



Remarks by Director Andrei Iancu at the American Enterprise Institute

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Thank you, Michael [Rosen] for that kind introduction. It's an honor to be here with all of you this morning.

Over the now 80 years of its existence, AEI and its scholars have advanced ideas rooted in a belief in democracy, free enterprise, American strength and global leadership, and in doing so, have influenced and shaped the way millions of Americans think about a myriad of foreign and domestic public policy issues.

On that note, I'd like to especially thank AEI and, in particular, Michael and his team for organizing and hosting today's discussion.

The City of Light

Over the course of six months in 1893, more than 27 million people from around the world came to Chicago when it hosted the World's Columbian Exposition, a display of mechanical and cultural innovations to celebrate the 400th anniversary of Christopher Columbus' crossing of the Atlantic in 1492.

Spread over 600 acres, the fair was a paradise in many respects, with pristine streets, well-mannered crowds, and the most advanced sanitary and transportation systems available at the time. Indeed, according to Erik Larson in *The Devil in the White City*, the exposition "was like getting a sudden vision of Heaven."

At the center of the exposition was the Statue of the Republic, designed by acclaimed American sculptor Daniel Chester French, and at night, the grounds and surrounding neighborhoods were illuminated by giant searchlights, the largest ever made and said to be visible from 60 miles away. And while large colored bulbs lit the hundred-foot plumes of water that burst from the MacMonnies Fountain, all of the fair's walkways and neoclassical buildings glowed with lights, dazzling and delighting visitors who had never seen so many lights ignited in one place at one time.

This awe-inspiring “City of Light” was the work of George Westinghouse and his company, and backed by technology from inventor Nikola Tesla. Westinghouse beat out Edison and won the bid to illuminate the exposition and, in doing so, enabled the public to observe firsthand the abilities of alternating current (or AC) power.

But the World’s Columbian Exposition was much more than simply the first all-electric fair in history. It also marked an end to the so-called “War of the Currents,” as the fair made clear that AC was the power of the future. Indeed, from that point on, more than 80 percent of all the electrical devices ordered in the United States were for alternating current.

The “War of the Currents” started with a patent that had been issued 13 years earlier.

After analyzing “no fewer than 6,000 vegetable growths” and ransacking “the world for the most suitable filament material,” Thomas Edison on October 21, 1879, completed 14 months of testing with an incandescent electric light bulb that lasted about half a day—more than 13 hours. And, soon, he got a carbon-filament bulb to last 40 hours.

Then on January 27, 1880, Edison was granted patent number 223,898 for his electric lamp, an invention he considered his “crowning triumph.”

Edison’s work was based on DC current. Westinghouse later started to compete with an AC-based system developed mostly by Tesla. The famous battle that ensued between the two visions—AC vs. DC—is heavy with meaning for the patent system.

The Economics of Patents

Edison once famously said, “Genius is 1 percent inspiration and 99 percent perspiration.”

Well, the patent system promotes and protects both the inspiration and the hard work and perspiration that follows. Economists have shown that markets without protections for inventors generally lead to under-investment in invention and innovation.

There are several reasons for this.

First, without the rewards promised by the patent system, inventors are less likely to take the risk and invest the resources and efforts necessary to create new things. And if they do create new things, without the protections promised by the patent system, inventors are less likely to disclose their creations to the public.

Edison was an experienced inventor and patent owner, and the patent system acted as a significant incentive for him to develop the light bulb and electricity system.

Further, without the public disclosure of innovative new technology, competitors and the public will have less information on which to base their efforts to design around. Indeed, they would have less incentive to create something new themselves.

Tesla and Westinghouse, for example, expended a great amount of time and resources to come up with

something different to avoid Edison's earlier patents, and in the long run, this incentive worked to the public's great advantage.

For as you know, patents come with a quid pro quo; there is a "bargain" with the public. In exchange for the exclusive right the patent owner receives, inventors must disclose the details of their inventions to the public.

In other words, the inventor gets its exclusive right, while the public gets the details of how to make, use, and avoid the invention. There is, therefore, remarkable symbiosis between the patent owner and the public.

As James Madison recognized in Federalist 43 with respect to patents, "The public good fully coincides ... with the claims of individuals."

The results of our patent system over time—so carefully crafted and balanced—have been remarkable. Economists and other scholars have documented a number of important contributions from patents and other forms of intellectual property to innovation and economic growth.

Our chief economist and his team—along with our colleagues at the Economics and Statistics Administration at the Department of Commerce—recently updated their report on U.S. IP-Intensive Industries, and some of the aggregate findings include:

- In 2014, IP-intensive industries directly and indirectly supported 45.5 million jobs, nearly one-third of all U.S. employment.
- Between 2010 and 2014, the value added by IP-intensive industries increased substantially, both in total amount and as a share of GDP.
- IP-intensive industries accounted for \$6.6 trillion in value added in 2014, which is up more than \$1.5 trillion (or 30 percent) from \$5.06 trillion in 2010.
- Accordingly, the share of total U.S. GDP attributable to IP-intensive industries increased from 34.8 percent in 2010 to 38.2 percent in 2014.
- Also, private wage and salary workers in IP-intensive industries continue to earn significantly more than those in non-IP-intensive industries.
- In 2014, workers in IP-intensive industries earn an average weekly wage of \$1,312, which is 46 percent higher than the \$896 average weekly wages in non-IP-intensive industries in the private sector.

Further, data from the U.S. Department of Commerce shows that licensing and other revenue derived from the use of intellectual property generated a positive trade surplus of more than \$80 billion in 2016.

Additionally, a paper by a former USPTO Edison Scholar presents causal evidence that patents help startups create jobs, grow their sales, and reward their investors. The results suggest that patents act as a catalyst to growth by facilitating their access to capital.^[1]

The paper also found that approval of a startup's first patent application increases its employment growth over the next five years by a remarkable 36 percentage points on average, and the effect on sales growth is even larger. (While our methodology does not permit us to attribute those differences to IP alone, the results provide a useful benchmark nonetheless.)

Also, when combined with other studies by academic researchers and organizations such as the World Intellectual Property Organization (WIPO), it's clear that protecting intellectual property is vital to maintaining the incentives for research and development, supporting our visionary inventors, and driving our economic prosperity.

Let me also highlight some of the microeconomic areas where patents play a critical role.

First, patents facilitate company research and development (R&D) investment and new product introductions, by both original inventors and competitors. This was certainly illustrated in the "War of the Currents."

Important work by economists has shown that patent protection itself confers additional value on an innovation. One study estimates that this patent protection premium motivates U.S. companies to invest 33 percent more in R&D than they would otherwise (if patent protection was eliminated).[2]

Another study highlights how patents offset the market uncertainty firms face when developing innovations. It finds that, by alleviating market uncertainty, patent protection motivates firms to increase R&D investment by 20 percent.[3]

Further, several studies have shown that patent protection facilitates the diffusion of new technologies. For instance, economists have shown that patent protection has been instrumental in the introduction of new life-saving medications across global markets.[4]

Second, patents are critical to entrepreneurs and start-up companies. Based on survey data from early-stage technology companies, a 2009 study out of the University of California, Berkeley found that entrepreneurs use patents to gain competitive advantage, securing financing and enhancing reputations.[5]

Third, patents facilitate technology transfer and licensing. Economists understand technology transfer activities and licensing transactions as taking place within "markets for technology." These are markets where sellers of new knowledge and technologies negotiate with buyers of knowledge and technologies. This is of critical importance in order to facilitate the movement of knowledge through our economy.

Research shows that patents facilitate the creation and propagation of markets for technology, and they do this in at least two ways. First, through the disclosure function, patents help to resolve informational misunderstandings between seller and buyers, thereby facilitating transactions that would not take place otherwise.[6] Second, patent protection increases the likelihood of a successful transaction by protecting a potential buyer from future misappropriation.[7]

Recent studies have also indicated that the markets for patented technologies have surged—increasing threefold—since the start of the century with trades involving U.S. priority patents driving much of the growth.[8]

The benefits of a well-functioning patent system are unmistakable.

Now, for that system to function as intended, the system must be, first and foremost, predictable and reliable. Among other things, and at the very minimum, folks need to know within a reasonable band of certainty, what subject matter is—and is not—patentable.

As many in this room know, I believe that recent court decisions have made it more difficult to determine what is patentable and what is not.

All else equal, it is less likely that inventors and investors devote the effort and resources needed to create new technology if they do not know with reasonable predictability that the field they are working in is available for a patent in the first place.

For example, would Edison have scoured the Earth and invested all that time and money to make the perfect light bulb if he did not know whether light bulbs would even qualify for a patent? Edison was an experienced and prolific inventor. Wouldn't he rather invest his energies and resources in something more predictable?

It is incumbent on government to clarify this area of law. The USPTO is doing what we can to clarify—of course, within our statutory authority and Supreme Court precedent.

In support of this effort, the USPTO issued this past April a new guidance memo addressing step 2 of the *Alice/Mayo* test regarding what is known as "conventionality." In the memo, we specified to examiners how to support and document their determinations of what is conventional.

In the months to come, we will likely have further guidance on other issues pertaining to patentable subject matter. As we develop the guidance, there are a few parameters we want to keep in mind when it comes to patentable subject matter.

First, the system should spell out more clearly what categories of possible inventions we collectively, as a nation, want to exclude. In other words, assume a discovery is entirely new, nonobvious, and well-disclosed; do we still want to exclude it from patenting? And, if so, what are the categories of such inventions we want to exclude? We should be clear.

Second, the laws, in my view, should be industry-neutral. The patent office should not be in the business of picking winners and losers between different industries. After all, many modern industries reflect cross-over between technologies. For example, artificial intelligence techniques might be used for genetic sequencing in a biotechnology application.

New inventions could well blur traditional lines. But most importantly, who knows what will come out tomorrow? Who knows what new inventions will come about, and where they would fit? In the months ahead, we will have more to say about this, and I encourage all of you to participate.

Then, once issued, the patent grant needs to predictably mean something to both patent holders and the public. Both the owner and the public need to be able to rely on the grant.

With this in mind, our post-grant review process has been subject to a lot of attention lately, as most of you

know. Some argue that it is unfair to patent owners. Others think it is the best tool we have to control for patent quality.

I believe we need a carefully balanced approach. For example, the scope of an issued patent should not depend on the happenstance of which court or governmental agency interprets it. At least as far as the objective rules go.

And so, in order to increase predictability and certainty, we have proposed that there should be one standard used to understand the scope of an issued claim in both an inter partes review (IPR) and civil action in district court. Otherwise, it is that much more difficult to predict, to invest, and to invent-around issued patents.

To that end, we have issued a notice of proposed rulemaking (NPRM) to change claim construction standard in America Invents Act (AIA) trials. The comment period is open until July 9, and we welcome any comments you may have.

We are also looking at other aspects of the IPR proceedings, such as the institution decision, claim amendments, and other things.

Regarding institution, we may want to consider things like the impact of other court proceedings; whether other petitions have been filed on the same patent; and the efficiency of the patent system as a whole, including validity and enforcement issues; among other things.

We should take a holistic approach to fully implement the intent of the AIA, which, I believe, was for AIA trials to be a true alternative to district court litigation, not a consistent multiple bite at the apple.

We are also looking at improving the amendment process in IPR proceedings. In essence, I do not think it should be all-or-nothing. At a high level, I believe that amendments should occur within the 12-month statutory timeframe; be addressed in the final written decisions; and allow both sides to participate.

In general, the overall goal is to increase predictability, transparency, and achieve a well-balanced process that is fair to all.

Conclusion

These are just some of the issues we are working on at the PTO. As we do this, it is important to step back every now and then and consider the bigger picture.

Two days ago, the USPTO celebrated the issuance of patent 10 million with President Trump at a signing ceremony in the Oval Office.

This is a truly remarkable accomplishment and a testament to American imagination and perseverance that has changed the world.

It is an accomplishment that far exceeds the patent activity of any other country, and demonstrates that the U.S. patent and trademark system is not only the backbone of our economy, but is also at the core of

innovation, invention, entrepreneurship, and human progress.

It also demonstrates how U.S. inventors, businesses, and entrepreneurs alike rely on a strong intellectual property system to protect their business interests and create jobs that continue America's global economic and technological leadership.

Protecting the intellectual property rights of our nation's creators, inventors, and entrepreneurs is something I am personally very passionate about, and fully committed to, as I lead the USPTO.

We have a remarkable patent system, born of our Constitution and steeped in our history. It is a crown jewel; a gold standard. We have a unique opportunity to ensure it meets its full constitutional mandate to promote innovation and grow our economy.

I look forward to working with all of you in support of that great endeavor.

Thank you again for the invitation to participate in this important discussion.

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