

Foreword

Why Patents Are Critical for Standards-Based Technologies

Andrei Iancu

On the morning of February 7, 1904, not far from Washington, DC, a dry goods store in downtown Baltimore, Maryland, burst into flames. The fire alarm sounded, and firefighters from several units throughout the city rushed to answer the call. As they smashed through the burning building, explosions shot embers through the broken windows and onto neighboring structures. Before long, the fire – believed to have been ignited by a discarded cigarette in the building’s basement, near a pile of wood shavings – fueled a blaze that would go on to destroy much of central Baltimore.

Firefighters from other cities, including Washington, DC and Philadelphia, were sent to help battle the inferno, but they quickly encountered a serious problem. Because there were no national standards for firefighting equipment in those days, firefighters from one city could not effectively use the equipment from another city. Poorly matched hoses emitted weak streams of water. And so, Baltimore burned. All in all, this was the most destructive conflagration in the United States since the Great Chicago Fire of 1871. A real tragedy, aggravated by the lack of standards.

But as often happens with crises, powerful lessons were learned. When the fire first started that fateful February morning, the US patent system had no shortage of firefighting innovations. Indeed, as of 1904, nearly 1,000 patents relating to firefighting, including those for fire hydrants, hoses, and connectors, were in force. But there were no standards. That was about to change.

Within two months, legislative bills and conferences were held to standardize fire hoses, and many cities began replacing their fire hose couplings. The National Fire Protection Association (NFPA) and National Board of Fire Underwriters (NBFU) established certain standards, such as thread size, in an effort to prevent further incidents like the one faced by the out-of-state fire units during the Baltimore Fire. And though it took time for these standards to truly catch on, today we have the National Standard Thread, along with standardized hydrants, as well as hose adapters that firefighters carry to avoid another disaster like the Great Baltimore Fire.

Government mandates are one way to ensure standardization of technology. But in a free-market economy, depending entirely on the government taking action is neither feasible nor desirable. The United States greatly benefits from private industry investing resources and developing technology on its own, without government mandates. This is particularly true for technology that eventually becomes standardized.

Our country's founders realized early on the value of patents as drivers of innovation. This is why intellectual property rights are enshrined in the Constitution itself, giving Congress the right "[t]o promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries." Backed by the patent system envisioned by the Constitution, American technology has progressed in the last two and a half centuries at rates that are unparalleled at any other time in human history or in any other place on Earth. As Thomas Jefferson observed, "patents have given a spring to invention beyond any comprehension." And Abraham Lincoln explained why: "the patent system adds the fuel of interest to the fire of genius."

Developing technology that might get adopted into a standard, however, is risky and expensive, and without the proper incentives and protections, industry might not choose to invest in it. First of all, and like all new technologies, it might not work. By definition, disruptive new technologies are untried and have no proven track record of success. These innovations can fail for myriad reasons, such as technical failures or market rejection.

On top of all this, for standards-based innovation there is risk even if the technology does work. In the standards world, it is often the case that multiple solutions are proposed by different companies for a particular problem to be solved by the standard. Only one of those solutions will typically be adopted into the standard. If your technology is not adopted, even if it works, your investment and development is largely for naught. Furthermore, even if an innovative technology has merit and is adopted into a standard, that standard may never gain traction in the market.

And if your technology is adopted into a widely implemented standard, multiple implementers will certainly use it – that is the whole point of having a standard in the first place. In the standards context, therefore, unlike many other inventions, the inventor is not assured of exclusive use. To the contrary, the hope is that the standard will be successful and the inventions incorporated into the standard will be broadly used.

This is why patents are more important for technology to be used in standards than in almost any other field. In order to overcome these risks, inventors and investors need to be assured that if their technology is in fact adopted into the standard and broadly used, they will be appropriately compensated and their investment will be protected. Patents can and should serve that role.

Patents historically provide a quid pro quo arrangement between the inventor and the public. The public gets the benefit of the invention that is described in the

patent document and brought to market for use by and for the benefit of the public. In exchange, the inventor gets a period of market exclusivity to commercialize her invention. Among other things, the inventor can license her technology to companies who want to implement the technology in their products. For technology used in standards, this is the best tool to ensure that successful inventors can be rewarded for the risks they took, the investments they made, and the technical contributions they brought.

But this is true only if such patents are reliable and meaningfully enforceable. In other words, the patents issued by the Patent Office need to be robust enough to withstand challenge down the line – that is, the original examination should be thorough enough so that courts and other tribunals that review patents years after their issue will find them to have been correctly issued in the first place. Plus, the system must enable patent owners to enforce their patents if others infringe them. A patent serves little purpose if others can ignore it and the owner cannot practically stop them or secure timely and adequate compensation.

The American patent system has grown increasingly complex over the past few decades, adding hoop after hoop that patent owners need to jump through to enforce their patents. For example, there are now multiple tribunals where the validity of a patent can be challenged, leaving patent owners to defend their patents again and again, drastically increasing expenses and time to resolution. In addition, many courts take a very long time to bring a case to trial, often delaying resolution for years. And even if the patent owner prevails, it is now very difficult to obtain an injunction to enforce the promised market exclusivity a patent is meant to convey. These and many other hoops make it practically difficult to enforce any patent, thereby diminishing its value.

Standard-essential patents (SEPs) add another complexity to an already complex field. When a standard is adopted, patent owners usually agree to offer to license their patents to potential implementers on fair, reasonable, and nondiscriminatory (FRAND) terms. Some have interpreted this promise to mean that patent owners can never get an injunction for SEPs. The practical inability to exclude makes voluntary license agreements even more difficult to secure, thereby increasing the likelihood of litigation. After all, one accused of infringement has little to lose if they refuse to license a patent when the worst that happens after years of litigation is to pay the same royalty the patent owner offered during initial license negotiations.

On the other hand, it is difficult to argue that patent owners who have agreed to submit their technology to a standard and made a commitment to license their patents on FRAND terms should be able to exclude those who actually want to implement the technology under license and pay FRAND royalties. This is especially true if the implementer negotiates in good faith for a FRAND license, yet the patent owner refuses. After convincing a standards setting organization to adopt its patented technology, a patent owner should work in good faith to ensure reasonable access to that technology by those who want to implement it.

Patent policy, therefore, must be carefully balanced to protect the interests of both patent owners who contribute their innovations to a standard, and those who seek to implement those technologies into actual products that are brought to the market. On the one hand, our IP systems should be robust enough to incentivize, protect, and remunerate fairly the developers of standards-based technology. On the other hand, our IP systems should not unduly burden users of such technology with overvalued royalties or threats of unjustified injunctions.

Our IP systems should also be balanced to incentivize good-faith negotiations between innovators and implementers. In the end, a well-functioning IP-backed standards system encourages voluntary transfer of the technology adopted into the standard. That can only happen if innovators and implementers negotiate in good faith toward a voluntary license. Licensors should not unreasonably deny a license (“hold up”), and licensees should not unreasonably refuse to take a license (“hold out”). Government policy and the law should make clear that the presence or absence of good faith during negotiations on both sides is important and will be taken into account.

Our policymakers need to ensure that the United States remains the best place in the world for innovation that will be adopted into worldwide standards, and the best place in the world for implementing that innovation. Maintaining a proper balance of incentives will benefit the United States and humanity in general.