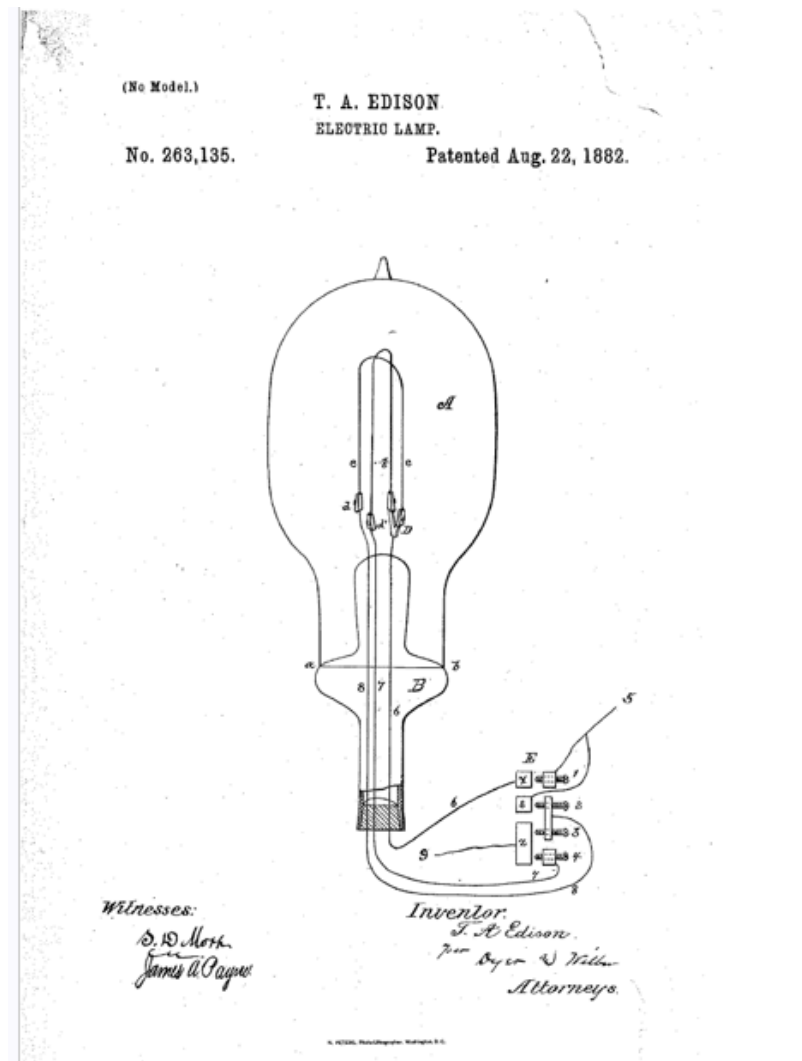
Yet historian Harold Passer [explaining] that Edison competitors 'seriously questioned the validity of the Edison lamp patents. The United States Company [controlled by Westinghouse], for example, considered its patent position much stronger than Edison's. ...

Both Farmer and Maxim had worked in the incandescent lighting long before Edison. (Jonnes, 2007, p. 151)

This exemplifies one of just many controversial patents Edison was able to obtain through strong motivation and knowledge of how to properly work the patent process. The same book also details some of the comparative struggles Tesla had with the system, as he ended life comparatively poor despite being often regarded today as a far more brilliant inventor. What follows is a study of Edison's interactions with the patenting process.

Thomas Edison is primarily known for improving the "The Electric Lamp". He was able to produce a long-lasting and reliable source of light by using lower current electricity and small carbonized filament. The idea of the electric lamp had been around 50 years before, however it was not yet developed to be used in the home. Before Edison could patent his invention and make money,

every element of his seven critical system elements invented had to be developed to be practical and reproducible components. Edison's first public demonstrations were in 1879. From then, he spent several years creating the industry.



Edison's invention, however, was not patented until August of 1882. This patent is available online for public viewing today. If Edison had not patented his idea, he may have not made nearly as much money as he did, obtained as many investments, or officially "own" his invention by law. For example, because he patented his Electric Light, he was able to sell his idea to other companies if

he wished to. The fact that there are documents stating that he is the official inventor also gives him more credibility.

At this point in time, the development of new electronic systems marked a new era for technology. It was extremely wise for Edison to patent his idea, as there may were many other inventors that were attempting to achieve similar status and ideas.

Patents serve a valid purpose, but in this point in time, the digital era, communications and creativity are ever changing and old laws and patents may need to be updated as well in order to keep creative process from stalling.

America's distinct position as a world leader in innovation and technology is often attributed to its abundance of top minds and strong research programs, but many also argue that its unique Patent system is a primary driver of the willingness to create and innovate. While the majority of the world takes a first-to-file approach to patenting, the United States implements a first-to-invent approach. This "provides that even if a person does not file his or her patent application first, that person may obtain the patent by establishing proofs of conception and reduction to practice of the invention before the party who actually filed first." (Pravel, 1991, p. 797) It is argued that such a system provides incentive to inventors to create new ideas, especially those without large financial reserves. "Under this system an inventor can proceed with the development of an invention without fear that someone else, with better financing, can obtain the exclusive patent right even though he is a later inventor" (Conley, 1991, p.782-783). An inventor, like any other profession, will be concerned about financial stability, and will thus be concerned about securing patent rights to

their creations during the development stage. Conley(1991) argues that “The less financed inventor is also concerned about the cost of filing a patent application to provide that protection.”(p.783) and that as such, a first-to-file system would bring with it an extra batch of distractions and tasks that would negatively impact the invention process, if not destroying incentive to work on a project altogether. Under a first-to-invent system, the inventor can “wait until [their] invention is fully developed and has determined that it will perform satisfactorily, thereby improving [their] chances for obtaining financing.” (Conley, 1991, p. 783) This sentiment has been reflected throughout multiple periods of potential patent reform in the United States, such as the late 1966 President’s Commission on the Patent System recommending a number of changes in US Patent Law, including a shift to first-to-file.

Opponents argue that under first-to-invent, “Agility and Speed in preparing and filing a patent application are not essential. Ability, initiative, and success in conceiving and practically demonstrating the invention are sufficient.” (Frost, 1967, p.926) These sentiments were not shared by all however, with many supporting a push towards first-to-file for a variety of reasons, including harmonization of systems in the global economy. Further arguments included the costs associated with the examinations and interference trials of first-to-invent versus the straightforward filing date decisions made possible by the first-to-file system. Pravel (1991) also noted that “Under the first to invent system, patent information remains secret until the patent is issued” (p. 799) He goes on to explain how if this time period is extensive, serious consequences may arise from a surprise issuance, noting specifically the example of Gordon Gould being “issued a patent in 1977 for a laser he invented as a graduate student in the late 1950s.” While by this point numerous businesses had grown around this technology, developed independently, they could have been forced to pay

royalties to Gould or discontinue their practice. Frost (1967) argues that contrary to both sides of the debate's insistence that their system is better for America, that their system is in fact a hybrid, and "though [their] present system contains many first-to-file features and gives a very great advantage to a person who files first, it retains at least three important first to invent aspects." (p. 941)

A final aspect of the patenting system to consider is that of licensing. While many claim that patents stifle innovation in terms of companies locking up ideas to themselves and stalling development, this is not entirely true. Although it is legally possible, Shapiro (1985) argues that "the possibility of licensing can only increase the value that the inventor places upon developing the invention." (p. 29) He goes on to explain the mutual financial benefits of licensor and licensee working together to bring a product to market that a parent company may not have the time to bring to final fruition, but had incentive from licensing to provide the initial research for. From this, it can be argued that the process of licensing is as integral to the continued creation and success in modern times as the patents themselves. As companies potentially stand to make even more money from spreading their inventions through licensing deals, the freedom and spread of information is spurred on rather than constrained.

The above idea of the Patent System being a consistent boon to innovation and advancement still does not always hold true. An example of how a patent could have affected internet users and providers directly is the case of British Telecommunications plc (BT) and their accusation of Prodigy Communications Corporation infringing the Sargent Patent. BT operates in over 170 countries and is a leading communications solutions service providers in the world. Prodigy was an online

service that offered subscribers access to similar network services such as news, weather, shopping, games, banking, stocks, travel, polls, and many other features.

BT set this case against Prodigy after the company, and 16 other ISPs refused BT's request in June 2000 that they buy hyperlink licenses. This case was pursued as a test against the ISPs whom refused.

The case that BT pursued claimed that the Internet infringes its Sargent patent. This patent describes a system in which multiple users can access data stored at a central computer from remote terminals. It was claimed that Prodigy had been helping its subscribers infringe this patent by providing them with access to the Internet. However, Judge Colleen McMahon, had found flaws in the claim in March. The flaw found was that the Internet actually has no central computer, and since the Internet does not infringe that patent, Prodigy could not be liable for contributory infringement. McMahon awarded Prodigy's case dismissed.

What would have happened if BT had won this claim? Licensing fees would have been imposed, and therefore, ISPs would have had to pass those costs on to the customers. If this was the case for Internet today, information would not be as quickly accessed and shared. Websites like Youtube and Digg would not nearly be as popular today. In fact, who knows whether or not life-changing websites like these would even exist? Internet users access it in order to send or receive information. If sending and receiving all of the sudden became more complicated and expensive than it should be, what is the point of the Internet in the first place? The evolution of digital media and information technology would not nearly be as advanced as it is today. For example, let's say a

student is using an ISP to gather information from the News. If they can not use hyperlinks that further connect them to more information and websites to allow them to go further in-depth, then what would be the point of paying for the same news in the first place, when one can watch it on television or get it from the newspaper? If the Internet is about having the freedom to find new information and spread creativity, why should it be stalled by such a patent? An example of how this situation could have led to a stall in creativity includes something like a situation with a web blogger. Imagine that this blogger posts all of their photography online in order to get recognized and gather feedback. If customers can't access their page to give that feedback or perhaps find further inspiration for free, then is it worth even using? The entire idea of the "Digital Era" may have been wiped out.

Modern difficulties in the patent industry are not constrained solely to the technological and computing fields. An extremely recent example of controversy is in the field of gene research. On March 29, 2010, Judge Robert W. Sweet issued a 152 page decision invalidating seven patents related to gene mutations. The decision was reached on the same basis mentioned earlier in this paper; that "laws of nature" are unpatentable. While Myriad Genetic, the company that held the patents together with the University of Utah Research foundation claimed that "the work of isolating the DNA from the body transforms it and makes it patentable". Despite this, Judge Sweet said that "many critics of gene patents considered the idea that isolating a gene made it patentable 'a lawyer's trick' that circumvents the prohibition on the direct patenting of the DNA in our bodies".

The American Civil Liberties Union and the Public Patent Foundation at the Benjamin N. Cardozo School of Law in New York, along with various patients and medical organizations were the challengers of the patents, arguing they were outside the realm of patentable things as well as stifled research, innovation and limited testing options. While many see the decision as a victory, with the decision breaking “unacceptable barriers to the free exchange of ideas”, being good for patients in that they will have more options, and causing more gene and diagnostic research to be pushed to academia, there are many who claim such a decision will be detrimental and support the likely appeal. Detractors argue that such a decision will make it difficult for young companies to gain money from investors, and that loss of patent protection could diminish incentive for genetic research. The effects on the multibillion dollar industries built on the intellectual property rights of the roughly 20% of human genes that have been patented since the 1980 Supreme Court upheld patents on living organisms in 1980 are also yet to be seen.

While the patent industry has always had to deal with moral dilemmas, they are becoming increasingly more common and complex with today's technologies, as this example shows. Rather than simple black and white issues, the situation is increasingly entrenched in indiscernible shades of grey, open to debate and discussion.

Overall, the patent industry is a complex system with no obvious right or wrong, in any terms. The concept has been shown to have been around in a rough form for as long as there has been civilization however, so the idea of abolishing it is a highly unlikely scenario. Observing its evolution throughout history reveals it to be as much a response to invention and creation as it is an attempt to encourage such things. While historically there have been those who would attempt to exploit

the system for personal gain, the force society as a whole has upon the industry as well as the precedents set by responses to such cases and new technologies have kept such events largely in check. While many argue about the constraints that the system imposes, these complaints are largely a necessary evil, for lack of a better term, as precedent and examination of the origins show that the system has been designed to encourage and support invention that may not otherwise be followed through with. While modern fields such as software and bioengineering may currently seem to not fit in to the patent model, such hesitance has historically been shown over and over again, with eventual adjustments and updates made to accommodate. Whether first-to-invent or first-to-file, patent law is an extension of human nature and performs its job dutifully and oft forgotten in average life, despite its constant presence, which some may argue, is the biggest evidence that whatever is going on, it's working.

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