The patent system has many flaws. In its absence, there would probably be increased innovation if only because money spent on patents and lawsuits would be available for R&D. In any case, an inventor is to some extent protected by law provided he explains that an idea is his personal property. A patent adds nothing to the value of an impractical invention and little to one that might seem promising.

One of the few topics over which free-market proponents often radically disagree is the relevance of the patent system. According to some, without patent protection an inventor has no incentive to invest time and money into something that can be easily copied by its competitors without incurring significant R&D costs. Patents therefore correct this market failure by providing a temporary monopoly to the inventor. Even though monopolies typically involve a misallocation of society’s resources, any welfare losses due to the restrictions in disseminating an invention are outweighed by the incentive to invention they provide. Besides, the fact that the technological bases for these rights are made public contributes to the body of generally accessible information. Furthermore, to the extent that patents cover successful process innovation, lower costs of production and lower market prices will result even if the patentee behaves like a rational monopolist.

Despite this rationale, there has always been a set of thorny issues about the patent system. For example, patent holders may capitalise on inventions by suppressing their development, even though these inventions would benefit the public. Furthermore, the patent system provides incentives to focus on what is patentable and on developing certain superfluous innovations simply to avoid what is covered by a patent.

The arguments for and against patents are probably as old as the patent system and numerous studies on both sides of the debate can be found. Yet, most analytical and historical examinations of patents and their meaning for technology and economic growth are generally deemed inconclusive. The authors of many empirical studies point out that patents do not play anything like a dominant role among the various mechanisms by which returns from innovation are captured. Indeed, for most firms trade secrets, know-how, lead time to markets, continuing technological innovation, licensing, name recognition, service capabilities and the use of complementary marketing and manufacturing capabilities are often deemed more effective than patent protection. In the end, in virtually all branches of industry, the absence of patent protection would have had little or no impact on the innovative efforts of a majority of firms.

To understand how this can be, one must go back to the essence of what patents are (and are not) and to the way human creativity actually generates new ideas and products.

A right to exclude, but not to use
A patent is a property right granted by a government to an inventor or his assignee to exclude others from making, using or selling an invention fulfilling certain requirements, most notably that it performs a ‘useful’ function. What needs emphasis, however, is that a patent only grants the patentee the right to prevent others from practising the patented invention, not of using it. There are thus special circumstances where a patent owner cannot use his own invention because it would infringe on the patent rights of others. For example, inventor Jones patents a device comprised of components A, B and C. Inventor Smith improves on Jones’s invention by adding D. Smith can then get a patent on the new device with components A, B, C and D. Inventor Smith can prevent everyone from using the device with these four components, but he cannot use it either because it infringes on inventor Jones’s patent. On the other hand, Jones cannot add component D to his patented device because that would infringe on Smith’s patent. Such situations are very typical. As one American lawyer has put it: ‘Everybody is infringing everybody’s patents all the time. So one guy puts a pile of papers five inches high on the table, and the other guys have a smaller pile.’ What then typically results in such a scenario is a cross-licence between the original and improvement patent owners, with or without money being thrown in.

Another issue that must be stressed is that the final responsibility for validating or invalidating a patent lies with the court. In practice, the burden of proof of infringement lies with the patent owner because the alleged offender is held innocent until proven guilty. Furthermore, the patent office is not responsible for failure to discover previous conflicting claims, which means that a patentee never knows for sure if his patent will be deemed valid by a judge (who might also lack the training to understand the technical aspects of a case). Even though it is often argued that there is a presumption of validity on behalf of the patentee, as one critic pointed out many decades ago: ‘Numbers are stamped by an impartial numbering machine but patents are granted by all-too-human examiners.’ Considering the huge amounts of money needed to use the patent system successfully (to hire patent attorneys and industrial drawers, to file applications, to manage a portfolio of patents in many countries, to renew patents and to sue alleged infringers in courts), such a process is not too comforting even if in some cases damage suits have proven very lucrative. A patent protects the
inventor only so far as the inventor’s money will carry him in the courts, for the more financially endowed party to a suit might prevail simply by bankrupting its opponent. It is therefore not surprising that many individuals and corporations do not seek patent protection because they see no added value to it. This will typically be the case when technological advances are very rapid, difficult to police, costly to copy or are likely to infringe on other patents.

Despite all these flaws, however, patenting activity has grown substantially in the United States since the early 1980s. Why is this the case? As patent law has remained fairly constant, this is most probably due to the emergence of many new technologies related to everything from genes to e-commerce. In some instances, however, many first-time inventors operate under the delusion that a patent gives a reasonable presumption of the possession of saleable and valuable property. The neophyte is told by friends who have no detailed knowledge of the patent system and by ‘invention professionals’ who stand to make easy money from the patent filing process that intellectual protection is the first and last rule of the inventor. On the other hand, firms who employ people who know better will typically patent for reasons that go beyond directly profiting from a patented innovation. Among their most prominent motives are the prevention of rivals from patenting related inventions, the use of patents in negotiations (especially for cross-licensing) and the prevention of suits.6 In short, in these instances patents are nothing more than ‘protection money’ that is being paid either to block competition or to gain access to a particular technological area.

The previously listed flaws of the patent system are serious enough to make the case for its abolition. An even stronger case can be made, however, when one considers that the patent system rests on a fundamentally flawed view of human creativity.

A misleading view of human creativity

As many psychologists and historians of technology have shown, innovation does not proceed through major breakthroughs by specific individuals, but rather through the collaboration of different people who, through small and cumulative improvements, yield novel and useful artefacts over time.7 All of patent law, on the other hand, is based on the assumption that an invention is a discrete and novel entity that can be assigned to the individual who is determined by the courts to be its legitimate creator. The associations of an invention with other existing or past artefacts are therefore obscured. Despite its philosophical foundation, however, the patent system cannot entirely obscure the true nature of technological change. As already explained, virtually every new patent infringes in some way on other patents. Furthermore, most patented innovations are typically very minor improvements. As F. M. Scherer has noted: ‘As the bleary-eyed reviewer of some 15,000 patent abstracts in connection with research … I was struck by how narrowly incremental [adaptive?] most “inventions” are.’8 Even an anonymous author writing in a brochure of the Canadian Intellectual Property Office9 had to admit that 90% of all patented inventions are minor improvements on existing patented devices. What the incremental view of technological change implies is that the contribution of an individual to a new device is likely to be small. Thus an inventor who comes up with a better mousetrap is building on the previous work of metallurgists, machinists and woodworkers, but also on the contribution of other individuals who previously worked on similar devices (if only by learning what did not work). Granting him a 20-year monopoly from the initial filing date seems somewhat outrageous in this light.

It must also be kept in mind that technological innovation implies a continuous flux, for creative individuals never cease to improve existing artefacts. Why do some people innovate relentlessly? As Petroski10 puts it: ‘The form of made things is always subject to change in response to their real or perceived shortcomings, their failures to function properly.’

How do creative individuals come up with new things? Essentially, by combining previously unrelated things in a new way. For example, in order to increase the assembly rate of their tremendously successful Model T, engineers and technicians at the Ford motor company drew inspiration from the ‘disassembly’ lines of the Chicago meatpackers, the grain-conveying machinery of the flour milling and brewing industries along with some process technology used in the food-canning industry.11 The fact that people solve problems by combining existing things in a new configuration goes a long way towards explaining the persisting recurrence of ‘simultaneous inventions’ throughout history.

The patent system, however, will unduly penalise inventors who come up independently with a solution to a problem that might be similar to something that has already been patented.
Excludability, creativity and the case against the patent system

Another recurring feature of creative individuals is that they do not come up with ‘the’ solution to a problem, but rather always improved their particular way of solving it. As De Gregori indeed put it: ‘Progress in the human endeavor is most meaningfully defined not in terms of the ultimate or final solution to problems but in creating smaller or less important ones than those we solve.’ The logical outcome, as Petroski points out, is that ‘since nothing is perfect, and, indeed, since even our ideas of perfection are not static, everything is subject to change over time.’ It is therefore usually only a matter of years after an inventor has patented a ‘basic’ idea that he must improve it beyond recognition in order to turn it into a commercially viable product. An inventor spending his resources on patenting his basic idea without having perfected his invention in every practical detail is likely to waste his resources because he is destroying any possible value his patent might have had.

One last feature of technological change that deserves mention is the fact that there is always a surprisingly wide range of alternative methods of getting a job done, each being characterised by a different mix of inputs. It is therefore not surprising that most interesting inventions can easily be ‘patented around’ by making small modifications only a few years after a patent has been granted.

Conclusion

Anyone familiar with the world of inventions knows that there is no short supply of new ideas. Indeed, most companies are typically flooded by requests from inventors who have come up with a ‘new and improved’ way of doing something. In most cases, however, the new invention has some major flaw that will make it either too expensive or impractical. The patent system reflects this reality, for the vast majority of patents end their lives unused in the files of patent offices, corporations and individual inventors. In 1869, United States Commissioner of Patents Samuel Sparks estimated that at most 10% of all patents had commercial value.13 Most modern commentators still agree that this estimate holds true today or is even too optimistic. In view of all the flaws of the patent system, a case can therefore be made that there would almost certainly be even more innovation in its absence, if only because more money would be available for R&D at both the individual and corporate level if it was not spent on patents and lawsuits.

The case against the patent system is even stronger if one considers that an inventor is, to some extent, protected by the law as long as he clearly explains to another party that he is presenting him with an idea which is his personal property. In the end, however, unpatented inventions are very rarely stolen, for, as Carter14 warned inventors many decades ago: ‘Don’t worry about having your undeveloped invention stolen. Nobody wants it. Nobody will want it when you have completed it and are ready to sell. Selling fully developed inventions is hard enough and only an imbecile would steal a crude idea.’ When an invention has been proven useful and all its technical difficulties have been worked out, however, what an inventor needs more than anything is instinct in choosing the right people to work with. Ultimately, a patent adds nothing to the value of an impractical invention and little to one that might seem promising.

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5 H. D. Carter (1939) If You Want to Invent, New York: Vanguard Press, p. 44.
7 Basalla (1988) op. cit.
13 Of course, the ‘commercial value’ of a patent can be its defensive nature.
14 Carter (1939) op. cit., p. 36.