Commentary on science in the news from the experts

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Tweaks to the Idea Factory

How do we recognize an invention when we see one?

The U.S. patent system is a popular target. Recently we have heard that big portfolios of large companies pose a threat to small inventors, "patent trolls" who exist solely to sue real companies have hijacked the marketplace for new ideas and colossal lawsuits prove that America's patent system is broken.

The patent system is indeed in the midst of a challenge. Software technology gives us the GPS in our mobile devices, CT scans that provide early health diagnostics, and other wonders, but circumscribing such technologies in a patent is difficult. Advances in genetics and biotech are critically important to treating many diseases and require huge investments that rely on patent protection, but it is often hard to know where the rights of the inventors end and the public's begin. Should 3-D print files be eligible for patent prosecution? What breadth of protection should be available for the algorithms that extract knowledge from enormous aggregations of data? Each fundamental advance calls for reexamination and adaptation, which is why the patent system is, and must be, the subject of continuous improvement.

Claims that the patent system is broken go back to the proliferation of sewing machines in the mid-1800s. They came up during litigation over automobile patents and again with the advent of the telegraph, electric lighting, aircraft, lasers and microprocessors. Names and technologies change, but the story is the same: halfway to fully deploying the technology du jour, a patent litigation deadlock is declared, calling into question the entire system. In each prior deadlock, litigants settled, courts handed down decisions and things reached a satisfactory end point. This is how the system was designed to work and is working now.

In software, the parties to the various smartphone conflicts, such as in the one between Apple and Samsung, are narrowing their claims to the few patents that truly matter. At the same time, the courts are properly construing many of the patents narrowly (meaning they are not infringed) and providing rulings to allow the parties to work out their remaining differences. In biotech, the Supreme Court has issued guidance narrowing the eligibility of patents on diagnostics, causing innovators to better tailor their patent filings; the court took up patenting of isolated, purified genetic sequences in April, with further guidance to follow.

Given the historical success of American innovation, pragmatism must be the watchword. That is the spirit of the America Invents Act (AIA), the most comprehensive revision to the patent system in generations, signed by President Barack Obama in September 2011 and fully in effect just this spring. The most noticeable change is the transition from a first-to-invent to a first-to-file methodology for awarding patents between competing inventors. This practice will eliminate protracted disputes over who invented what and when that previously were resolved by digging through dusty lab notebooks to prove invention dates. First-to-file replaces this bickering with a simple, objective, fair rule: the first person to come forward with an application for a patent gets the patent. Moving to first-to-file is also a step toward harmonizing our patent system with other countries' systems, an important goal in a global economy.

Beyond first-to-file, the AIA also responds to concerns about the quality of issued patents by providing cost-effective, fast ways to comment on pending patents and to challenge issued ones. These new opportunities apply to all patent applications and patents but are especially helpful in software, where historical references are difficult to find, and in biotech, where fine lines must be drawn between discoveries eligible for protection and ones free for all to use. Still, the AIA has only recently gone into effect, and the ramifications of its new processes and procedures are just beginning to be felt. As *Scientific American*'s March 9, 1878, issue stated, "our Patent Office [is] a great National University, whose diplomas of merit for successful endeavor [are] infinitely more valuable than those of any college." This statement is still true.