Inventors DIGEST

FEBRUARY 2016 Volume 32 Issue 2

Jay Walker
IPO EDUCATION FOUNDATION'S INVENTOR OF THE YEAR

What Does It Take?
SIX QUESTIONS EVERY INVENTOR SHOULD ANSWER

An Interview With *Shark Tank's* Mark Cuban

Bootights Are Made for Walking
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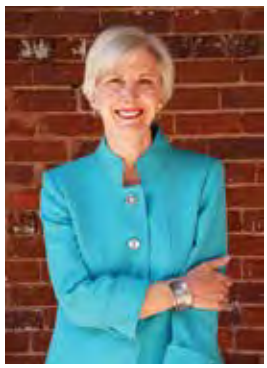
Something's Got to Give



This month, *Inventors Digest* features interviews with two heavyweights in American enterprise: Priceline inventor and chair of Walker Digital, Jay Walker; and Mark Cuban, founder of Broadcast.com, owner of the Dallas Mavericks and a regular on the popular TV series *Shark Tank*. Both men are billionaires who believe the patent system is flawed, but for different reasons. Both want to "fix" the patent system—with diametrically opposing methods.

Walker is a named inventor on more than 650 patents and, as such, is the world's 11th-most patented living inventor. The 2015 Intellectual Property Owners Education Foundation's Inventor of the Year is a firm believer in the value of a patent as a property right.

Walker says that without patents he could never have launched Priceline, a now-$60 billion business with thousands of employees, nor could he have started several other businesses. One of the strongest points Walker makes is that he could not have devoted the time and resources to research and develop businesses and systems that have benefited the economy—both at home and globally—without patent protection.

The patent system in this country, for better or for worse, is undergoing fundamental changes. Even 20 years ago, patents were valued and respected, says Walker. If a small inventor were issued a patent, he had confidence his idea would be protected, and if necessary, enforced through the courts.

Knowledge sharing was an integral part of the patent process, says Walker. Patent holders claimed their inventions for a certain period of time, during which the information was shared, and more often than not, improved upon. One innovation often led to an even greater idea. Just ask Thomas Edison. Today, the random interpretation of patent laws by the courts combined with the exorbitant fees necessary to defend a patent, Walker says, are stifling the innovative and entrepreneurial spirit that made our country great.

Cuban, on the other hand, would just as soon rid the country of its patent system altogether. In 2012, he went so far as to donate $250,000 to the Electronic Frontier Foundation to establish the Mark Cuban Chair to Eliminate Stupid Patents. "The current state of patents and patent litigation in this country is shameful. …," Cuban said at the time. "Silly patent lawsuits force prices to go up while competition and innovation suffer. That's bad for consumers and bad for business. It's time to fix our broken system."

Rather than property rights, Cuban believes patents should be the catalysts for business opportunities and used as such within a defined period of time. "A patent by itself is worthless," he says. "… Punchless patents, those with no revenue sources, create huge problems for the system. They become golden tickets for trolls." Cuban has invested in 150 companies in which, he says, having or not having a patent did not affect his decision.

Cuban is not a proponent of software patents, either, because "not much, if anything, is completely original in software," he says. If issued at all, software patents should extend for a period of no more than five years.

On the other hand, people like *Inventors Digest* contributor and patent attorney Gene Quinn, and Jay Walker, who has millions of dollars invested in patent software and related businesses, completely disagree with Cuban. "Unfortunately, if we dismember intellectual property, and if we tell people that software, which is the next greatest frontier in the world's value creation, can't be patentable, that's a disaster for the United States," says Walker.

Despite opposing opinions on many issues, Walker and Cuban agree one thing: Both believe the courts and money are bogging down innovation. "The IP and patent game has become a sport of kings now, and America and the world are losers," says Walker.

"With few exceptions, the current system doesn't protect anyone," says Cuban. If you get major patent reform, hopefully the big companies have less incentive to try to bully anyone."

And another opinion they share: Something's got to give.

—Cama

INGENUITY IS AMERICA'S MOST VALUABLE RESOURCE.

DON'T TREAT IT LIKE A CHEAP COMMODITY.

America has been on the cutting edge of innovation for over 200 years because of a strong patent system. If Congress passes harmful patent legislation, it will devalue the system that has helped turn America's best thinking into our nation's #1 export. That will mean fewer new ideas brought to market, fewer jobs and a weaker economy. We can't maintain our global competitive edge by undercutting our greatest asset.

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Jay Walker; photograph courtesy of Innovator Insights.

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Bright Ideas

Compiled by Taryn Walls

Oculus Rift

LET (VIRTUAL) REALITY SINK IN

oculus.com/en-us/rift/

After years of anticipation and extensive development, the immersive virtual reality gaming platform Oculus Rift is finally available. Whether you're stepping into your favorite game or watching a virtual reality movie, you'll feel like you're really there. Rift uses state-of-the-art displays and optics designed specifically for virtual reality. The system's high-tech components work with the custom optics system to provide incredible visual fidelity and an immersive, wide field of view. Rift's advanced display technology, combined with its precise, low-latency constellation tracking system, create the sensation of presence—as though you're actually there.

Buyers receive the wired headset, a mountable camera to track user movement, a Microsoft Xbox One gamepad and the Oculus Remote. Two games are also included: the Super Mario-like *Lucky's Tale*, in which you play an adventurous fox, and *EVE: Valkyrie*, a space-themed dogfighting game that focuses on live online multiplayer skirmishes. The Oculus company, which is now owned by Facebook, says that almost 100 titles, including *Rock Band* and *Minecraft*, will be available for the Rift system by the end of 2016.

Compatible PCs will ideally have an NVIDIA GTX 970/AMD R9 290 equivalent or greater video card, an Intel i5-4590 equivalent or greater CPU, 8GB+ of RAM, compatible HDMI 1.3 video output, three USB 3.0 ports and one USB 2.0 port, and Windows 7 SPI 64-bit or newer. Top PC manufacturers are beginning to produce Rift-optimized systems.

The Oculus Rift is available for $599. The first orders will ship March 28.

Fever Scout

DEFEAT THE HEAT

vivalnk.com/feverscout

Fever Scout is a wearable temperature-monitoring patch that makes it easier than ever to measure fussy babies' fevers. All you do is place the soft patch on your child, and let the Fever Scout app take over. Parents can keep track of their little patients' temperatures, symptoms and medicines on their smartphones. Customized temperature notifications will alert you if your child needs attention.

The silicon and polyurethane patch measures 60mm x 33mm x 4mm. Temperature accuracy is +/- .1°C and meets ASTM E1112 performance standards. The app's connectivity range is eight meters and operates on Bluetooth 4.1. Each adhesive usually lasts one to three days, and the temperature-reading time is only one minute. The patch runs on a rechargeable lithium ion battery, which lasts more than a week on a single charge. The Fever Scout app is available on Android and iOS.

A Fever Scout purchase includes the patch, charging dock, ten adhesives and the app. Preorders are $59 and include free shipping.

Samsung Family Hub Refrigerator

TOUCHSCREEN TECHNOLOGY GOES COLD

samsung.com/us/explore/family-hub-refrigerator/

The latest smart fridge was unveiled at the 2016 Consumer Electronics Show in Las Vegas. Magnetic photos will be a thing of the past. Instead, display calendars, notes, recipes, shopping lists and weather information on the Wi-Fi-enabled, 21.5-inch Gorilla Glass touchscreen. You can even look inside with the interior camera; no more wasting cold air with absent-minded fridge searches. In addition, the internal cameras snap images every time you close the door, so you can see what is on the shelves via Samsung's app. If you leave your grocery list at home, just take a look. The interaction goes beyond the practical; the touchscreen even streams television and music.

The Family Hub Refrigerator will be available spring 2016 and will cost around $5,000.

"Every breakthrough business idea begins with solving a common problem. The bigger the problem, the bigger the opportunity. I discovered a big one when I took apart an IBM PC. I made two interesting discoveries: The components were all manufactured by other companies, and the system that retailed for $3,000 cost about $600 in parts." — **MICHAEL DELL**

SmartEgg

CRACKING OPEN NEW TECH

aico.tech

Do you constantly lose your television remote or are you simply tired of having multiple remotes scattered throughout the living room? The SmartEgg will quickly solve these problems. The new device from Aico syncs to Bluetooth-enabled phones and easily transforms them into universal remotes.

SmartEgg has many customizable and useful features, including a friendly graphic interface, compatibility with thousands of remotes, battery efficiency and an internal timer to switch electronics on or off. It can even conditionally control devices. For example, it can mute the television if the phone rings. Additionally, users can remove, regroup, reorder or combine the functions of buttons for any remote.

SmartEgg can work with devices from Toshiba, Apple, Comcast, Verizon, Nikon, Samsung, Sony, Panasonic, Microsoft and many others. SmartEgg is backed with a dynamic cloud database containing over 5,500 remote controllers and 125,000 IR codes, and can emit more than 250 different IR protocols.

It's not only a remote; SmartEgg can record surrounding temperature changes for up to 12 months.

The infrared emitter reaches up to 10 meters, and the Bluetooth ranges up to 20 and 50 meters indoors or outdoors, respectively. SmartEgg measures 25mm x 35mm x 74mm and weighs 28g without batteries.

SmartEgg begins shipping this month. The cost is $89.

SprayPrinter

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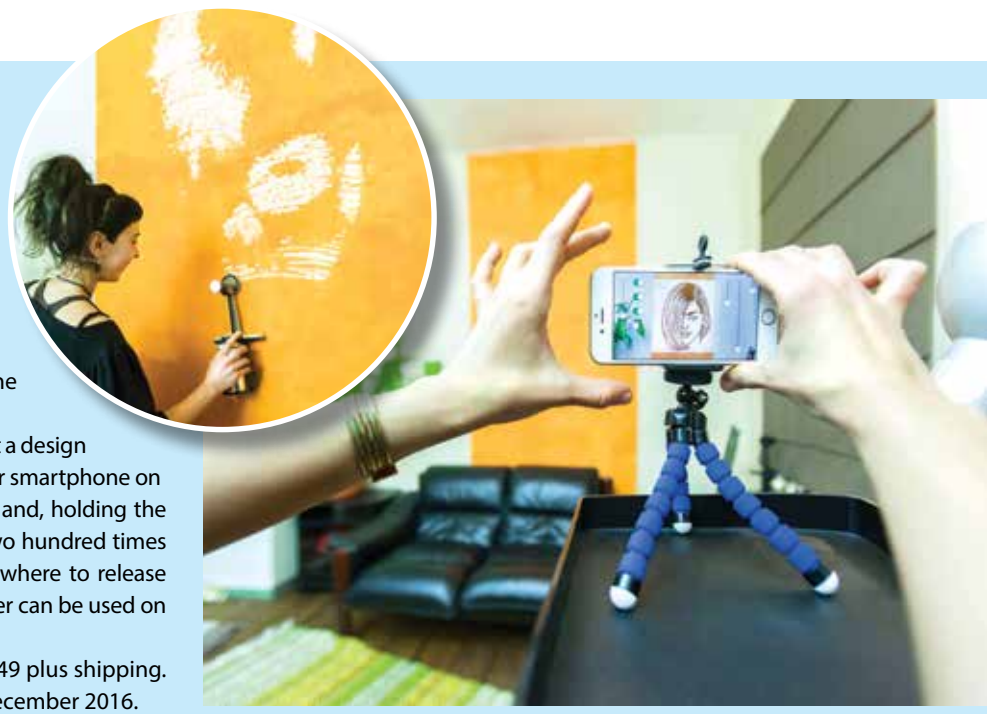
sprayprinter.com



Do you imagine yourself an artist, but can't draw a stick cat? SprayPrinter might inspire you're inner Picasso. SprayPrinter is a wireless device that converts digital designs into art. All you need is a smartphone, a blank surface, the device and your favorite paint color.

Attach the SprayPrinter to a can of paint, select a design from those offered on the mobile app, place your smartphone on a tripod facing the surface you want to design, and, holding the paint can, move your arm across the surface. Two hundred times per second, SprayPrinter's mobile app decides where to release the paint to create your design choice. The printer can be used on textiles, as well as walls, for maximum creativity.

SprayPrinter is available on Indiegogo for $149 plus shipping. EarlyBird ships July 2016; regular orders ship December 2016.

Powers That Be

THE MEN BEHIND THE ELECTRIC MOTOR

BY JACK LANDER

One of the most important inventions of all time is the electric motor. The story about this amazing device is fascinating, but it also reveals lessons you may find helpful on your journey to success as an inventor.

Press a button or flip a switch, and the electric motor can help perform a simple task, such as brushing your teeth, or a more complicated one, such as powering an automobile. But the electric motor was not built in a day. Its beginnings were astonishing, even magical. The discoveries leading up to it were the first steps in the development of the practical workhorse we know today.

In 1820, a Dane named Hans Christian Oersted discovered that when an electric current was passed through a wire that was held near a compass, the needle was deflected. *(Fig. 1 and 2.)*

Michael Faraday, an English science enthusiast, heard the news, and a year after Oersted's discovery, he advanced the concept by reversing the components. He used a permanent magnet, which was the massive equivalent of the magnetized compass needle, to move the wire.

Michael Faraday's Rotary Motion

It's not likely that Faraday set out to invent a practical motor, but the result of his experiment was a more elaborate setup to demonstrate continuous rotation of the wire. It consisted of a bowl of mercury, a permanent magnet and the wire. *(Fig. 3.)* The mercury served as an electrical contact that allowed the wire to rotate freely around the magnet. The rotation was caused by the electromagnetic field that surrounded the wire opposing the field of the permanent magnet. Faraday's experiment led to the discovery of the first rotary motion in the history of electromagnetism.

Variations of Faraday's motor were developed by other experimenters. As amazing as these devices were at the time, they were mere laboratory curiosities—flea power at best. Their mechanical configurations offered no preview of inventions to come.

Michael Faraday's electromagnetic rotary device formed the foundation of the electric motor.

One can only imagine how information flowed over relatively long distances in those days. But news of extraordinary discoveries managed to get around, and the high-tech developers of the day typically progressed step-by-step, based on the contributions of other inventors and scientists.

William Sturgeon's Commutator

Two of the most significant contributions to the advancement of the electric motor were those of another Englishman, William Sturgeon. In 1825, he developed an electromagnet that was capable of lifting 20 times its own weight. The electromagnet's iron core and its potential power were essential for gaining useful work from an electric motor.

Sturgeon's next accomplishment, in 1832, was the invention of the commutator, which is a circular electric contact on which a metal or carbon "brush" slides as it rotates. The commutator replaced Faraday's mercury pool. Not only did the commutator enable the flow of electrical current through the windings of the armature—the rotating component of the motor—but it enabled interruptions of the current and the resulting alternating magnetizations of the iron core. The commutator, an integral part of the armature, consisted of a series of pie-shaped segments that had electrical insulators between them. Little has changed in the

basic components of many of today's direct current motors.

Sturgeon's inventions became widely known among experimenters and inventors. Several electric motors appeared following his invention, including:

- In 1834, Prussian Moritz von Jacobi developed an early model of a motor that was the prototype for the first motor that provided consequential power.
- In 1835, two Dutchmen, Sibrandus Stratingh and his assistant, Christopher Becker, demonstrated a small car driven by an electric motor. This may have been the first prototype of future practical motor applications.
- In 1838, von Jacobi demonstrated his powerful electric motor by sailing a boat carrying 14 people across a river.

Thus, the invention of early electric motors, like many others, was not the work of one person. Communication across oceans, which was limited at that time, made crediting the true inventors difficult. Added to this was the tendency of nations to claim their home-grown heroes for history. But Faraday and Sturgeon, who were self-educated from an early age, appear to be the prime movers. Whether these two men ever met is unclear, but they had much in common as practical experimenters.

News of extraordinary discoveries managed to get around, and the high-tech developers of the day typically progressed step-by-step, based on the contributions of other inventors and scientists.

Self-Educated Men

Faraday was the son of a blacksmith. His early education ended at age 14, with the bare bones of reading, writing and arithmetic. He landed a job in bookbinding, which, for the next seven years, allowed him to read books on a variety of subjects. After attending four lectures given by then-prominent scientist Sir Humphry Davy, Faraday wrote to Davy asking for a job as his assistant.

A year later, Davy arranged for Faraday's employment as a chemical lab technician at the Pneumatic Institution in Bristol, England, which was established to investigate the medical powers of artificial airs and gases. Not long after, he became Davy's assistant. Further self-education came from experiments in chemistry, magnetism and electromagnetism.

Faraday demonstrated the magnetic field by using iron filings on a piece of paper with a magnet beneath it. He is also credited with the first demonstration of inductance by using two independent windings on a common iron core, which is the principle of the transformer. In 1821, he demonstrated his rotating wire motor. The unit of electrical capacitance, the farad, bears Faraday's name.

Sturgeon was the son of a shoemaker, who reputedly neglected his family. At age 10, he was apprenticed to another cobbler. At odds with his fate, Sturgeon eventually joined the army. He used his many years in the service to educate himself, even

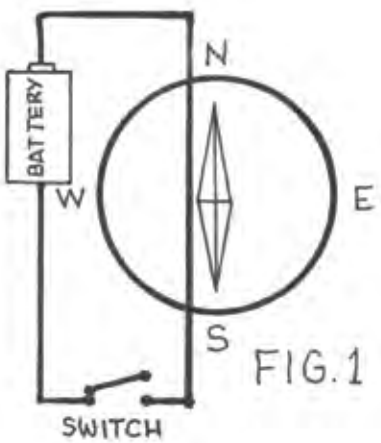


FIG. 1

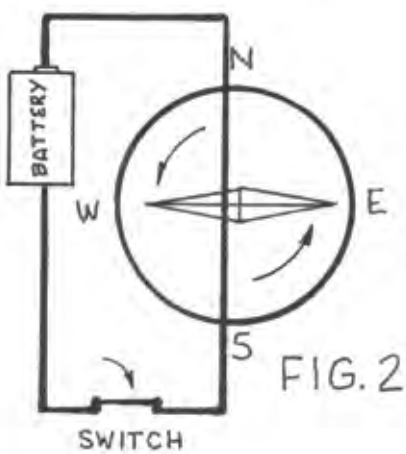
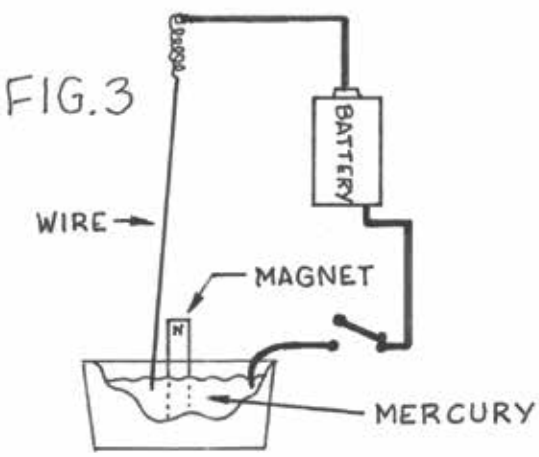


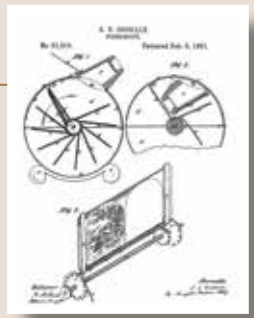
FIG. 2



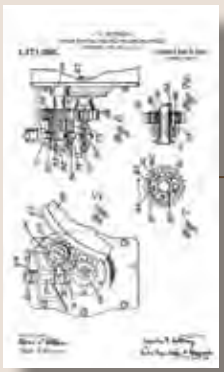
February 4, 1941

Roy J. Plunkett was granted U.S. Patent No. 2,230,654 for Tetrafluoroethylene polymers, or Teflon, while working at Dupont. Plunkett was attempting to make a new chlorofluorocarbon refrigerant, when he discovered that some had polymerized. This substance was slippery, non-corrosive, chemically stable and had an extremely high melting point. Dupont started selling non-stick cookware under the trade name Teflon in the early 1960s.

February 5, 1861



U.S. Patent No. 31,310 was granted to Samuel Goodale for a stereoscope, the first moving picture "peep" show machine.

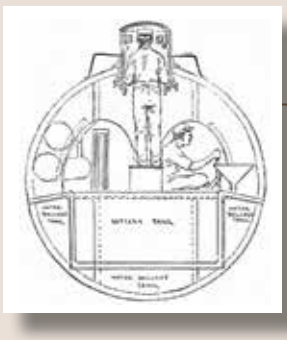


February 8, 1916

Charles Kettering was granted U.S. Patent No. 1,171,055 for a self-starting automobile engine that eliminated the need for manual cranking. Kettering was also responsible for the invention of leaded gasoline and Freon.

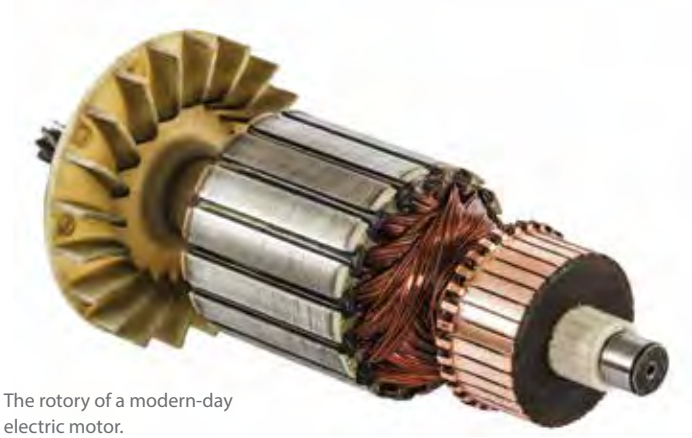
February 9, 1811

Although destroyed in the Patent Office fire of 1836, the U.S. Patent and Trademark Office states that a patent was issued to Robert Fulton for the practical steamboat. Fulton didn't actually invent the steamboat, but his efforts and innovations are what helped to successfully shape and commercialize the steamboat.



February 25, 1902

U.S. Patent No. 694,154 was granted to John Holland for a submarine. The Holland-class submarines were the first submarines built for the Royal Navy.



The rotory of a modern-day electric motor.

BIGJOKER/ISTOCK/THINKSTOCK

experimenting with kites and lightning as Benjamin Franklin had done many years earlier.

Sturgeon left the army at age 37 to further his experiments with electricity. He is said to have invented the first powerful electromagnet. Similar claims have been made for American experimenter Joseph Henry, although it is probable that Sturgeon did the earliest and most impactful work on the solenoid and induction.

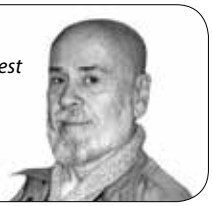
Incidentally, Henry's early education was very similar to that of Faraday's and Sturgeon's. He was apprenticed to a watchmaker at 13 and educated himself by reading his trade master's books. Henry went on to become a full professor at Princeton University. The unit of electrical induction, the henry, bears his name.

Lesson in Inventing

You can draw your own lessons and conclusions from these brief biographical sketches about those who contributed to the invention of the electric motor, but I offer these thoughts, as well:

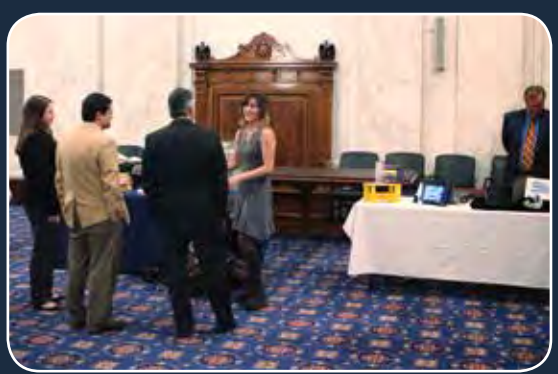
- **Education is essential, but much of it comes after formal schooling.** Intense interest, reading, online research and experimenting are our tools.
- **Invention today lacks the awe of discovering new laws of physics.** Although we work with these laws that others discovered nearly 200 years ago, we have many more opportunities and resources today thanks to the proliferation of technology. New applications, needs and wants that result from rapid technological change leave unfilled niches.
- **Technical innovations are nearly always the result of incremental contributions from many inventors.** Just as we rightfully deserve credit for what we invent, we should honor the other inventors who contribute important advancements to the whole.

Jack Lander, a near legend in the inventing community, has been writing for *Inventors Digest* for 19 years. His latest book is *Marketing Your Invention–A Complete Guide to Licensing, Producing and Selling Your Invention*. You can reach him at jack@Inventor-mentor.com.



Inventor's Project

Promoting Innovation Defending Intellectual Property



PROGRESS OF SCIENCE AND USEFUL ARTS

Discovery, Innovation, and the Vital Role of Intellectual Property

Monday, February 22, 2016
9:30 a.m. – 2 p.m.

Clemson University
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KEYNOTE SPEAKER
Rep. Jeff Duncan, R-S.C. 3rd Cong'l. Dist.,
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Failure to Launch

SEVEN STEPS FOR SUCCESS IN THE MARKETPLACE

BY JOHN G. RAU

You have a new product or service idea that solves a problem, but how do you find out who is experiencing the problem you are attempting to solve? Are there enough customers for you to make money from your invention idea? In other words, who is your target market—the specific group of people with needs or problems that your new product or service addresses? This is an important question every inventor should answer before moving forward with a new idea.

The answer should be as specific as possible. For example, the market could be left-handed, overweight, bald men over age 65. Identify what these men's problems are, how they currently solve them and whether there is a need for improved solutions. If so, what are they? How much do these men currently pay for solutions to these problems? Who currently provides the applicable products and/or services? (These are potential competitors.) How might your new invention be an improvement over current solutions?

Lessons in Failure

A classic example of an innovative product that was introduced without having a well-defined target market was the Segway PT, the two-wheeled, self-balancing, battery-powered, electric personal transporter launched in 2001 by inventor Dean Kamen. Paul Sloan, in the article "A Lesson in Innovation—Why did the Segway fail?"* states that although the personal transporter was a clever, well-funded product, the device failed to gain significant market acceptance for a variety of reasons.

First, the expectations for the device as the future of transport were too high. Second, it was a product, not a solution. Third, there was no clear need or target market. Fourth, it was an invention, not an innovation. Fifth, the Segway fell outside of the regulatory statutes of many countries, which made it illegal to ride on roads or sidewalks. Although Sloan doesn't mention cost, Segways are also expensive, which further limits the growth potential of the market.

"I never perfected an invention that I did not think about in terms of the service it might give to others. I find out what the world needs, then I proceed to invent it." — THOMAS EDISON

Lessons for Success

As you continue to brainstorm your idea and the impact it may have, take this step-by-step approach to determine your target market:

- **Step 1:** Define the problem you are attempting to solve.
- **Step 2:** Identify and describe those with that problem.
- **Step 3:** Describe what this segment uses today, if anything, to solve the problem.
- **Step 4:** Characterize or assess the positive and negative features of current solutions: What's good or bad about them; why do you think your solution is potentially better? Remember that further analysis, and most likely prototype development, will be required to verify and validate your claims. A potential concern is that your new product or service may be so similar to those consumers already use that they won't see the value in your idea.
- **Step 5:** Document information gleaned from newspaper articles, magazines, trade publications, published industry surveys, etc., that support a need for a better solution to a problem. It is not enough to cite quotes from individuals who say they would prefer a better solution—cheaper, smaller, easier to use—but who, in reality, would not have much interest in trying a new solution and/or be willing to pay for one. Complaining about something is not the same as saying, "Give me something new and better, and I'll buy it."
- **Step 6:** Define your target customer in more detail by identifying the specific characteristics of the people or businesses you believe are most likely to buy your new product or service. If your new invention will be sold to individuals or groups of individuals, you will need demographic information about them. A variety of demographic factors may be applicable, depending on the nature of your invention. General information is available through a number of sources, such as the United States Census (www.census.gov) and the Department of Commerce (www.commerce.gov), including statistics on age, gender, income level, buying habits, education level, racial/ethnic identity, marital status, size of household, number of children, occupation, geographic location, etc. This is pertinent information that you can utilize to characterize your target buyer. You may even need lifestyle information, such as hobbies, interests, recreational pursuits, types of vacations, entertainment activities (movies, music, media, literature, sports, etc.), political beliefs and cultural practices.

  If your target customers are businesses, you will need to characterize these in terms of type of industry, industry size, growth trends, number of employees, annual sales, geographic location, etc. In addition to information provided by the Department of Commerce, free business statistics can be found at www.bizstats.com.
- **Step 7:** Summarize what you found in Steps 1 through 6. This will provide the initial assessment of your target market. It will need to be further refined and evaluated by subsequent research as you proceed down the path of commercialization.

  Remember, your target market is not your friends and relatives who say, "What a great idea. You'll make millions." The key is whether there are enough people who agree with your friends and relatives, and are willing to buy your product or service so that it becomes a profitable venture.

In a blog on Creative Social, "Great Inventions and How to Market Them," Matt Rawlings posts: "If there's just one piece of advice you choose to follow, let it be this. You really need to know exactly how valuable your product is. Now that doesn't necessarily mean its monetary value. What you need to focus on is your target market. Who will the invention help, and why is it essential? Investors will want to know exactly why they should give you the money to create and market the product. So before you progress, make sure you're clued up on the ins and outs of your product."

Prolific inventor Thomas Edison was also a firm believer in the marketability of an idea. "I never perfected an invention that I did not think about in terms of the service it might give to others, " he said. "I find out what the world needs, then I proceed to invent it." ◆

John G. Rau, president/CEO of Ultra-Research Inc., has more than 25 years experience conducting market research for ideas, inventions and other forms of intellectual property. He can be reached at (714) 281-0150 or ultraresch@cs.com.

These Bootights® Are Made for Walking

SHELBY MASON COMBINES PRACTICALITY WITH COMFORT

BY JEREMY LOSAW

Serial inventors are constantly looking for new ideas, making prototypes and filing patents. Then there is Shelby Mason. She had an outstanding career in television sales with ABC/Disney when a lightning-bolt moment changed her path forever.

Mason was traveling through Chicago O'Hare International Airport on business, when TSA requirements made her expose the glaring white "man socks" she was wearing to make her boots more comfortable. Although she was stylishly dressed, the sight of her socks was enough to run a man she had met in the security line scurrying to another terminal.

Embarrassed by the encounter, after her plane took off, Mason began wondering, *Why can't a gal have a stylish, quality tight combined with the comfort of a sock, all in one?* By the time the plane had landed, Bootights® was taking off. The resulting success launched Mason from the corporate boardroom to entrepreneur stardom as the founder of Leg Up, LLC.

Designed to be worn with boots, Bootights is hosiery with performance socks attached. The upper hosiery gives women the sleek look of tights, while the socks provide comfort and fewer snags and runs.

The original Bootights were ankle-high, athletic-style socks

PHOTOS COURTESY OF BOOTIGHTS®

Why can't a gal have a stylish, quality tight combined with the comfort of a sock, all in one? — **SHELBY MASON**

on a full-length tight, but the success of the main product has allowed for line extensions, such as tights with crew-length socks and Boot Socks, which are trouser socks with athletic sock feet. Bootights for extremely cold weather have a heavier-denier tight with performance wool socks for maximum warmth.

Tight Spot

A native of Washington state, Mason began her career at a Fox affiliate in Seattle. The climb up the corporate ladder led her to colder climates in such places as New York City and Chicago, where tights were normal accessories in her wardrobe. Although Mason loved wearing boots with her tights, her feet were often cold and blistered in winter.

To combat the discomfort, Mason wore men's socks over her tights. However, the layering was not comfortable, and the socks had a tendency to slide off her heel and bunch up. The final straw was that trip through the security line at Chicago O'Hare International Airport. "I was talking to a good looking guy in line and had to take off my boots. I had these big, ugly tube socks on. … It was embarrassing and put salt in my game. I knew there had to be a better way," recalls Mason. On the flight to Fargo, N.D., she came up with the idea of cutting the foot out of a pair of tights and replacing it with a sock.

Dirty Little Secret

Mason did nothing with her idea for a year and a half. During that time, a promotion sent her to California, where Mason was encouraged by the warm weather to shuffle her tights to the back of her dresser drawer. Despite having year-round bare legs, the idea for tights with socks kept nagging at her.

Mason finally decided to take action and hired a firm to conduct market research. More than 500 women across the United States were polled, and 54 percent reported layering socks over tights when wearing boots. "I thought, 'Wow, there is a market. It is just a dirty little secret we never talk about,' " says Mason.

Buoyed by the research, Mason took a pair of tights and socks to a local seamstress to get a prototype made to vet the idea. They worked well, and after watching an episode of *Oprah* featuring Sarah Blakely, the inventor of Spanx, Mason had the confidence to push forward and find a manufacturer.

Shelby Mason promotes Bootights at trade shows, such as Accessories, The Show (ATS) in Vegas.

Spinning an Idea

Mason's idea was simple, but finding a manufacturer proved to be surprisingly difficult. Her first move—to cold-call hosiery mills—was unsuccessful. The conversations stalled because Mason didn't know anything about the industry or the manufacturing technology.

A fortuitous web search led to a 40-page glossary of hosiery terminology. It was prepared by the Manufacturer Solutions Center in North Carolina, which helps bring hosiery and textile innovations to market. Mason reached out for help, and the organization loved the idea of her tights. They agreed to help her and engaged their network of sock and hosiery mills. Despite the similarities between socks and hosiery, the two industries have vastly different technologies, and it was difficult to have the tights with socks manufactured in one facility. After six months, Mason finally had a prototype and pricing. A short production run generated an inventory of samples to sell the product.

Despite the difficulty in securing intellectual property in clothing, Mason filed for a utility patent early in the process. She did her own patent search and wrote the provisional and filed it online. She also penned the non-provisional filing, but had it reviewed by her patent attorney before filing. Mason filed her own trademark, which is especially valuable in the apparel industry in which brand recognition drives sales.

Oprah Lends Credence

Interest in Bootights and sales came quickly. Many inventors try to market their products by selling them to small local retailers and through tradeshows. Mason worked for Disney, which has immense brand recognition, and she was used to people taking her phone calls. She was also a first-time inventor and did not understand the protocols of product marketing. So, she naively called the purchasing executives at Dillard's department store, and they placed an order for Bootights.

Sales really took off when Oprah got wind of the product and featured Bootights on her show. "My website died after the first three minutes," recalls Mason. "It was a disaster, but the great thing was that the residual effect of the Oprah mention was amazing, and we got into some major retailers because of it."

The sales and exposure were terrific, but they caused other issues. Mason was still working at Disney when the *Oprah* show ran, and she did not have the team or infrastructure in place to handle the sales. Mason was using her down time on business trips to educate her sales teams about Bootights to increase the sell-through rates at retail accounts. Eventually, the responsibilities were too overwhelming, and she quit her job to work on Bootights full time. Mason developed a team to help with sales, marketing and procurement, and even got her long-time boyfriend to join.

The success of the original Bootights has allowed Mason to expand the line. Her pending patent provides protection for any hosiery product with a sock as the foot. A line of Boot Socks that makes the technology usable in the summer months has proven popular with younger customers. She has also created a performance tight with a wool sock that is specially designed for winter sports. There are plans to expand the line in the coming years with products that are too new to release.

Mason may have been an accidental inventor, but Bootights have been a welcome addition to women's wardrobes. Fashionistas can now look their best, as well as be comfortable, when wearing boots. No more ugly socks.

Jeremy Losaw is a freelance writer and engineering manager for Enventys. He was the 1994 Searles Middle School Geography Bee Champion. He blogs at blog.edisonnation.com/category/prototyping/.

A Fantastic Vessel-Clearing Innovation

HOW A 1960S-ERA SCIENCE-FICTION MOVIE IS BECOMING A REALITY

BY CLIFFORD THORNTON

In the movie *Fantastic Voyage*, a surgical laser beam and miniaturized submarine are used to to save the life of a scientist who has a life-threatening blood clot. Today, inventor William Zurn is extremely close to making this imagined medical surgical capability a reality.

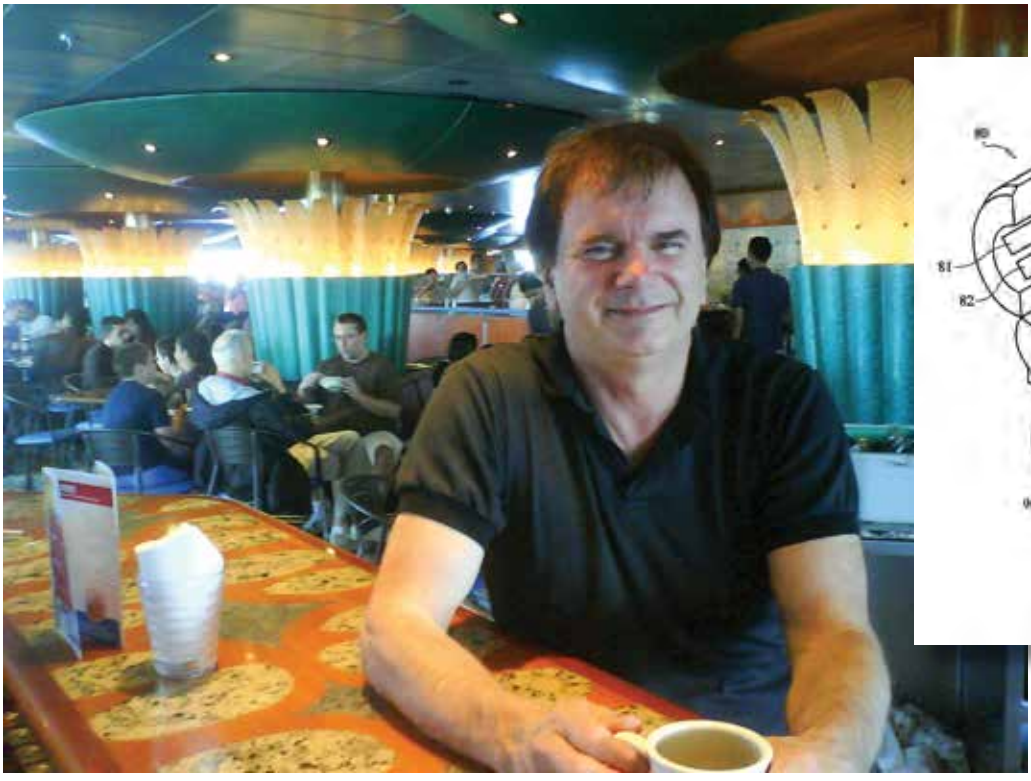
In 1966, the science-fiction movie *Fantastic Voyage* was far ahead of its time in special effects, technology and cinematography. What is most remarkable, though, is the foresight of the film's creators and directors to capture an almost unimaginable concept at the time, for which the technologies used in the film, including nano and micro-electric mechanical systems, are coming very close to reality today.

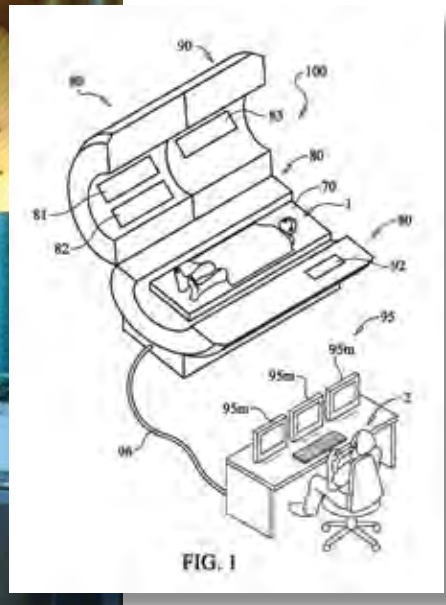
Previous science-fiction movies focused on intergalactic travel, but *Fantastic Voyage* delved into another kind of space—"inner space"—space inside the human body. In this case, the body is explored by a successful brain surgeon, scientists and other specialists aboard the customized submarine *Proteus*, which is designed to navigate through the human vascular system after it is shrunk to microscopic size, placed in a syringe and injected into the bloodstream.

The team's mission is to save the life of the scientist who holds the secrets of the miniaturization technology. He suffers from a life-threatening blood clot in his brain, which has left him in a coma.

Once miniaturized, the submarine and its crew are inserted into the scientist's carotid artery, where it begins its arduous journey. The nuclear-powered vessel's location is tracked through the isotopes it emits, and the vessel's status is monitored by control-and-command center personnel, who use radio to communicate with the crew.

To determine the shortest route through the scientist's vessels to the clot, the team uses diagrams of the human anatomy as navigation charts. Once the submarine reaches the clot, the scientists aboard use a laser beam to pry the clot from the blocked vessel. The journey is quite exciting, as the crew can see what no human has previously seen: the wonders and workings of the inner human body at the microscopic level—in close proximity and vivid detail.





William Zurn's vessel-clearing device, U.S. Patent No. 8,663,209.

Lasers and MRIs

What do miniature submarines, a dying scientist and a surgical laser beam have to do with nanotechnology and MEMS? This imagined medical-surgical capability, as far-fetched as it seemed at the time, is extremely close to becoming a reality. Inventor William Zurn has exercised his decades-long experience in technology development and engineering to design a now-patented vessel-clearing system that will accomplish, in a very similar fashion, what *Proteus* and its crew set out to do—eliminate blood clots—but in a more modern and realistic way.

Clotting of the blood, such as when an injury occurs and the bleeding stops, is a normal occurrence in the body. However, clotting can also cause irreparable bodily damage, or even death. Clots that pose a risk or threat to a patient can occur in the heart, veins or arteries.

Zurn was inspired to develop a patentable stent after researching the causes and effects of aneurysms. This led to a system of controlling, guiding and placing medical-implant modules within the principles of nuclear magnetic resonance. The vessel-clearing device is a huge leap in medical technology, transcending present methods of clearing atherosclerotic plaque and clots from human vessels and arteries. The vessel-clearing system will enable complete mapping of the cardiovascular system via magnetic resonance imaging, and precise locating and targeting of the occlusion.

The vessel-clearing system will enable complete mapping of the cardiovascular system via magnetic resonance imaging, and precise locating and targeting of the occlusion.

Additionally, computer-assisted surgical methods of clearing clots and atherosclerotic plaque will be employed. The system computes the circulatory system path algorithm, which, in turn, allows for navigation to, around and from the source of the blockage. Finally, an algorithm for removing the blockage, which is programmed into the master computer, directs the motion of a biocompatible module apparatus, constructed by nanotechnology and/or semiconductor material, which then utilizes laser energy to remove the blockage. This is a much more effective, safe and efficient method than a traditional angioplasty procedure, which uses a balloon to compress the blockage or plaque against the artery walls. In addition, recent studies have shown that after a few years, many patients must undergo an additional angioplasty procedure.

Nanotechnology Is a Giant Step

What exactly is the vessel-clearing system and how does it work? We can compare *Proteus* and its imagined capabilities to the vessel-clearing system. Within the system, a biocompatible module composed of multiple subsections, referred to as "pods," are constructed by a combination of nanotechnology and integrated circuit technology. The size of these injectable pods is

This is a much more effective, safe and efficient method than a traditional angioplasty procedure, which uses a balloon to compress the blockage or plaque against the artery walls.

approximately 100 nanometers by 50 nanometers (a nanometer is equal to one-billionth of a meter). These pods are analogous to *Proteus*, and just as *Proteus* was introduced to the scientist's body through a syringe and needle, the BCMs, or pods, will be inserted into patients in the same fashion.

In the same way that *Proteus* had radio communication between its crew and the control center, the vessel-clearing system will allow for similar communication between the pods and the control console, which is operated by a surgeon. As such, the pods have a communications unit, a radio-frequency receiving and conversion section, and a laser-transmission section. The laser functions as the tool to untether and fragment the clot. The remaining residue is processed by the kidneys. Just as *Proteus*' location in the scientist's body was tracked by the control center via nuclear emissions, the vessel-clearing pods will be transmitted and closely and accurately tracked by nuclear resonance imaging. The collected information will be displayed on the control console.

In the film, *Proteus* and its crew have a certain time frame—60 minutes—in which the miniaturized state remains active. Past that time, everyone and everything involved return to normal size. Zurn's vessel-clearing system will not experience this problem. The vessel-clearing system and related procedure will be carried out in an efficient and timely manner with a focus on patient safety. Once it is determined that all applicable and dangerous blockages have been cleared, the BCMs will be collected and extracted from the patient's body in the same way in which they were introduced, via a syringe and needle.

If this sounds like another fantastic voyage, think again. The vessel-clearing device, U.S. Patent No. 8,663, 209, will be making its inaugural journey soon.

Clifford M. Thornton is a Certified Cardiovascular Technologist and a registered Diagnostic Cardiac Sonographer. He is also a journalist in the medical-device field, particularly, cardiology and nanotechnology.

PHOTOS COURTESY OF JOSH WALLACE

Packaging 101

DESIGNING FOR PRODUCTION AND PROFIT

BY EDITH G. TOLCHIN

When I began to facilitate manufacturing for inventions over 25 years ago, I had no clue how critical packaging design and branding would become in the development of a new product. Sometimes inventions were manufactured in China and imported—without packaging—into the United States. Clients then paid a U.S.-based printing company or distribution center to undertake the task of manually retrofitting the product into the packaging and design—a now-obsolete job. By the time I wrote my first book, *Sourcing Smarts*, in 2008, times—and the packaging of inventions—had changed. One of the biggest improvements is that products can now be manufactured and packaged at the same time, which gives the advantage of being shelf- and retail-ready—providing you know the process.

Also in 2008, I was introduced to Josh Wallace, a talented young artist and graphic designer, who has since been an integral part of my team. He recently took the time to discuss his experience working with inventors and has suggestions for making your new-product submission "picture perfect," not only for prospective manufacturers, but ultimately for retail buyers and consumers.

Edith G. Tolchin: Before we get into the nitty-gritty of packaging, tell us about the process for designing a logo for a new invention.

Josh Wallace: Many people think that designers just learn a bit about the product and then sit down to draw out the finished logo, but there is actually quite a bit of prep work. My process for designing a logo for a new invention is pretty much the same process I like to go through when designing anything. I have a set of questions that I ask the client to help me get to know him or her, what it is he or she is selling and what the ultimate goals are. If there is a prototype or finished product at

"I think it's beneficial to design the logo first since it's a symbol of the product that will determine the direction of the other graphics revolving around the product." —**JOSH WALLACE**

hand, I ask for one. Otherwise I won't fully be able to get a feel for it. From there, I do lots of research about the product's industry to learn even more and also to see what has already been done with graphic design. Designers need creative fodder. We can't design blindly, so all of this prep work creates a pool of thoughts that we can draw ideas from.

At this point, I start some doodling, but all the while, I'm still looking through a couple thousand fonts, contemplating endless color choices and researching any other details that may come up. I keep scribbling away until I see some smart, concrete ideas forming. I then translate those ideas to the computer to explore further. Once I have a few good ones, I'll share them with the client to choose from. We then work back and forth until everything is perfect with their new logo.

EGT: Would it be fair to guess that most inventors who ask you to design their logos also ask you to work on creating their packaging designs?

JW: That is mostly the case and the way I'd prefer to work. If I'm able to be part of the entire design process, from the logo through the packaging (and oftentimes beyond that), then I can make sure that everything is cohesive and that the client's goals will be accomplished.

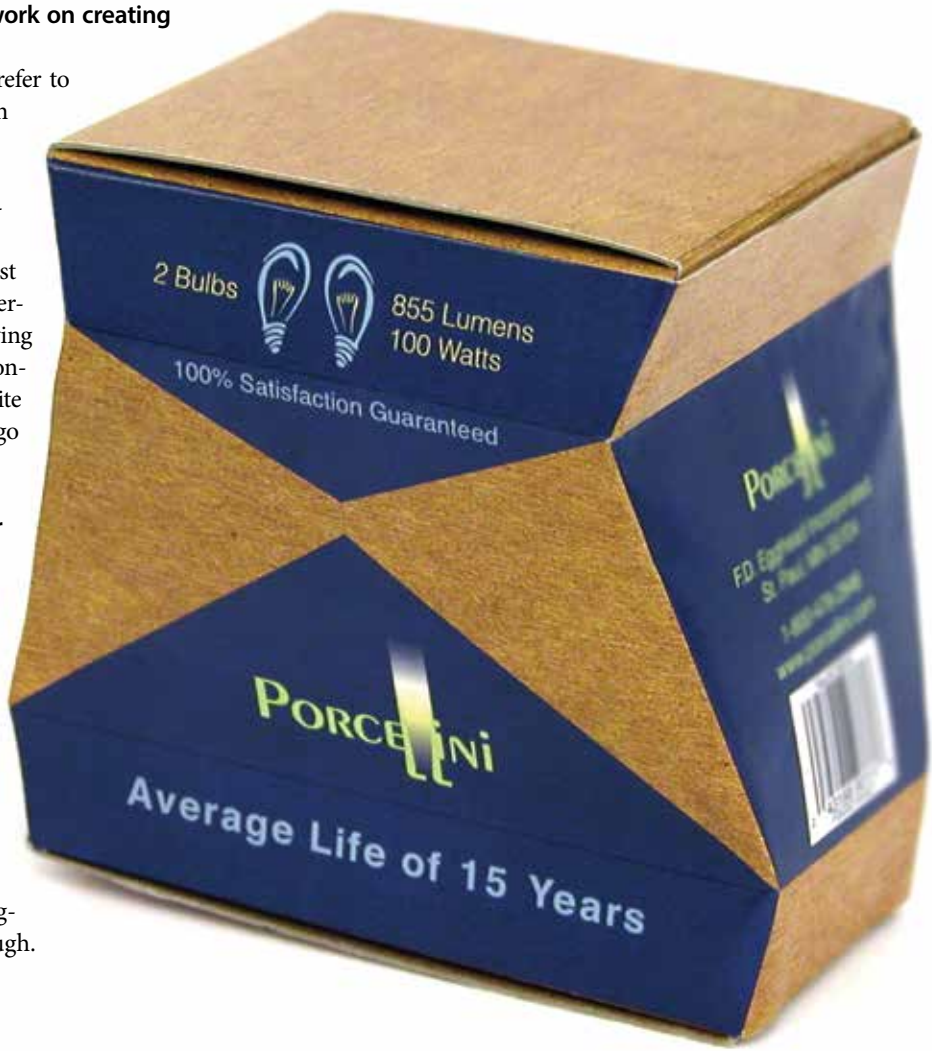
I think it's beneficial to design the logo first since it's a symbol of the product that will determine the direction of the other graphics revolving around the product. Everything should look consistent. You wouldn't want to have your website designed a certain way and then toss in some logo that agitates the look of everything.

EGT: I've personally found recent Consumer Product Safety Improvement Act regulations for the marking of babies' and children's inventions to be particularly challenging in the many stages of product development. Would you like to share anything on this?

JW: I suppose they don't affect me as much as they do others involved in product development. We always go through them to get some of the specific text that is required to be on the package, but other than that, I don't really need to worry about them too much. Regulations of any kind can be bothersome, though. They're extra hurdles that we have to keep track of and help our clients through.

EGT: Once you and your client have agreed on the final packaging design, how do you create a mockup? Can you discuss a few different types of packaging, such as bags with header cards, or cardboard boxes, for example?

JW: If we're going with conventional packaging for the product, then I can pretty easily create the physical mockups. Anything unconventional and more complicated most likely would be outsourced, so we'd need to work with a packaging engineer. A lot of what I do is outsourced with the help of EGT Global Trading, so we make sure to have mockups created in order to fit the product inside. The package containing the product is then sent to factories for quotes.



With mockups, I prefer that the client send me samples of existing packaging that they'd like me to take into consideration for shape and materials. If it's a product hanging in a plastic bag, it's best for the client to go to stores and look for existing products that utilize the type of bag that they envision, buy those products and then send the bags to me. That will ensure that I have the correct size bag with the correct thickness of plastic. Otherwise, if the client prefers my recommendation, I would just go out to do the same thing. I can always order fresh supplies, but they're sold in bulk. The poly bags, for example, would come in a carton of 500 to 1,000, so that would not make sense just for mockups.

There is usually paper or cardboard with printed text and graphics, so I print those out and fasten them to the package. If we're using a box for the product, my laser printer only handles up to a certain weight of paper, so with thicker cardboard boxes, I have to print on paper and glue it to the cardboard. We then instruct the factory to print directly on whatever materials they end up using (the same thickness of cardboard as the mockup, but it would have a coated side for printing). We usually send a few notes to the factory since the mockups probably won't be made with the exact materials that we want them to use.

For packaging that is more complex or is made out of materials that I can't create in my studio, like glass and metal, I would create a 3-dimensional-looking illustration of the packaging. It would show different views with estimated measurements for the factories to determine production quotes.

There always needs to be something to stand out to grab the attention of the consumer, whether it's a bright photo of the product or big block letters stating a specific claim.

EGT: How does a mockup help prepare a prototype for submission to a factory for production quotes?

JW: Creating the mockups is extremely helpful because everyone has a good grasp of how the product will work within the packaging. It's very important for us to be able to visualize how it all works together with the logo, the graphics, the text and so on. If we left it up to the factories, the process would take a lot longer. We have very few surprises when we go about it this way, because we can work out most of the bugs before contacting production facilities for their quotes.

EGT: Once the factory has quoted your client, what type of software files do you need to prepare so the client can send the artwork to the factory to reproduce? Should the files be editable if needed, such as to reflect updated manufacture dates?

JW: I work with the industry-standard design software produced by Adobe Systems Inc. I can export final files into more universally used file types, such as PDFs, that the factories can work from. PDFs can be edited to an extent if the factory has the software to do so (which they should). Otherwise, I always expect there to be some changes before the actual production, so I leave room for that. The bulk of the work is done, so simple text changes take no time.

Sometimes the factory requests that the package be resized slightly for a better fit to the product, but that's also an easy fix. I just have to shift the graphics and text to play well within the new size.

EGT: What are some of your personal preferences with packaging design? For example, color over content? Or, how can you tell a client that you feel his/her ideas are too conservative? Should you suggest they step outside of their comfort zones, or does it depend on the invention?

JW: It depends on the invention to an extent, but mostly it depends on the budget. Sure, there are low-cost ways to stand out, but the best ways, like gold-foil printing or using tactile features like a bumpy texture on a box, usually cost extra. I certainly love working with these flashy techniques and will recommend a slew of methods if there is a budget for them.

My preferences span the spectrum. I love really clean, minimalistic design. Just look at everything Apple does. Their packaging uses tons of white space. The graphics are just the company logo, the product logo and a product photo. They also use a glossy varnish over those items, making them shinier, more vibrant and compelling. The boxes are smooth and durable, and everything fits inside neatly. They do an amazing job. It's not a crazy, in-your-face type of design, but in a way, it ends up acting like that because it's hard not to notice. The image they created echoes throughout the layout and design of their stores, as well as commercials and other advertising.

The other end of the design spectrum is the noisier, more flamboyant side. You'll see examples across different industries, but some frequent it more than others. Beer packaging is a fun one. You'll see everything from the sleek, minimalist design to surreal

illustrations that belong in art galleries. And then there is the toy industry, with all of its products and packaging designed to scream down to the children who want them so badly.

It's a really fun challenge designing for either end of the spectrum, but there is plenty of fun designing something that lies in the middle of the spectrum, too. It all depends on what we can get away with. There always needs to be something to stand out to grab the attention of the consumer, whether it's a bright photo of the product or big block letters stating a specific claim.

The preferences of clients I've worked with over the years have varied tremendously. Some of them are very specific with what they're looking for, even when my recommendations differ. If I don't agree with them, I just do my best to explain why we should design the package in a certain way. I give them examples of other success stories and show them how I would design their package to also be successful. If they don't agree, we usually find some kind of compromise. There have been a couple instances where I've turned down work because of the person's skewed design goals, but that's not very often. I like to be easy to work with, but I'm also hired to contribute my perspective.

EGT: Have you learned anything interesting in working with inventors?

JW: I've learned lots about new product development, product branding and marketing. I've also learned more about the packaging industry and outsourcing those jobs. The experiences that have stuck out the most, however, are the stories of what inventors go through to get their products to market. Inventors and other small business owners have made up the bulk of my career, so I've gotten to work with some wonderfully ambitious people over the years who put serious blood, sweat and tears into their ideas. There are some tremendously driven people who never give up, but there is no other way to succeed.

EGT: Is there any advice you can share with readers of *Inventors Digest* if they choose to manufacture their inventions on their own and need help with logos and packaging design?

JW: Personify your products and think about their personalities. This mindset allows you to imagine how the product would want to be displayed on the shelves. What traits should stand out and what kind of graphics would complement it? Inventors should continually add to and refine a list of personality traits throughout product development because this will help direct people like me on the creative side. Every product is unique, and it is our job to show the world why.

To learn more, visit www.joshwallace.com.

Words to the Wise

BEFORE YOU SUBMIT YOUR IDEA TO FACTORIES:

- Picture how you'd like to see your product on store shelves.
- Create a good packaging mockup.
- Work with a qualified designer to get the mockup ready to submit for production quotes.

IF YOU **DO NOT** INCLUDE YOUR PACKAGING MOCKUP WHEN SUBMITTING YOUR PROTOTYPE FOR QUOTES:

- Your first quote will not be accurate.
- You'll waste time in determining your selling price.
- You'll ultimately delay your product launch by having inaccurate information from the beginning. This can be disastrous for many reasons, not to mention off-target profit margins.

Edie Tolchin has contributed to *Inventors Digest* since 2000. She is the author of *Secrets of Successful Inventing* and owner of EGT Global Trading, which for more than 25 years has helped inventors with product safety issues, sourcing and China manufacturing. Contact Edie at egt@egtglobaltrading.com.

Jay Walker

THE INVENTOR OF PRICELINE IS A SERIAL ENTREPRENEUR AND PROLIFIC PATENTEE

This article was originally published October 29, 2015 in Innovator Insights, *a blog interview series of the IPO Education Foundation. For information, visit www.ipoef.org.*

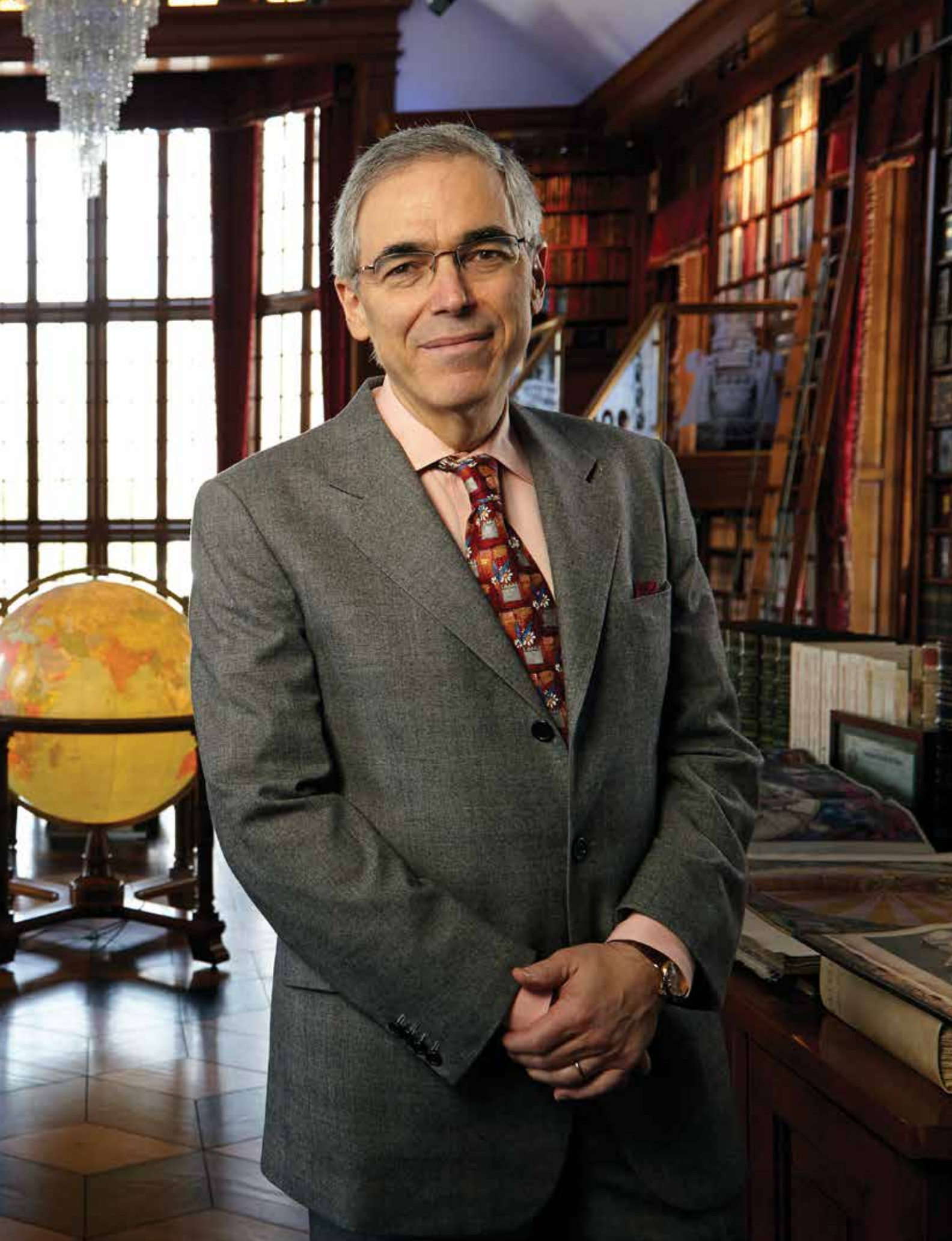
JAY WALKER, SELF-DESCRIBED "SERIAL ENTREPRENEUR" AND inventor of the core technology behind the game-changing travel company Priceline, got his introduction to the patent system at age 15, when he tried patenting an invention to help people sidestep wearing seatbelts. "It was a belt you could wear on your pants that looked like a seatbelt, so it seemed like you were wearing one when you got in the car," explains Walker. "I didn't like wearing them I guess." Although not much came of that particular invention, the experience gave Walker his first peek into the complexities and difficulties of bringing a product to market—and the importance of having a patent to back it up.

Forty-five years later, Walker, who was presented with the IPO Education Foundation's Inventor of the Year Award in December 2015,* has founded three companies that, in total, have grown from zero to 50 million customers, and has launched a number of other companies over the course of his career. He is a named inventor on more than 650 patents and has numerous others pending, making him the world's 11th-most patented living inventor. "Since around age 10 or so, I was always the kid with the lemonade stand and the paper route, and selling things door-to-door and shoveling driveways; I was very much the typical American entrepreneur," he says. "It's undoubtedly in my genetic makeup."

Today, Walker serves as executive chairman of Walker Innovation; as chairman of the research lab Walker Digital; as curator and chairman of TEDMED, the independently owned and operated health and medicine edition of the world-famous TED conference; and as co-founder of multi-channel marketing company Synapse Group, which was purchased by Time Warner. Earlier this year, Walker announced his United States Patent Utility service, now Haystack IQ, a "Big-Data-driven subscription service" meant to broaden patent owners' access to the USPTO's patent database and increase awareness of potential licensing revenue. The service was partly a response to what Walker feels is a damaged patent system. "The patent system as a whole is much like a giant iceberg—it's melting slowly," he says. "Still, the patent system is an enormous asset that can help all companies of all sizes if they can look at the patent database in smarter ways."

** The IPO Education Foundation's Inventor of the Year Award recognizes the most outstanding contemporary inventors and seeks to increase public awareness about the impact inventors make on the economy and our quality of life.*

PHOTOS COURTESY OF WALKER INNOVATION



Walker spoke with *Innovator Insights* about his views on the changing U.S. patent system, how it is affecting entrepreneurs and small inventors, in particular, and what steps patent leaders must take to bring the system back on track.

Innovator Insights: When did you first encounter patents during your career?

Jay Walker: I came to patents fairly late, in the late 1980s, when it became clear to me that I could start a business that invented other business systems based on what I saw regarding the coming change in the technology of business. I built my first R&D lab as a business—that's what Walker Digital is. I put together teams of what I thought were people smarter than me, and we worked together solving problems as principals, rather than as consultants. Priceline is an example of a solution to a problem that we invented in the Walker Digital laboratory. We have hundreds of other inventions, as well, now.

That's where we came to IP. As we invented those solutions to businesses, we realized that, unless we could protect them, people would just copy us. We had invested a great deal of time and money in thinking out the design of these inventions; it's a whole lot easier to copy than it is to do the hard research and development work and to take the risks. We learned a lot about the U.S. patent system and did our research, and we felt, at the time, that the patent system allowed for the patenting of software-based inventions, and clearly for business systems that were new and novel and based on software. So we began the process of building an IP portfolio and ultimately launched several businesses from that portfolio. I'm not an attorney, but I studied patent law fairly deeply and then used that to build an IP team that could protect our inventions at a price we could afford to pay.

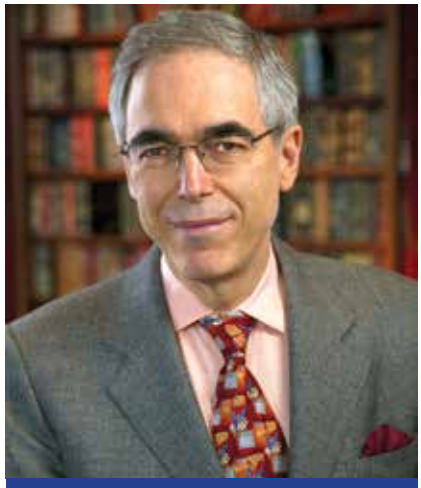
II: Can you describe exactly what the Priceline patents cover?

JW: The Priceline invention was really about the idea that you would buy something using a credit card without knowing what you had bought. In this case, you would buy an airline ticket, but you did not know the airline or the time of the flights; you didn't know if it was nonstop or had a connection; you didn't know key things about what you were buying. But because you got the price you wanted on the day of travel you wanted, you were willing to give Priceline the authority to commit you and to charge your card before you knew what you were getting.

Nobody had ever done that. It had real teeth in it. We invented what we called the "conditional purchase offer," which said that, if certain conditions are met, the consumer agrees to buy something without knowing the other conditions. And once they buy it, they won't be able to change or cancel it. You bought it by naming your own price, but the naming of the price was not the invention—people had been offering prices for things for years. What people hadn't been doing is buying things half-price unseen and allowing a seller to configure the product to meet their various general requirements without knowing the specifics. That was the invention.

II: How would your story have been different without patents?

JW: I certainly would never have been able to launch Priceline, which is today a $60 billion market-cap company employing thousands and thousands of people in the United States. Without IP, what you have to do is hope that none of the big guys are going to take your invention and just run with it. It means they have to find new ways to innovate, or else buy, acquire or license new innovations from others. Without IP, I would not have been able to launch several of the businesses I have, and without IP, I certainly wouldn't have been able to spend years in a lab inventing businesses and systems that, ultimately, I think have benefited the United States and the global economy.



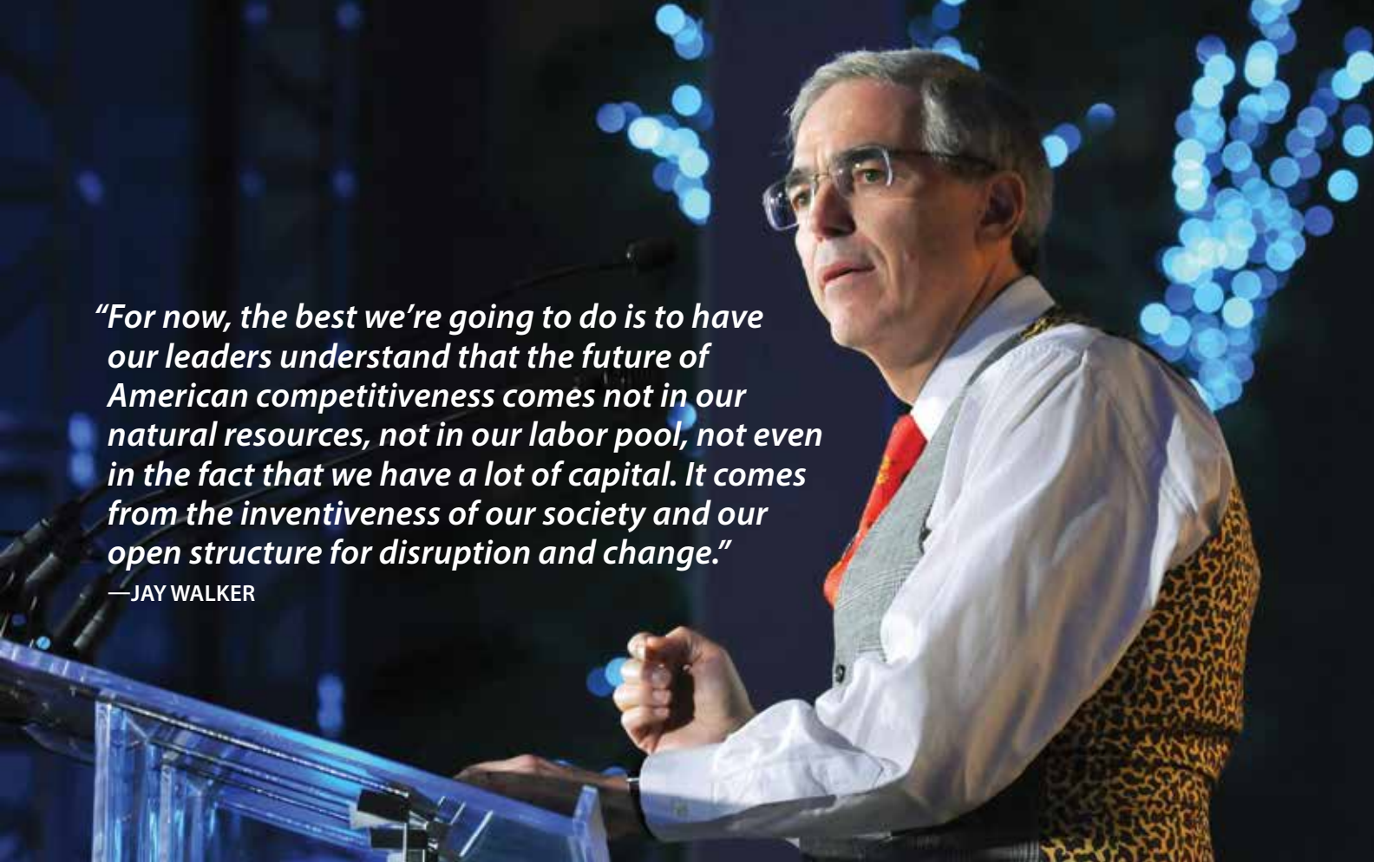
"The patent system as a whole is much like a giant iceberg—it's melting slowly. Still, the patent system is an enormous asset that can help all companies of all sizes if they can look at the patent database in smarter ways."

—JAY WALKER

II: If you're worried about people copying, why use patents over trade secrets, for example, to protect your technology?

JW: Well, it used to be that a U.S. patent had real value for a small inventor. Unfortunately, that's no longer the case. Just 20 years ago, if you were a small inventor you could afford to get a patent and feel confident that, if your patent was well written, it would not only be respected by others, but you could get that patent enforced in the courts without spending millions of dollars. That's no longer the case. The IP situation has deteriorated to the point that you no longer can enforce your patent rights in court unless you have several million dollars to spend, you're willing to spend several years doing it, and the other side knows you can afford to spend several million, or they will just drag it out until you quit.

Therefore, what we have to do is either change the system again, or those inventors will follow a different strategy—a trade secrets strategy, where they just don't tell anyone anything. Which might not sound like a bad strategy, but it's a terrible strategy—only marginally better than filing a patent that's worthless. A trade secrets strategy says, "Look, I have a secret and my advantage is going to be speed. I'm going to find someone who will sign a nondisclosure agreement and get to work." But that's extremely hard to do, especially if you're a small or medium enterprise. Most



people won't sign NDAs for fear you're going to sue them or because they're already working on something similar, which is all very reasonable.

We used to have a system where the small inventor had a bargain with society—in return for teaching society about their invention, inventors would have ownership rights to their inventions for specific lengths of time. This bargain meant that inventors all read each other's patents, and they were always trying to improve upon them. If you look at the history of the patent system, it was filled with knowledge sharing and trying to be a little more innovative, and we're about to lose all that. And you have even less protection internationally. The IP and patent game has become a sport of kings now, and America and the world are the losers. We've figured out how to pretty much kill the goose that laid the golden egg, and someone has to speak up and say that's what happened.

II: Is your Patent Utility Service partly a response to this problem?

JW: It's a response, but not a solution, by any measure. What I said with the Patent Utility, which now goes by the name Haystack IQ, is that there's enough material in patents in adjacent and unexpected fields that by reading the patent literature, which is 5,000 to 10,000 new issuances per week, and by searching the patent database smarter, you can do your own R&D smarter, or you can find the people you should be looking for. But what I'm really saying there is that the patent system as a whole is much like a giant iceberg—it's melting slowly, but make no mistake, it's melting. Still, what's there is an enormous asset that can help all companies of all sizes if they can look at the patent database in smarter ways. This really does not affect whether new patent owners should file patents, whether they can enforce their patents, or whether it's even a good idea to file patents. That's a completely separate and much bigger, macro issue than the smaller issue of whether or not we can design smarter products and services that mine the U.S. patent database in ways that help companies and inventors solve problems, create jobs and grow.

II: So in your view, legislation is needed to fix some of these problems?

JW: We're going to have to change the laws, and we're going to have to ultimately change how the courts understand those laws. We're going to have to make it much faster, much cheaper and much more certain. Otherwise, we will lose the incentive to invent, which is the characteristic of our society that has provided for our global economic leadership.

II: What about the public's perception of IP rights? Do you think the public values IP?

JW: Well, we have a massive problem in the sense that powerful forces with a great deal of money have engaged in a sustained public relations campaign to undermine the legitimacy of a patent. They've turned it from a badge of honor to a badge that says you are essentially trying to take advantage of the system. It's a bit like looking at any tool and finding some people who have abused and misused the tool and saying, "See, this tool is bad." The more powerful the tool, the easier it is to use and abuse. On

David Skorton, secretary of the Smithsonian Institution, and Jay Walker, the 2015 IPO Education Foundation's Inventor of the Year.

the other hand, this has always been the secret of Americans' extraordinary innovation capacity. We unlocked a level playing field in our history so that anybody could invent. But these forces have gutted the ability to go to court and get a reasonable, fair and speedy resolution in a patent dispute, and because you can't get that, and because patent borders are inherently unclear and fuzzy and require expertise, we have a massive system's failure in our courts and in our business relationships.

It's very complex to teach a citizenry the value of property—the value of property rights, borders and dispute resolution. Until you've experienced it with your own property or somebody takes something you've done; until you've been arrested or unfairly charged, you don't realize how important it is to have rights. We've got a long way to go before we teach a civics course in a sense that the population can both understand and embrace. For now, the best we're going to do is to have our leaders understand that the future of American competitiveness comes not in our natural resources, not in our labor pool, not even in the fact that we have a lot of capital. It comes from the inventiveness of our society and our open structure for disruption and change. That's what the world admires in us, and, unfortunately, if we dismember intellectual property, and if we tell people that software, which is the next greatest frontier in the world's value creation, can't be patentable, that's crazy. That's a disaster for the United States. On the other hand, if we don't create a simpler system to adjudicate the problems, and if we tie everybody up in court all the time, that's not a good system, either. So, clearly we have a long way to go to not only get the population to understand these benefits, but to get the business community behind them as well.

II: What can IP stakeholders do to help create change?

JW: Unfortunately, there's very little entrepreneurs can do. They don't have the kind of power or standing to really shape legislative or judicial understanding. That will fall to another group—the leadership of the IP stakeholder community. It's organizations, like IPO and thoughtful IP leaders, who, like myself, have already made a career out of this, who are stepping up and saying, "Hey we need to lead and put simple and concrete proposals on the table that balance the interests of everybody." I'm not talking about a one-sided failure here; this is a multi-sided failure. It's going to be real leaders who step forward and say, "If we don't fix this we're going to reap a whirlwind of problems we never wanted."

II: What concrete steps can be taken?

JW: I think IP owners need to find an organization that they believe has reasonable leadership that they can support. They're going to need to turn to their own organizations and say, "We need you to step up here." It's going to take some people stepping up and saying, "Look, we're going to need leadership, not just arguments." Powerful, moneyed interests are at work here, so like all things, it's going to take a coordinated, groundswell movement for them to make any change at all.

II: You've won many awards. What did the award from IPOEF, specifically, mean to you?

JW: Well, I don't think I ever met an inventor who did what they did to achieve an award. Inventors are guided by a desire to make a difference, to change the future. And I like to think that is what has motivated me over the years.

However, I am gratified to be recognized by my peers for the work I have done and for what that work has meant to others. I hope to continue inventing in areas that make a difference, and in a few years, [I also hope] IPO members feel that my award this year is as much recognition of what I have done since my award as what I have done in the past.

About IPO Education Foundation

Intellectual Property Owners Education Foundation is a nonprofit organization devoted to educational and charitable activities designed to improve intellectual property rights. The Foundation conducts programs to:

- Broaden public understanding of systems for protecting intellectual property,
- Sponsor awards for the purpose of recognizing outstanding achievement in the fields of invention, creativity and IP rights, and
- Publish reports dealing with legal, economic and other aspects of intellectual property.

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IPOEF Intellectual Property Owners Education Foundation

Innovator Insights is IPOEF's forum for inventors and other IP stakeholders to discuss their work and the role IP plays for them, and to help educate the public on the link between strong IP protection and robust innovation. Read more at www.ipoef.org.

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"What Does It Take?"

QUESTIONS FROM SONGS THAT EVERY INVENTOR SHOULD ANSWER

BY JEREMY LOSAW

If your scrap bins look like this, it is time to clean up.

There is a radio, which may have come over on the *Mayflower*, that sits next to the Dremel bits in the Edison Nation prototyping shop. The antenna is smashed, so the dexterity of a watchmaker is required to tune in a radio station. Despite its age, the radio kept us rocking until about a year ago, when the shop equipment was moved to the opposite side of the building. Unfortunately, the 10 available stations were reduced to two, and we had to retire the old girl.

We replaced her with streaming radio and a USB speaker. It was one of the least sad things that I have ever done. The music had to go on. It is the life blood of the shop. Music helps keep spirits high during long nights of cranking out prototypes.

Covered in dust, the shop radio jams no more.

Questionable Lyrics

Taste in music is as varied as preferences in pizza toppings. I am a '90s junkie, and I get really nostalgic when I hear Oasis or the Stone Temple Pilots. Regardless of the genre, plenty of song lyrics pose questions. Fifty Cent rapped an entire song of questions in the track *21 Questions*, but most of the time songs only have a question or two. Some are self-loathing: "Why does it always rain on me?" asks Travis. Some are almost deep: "Isn't it ironic?" ponders Alanis Morrissette. And some are insane: "Are we human or are we dancers?" demand The Killers.

While songs are meant for the general population, some lyrics are insightful and relevant to product development. Following are six questions from pop music that inventors should ask themselves during the product-development process.

PHOTOS BY JEREMY LOSAW

"Will you still love me tomorrow?" *—The Shirelles*

An idea for a new product can strike at any moment—in the shower, in the car, in a dream or after a few drinks with friends. Your brain goes crazy thinking about how awesome the product will be. Within minutes, you have named it, picked out colors and dreamed of all of the retailers that will be busting down your door with a purchase order. The experience is such a rush, it is easy to fast-forward to cashing checks. However, it is a good idea to let the idea simmer overnight or even for a couple of days. This will allow you to think clearly about the idea and give it an honest assessment. If you still think it's a great idea once you have slept on it, then it may be worth spending the time, energy and money to pursue.

"How am I supposed to live without you?" *—Michael Bolton*

It is easy to fall in love with your own ideas. You want the products to be great, and you want others to purchase them. However, inventions have a much greater chance of success in the marketplace if they fill a legitimate consumer need.

When you have a great product idea, you should ask yourself if the public absolutely cannot live without it. Does your product fill a gap in the marketplace? Does it have comparable performance to an existing product but can be made less expensively? Does it have superior performance to comparable products and can be sold for a similar price?

A great way to judge the need of a product is with consumer outreach. A quick survey can validate the market need before you put any energy into developing the product. It may also reveal an insight that can make your idea even better than the original concept.

"What you gon' do with all that junk? All that junk inside your trunk?" *—Black Eyed Peas*

There are two ways an inventor can answer this question. At first, it seems like an affront to the stereotypical inventor. Urban legends contend that inventors work in dirty garages filled with bins of components and devices that have been torn apart and Frankensteined into new inventions. However, if you find that your workspace is buried in clutter, and you can never seem to find your tools, then you may want to take time out from prototyping to reorganize your space so you can work more efficiently.

Alternatively, this question can be answered by considering your memories and experiences as the "trunk." Many great products are born from the intersection of components and ideas. So the real question is: How can you combine your inventory and experiences, and turn them into a product? Rummage through your closets, garages and pantries, and mentally start mashing things together. Look around and see if any of your life-hacks can be expanded into a product. You may find that your greatest invention is in a pile of junk you already have.

"Why do you have to go and make things so complicated?" *—Avril Lavigne*

The best products are often elegant in their simplicity. There are many reasons that it makes sense to design a product to be only as complex as it needs to be. Simpler products are less costly to manufacture, have fewer parts that can break and are easier for consumers to understand. You might think that a product with a lot of features would be attractive to consumers, but so-called "Swiss Army Knife" products often confuse or alienate consumers.

At the end of each prototype made in the Edison Nation shop, we spend a lot of time evaluating the design and looking for ways to make the product simpler. Can we combine multiple parts into one? Can we eliminate features that are not useful? Can we use a less expensive material and maintain performance? Can we change the design to make the tooling less complicated? This helps us to converge upon a design for a product that is high quality and low cost.

The Wine Shark started out with a complicated and costly inductive charging base, but it was changed to an easier-to-deploy USB charger without a base.

"Should I stay or should I go?" —*The Clash*

The road from lightning-bolt moment to having a product on store shelves is rarely smooth. You will encounter problems along the way, and mistakes are guaranteed. There will be many forks in the road; the main question at each decision point is whether to keep working on the product or to quit. Perseverance is the key to getting through these challenges. Finding the right material or a vendor that has the proper machinery for production are problems that can often be solved with patience or elbow grease. However, if the first time a Google search for your product idea reveals 25 competitors that are already making the same thing, then it may be time to cut your losses and look for a new idea.

You will encounter problems along the way, and mistakes are guaranteed. There will be many forks in the road; the main question at each decision point is whether to keep working on the product or to quit.

"What's your name, little girl, what's your name?" —*Lynard Skynard*

Every product needs a great name, which does not always come easily. In the web-connected world, it is important to have a name with an available URL, and one that is easily distinguishable from competitors. Making up a nonsense word for a product, or intentionally misspelling a word to avoid copyright infringement and take advantage of an available web domain is a common practice. Think brands like Fiverr, Zima and Verizon.

There are firms that will happily charge a fee to help you brand a product, but there are also free ways for inventors to gain access to potential names. Random word-generation websites, such as creativitygames.net/random-word-generator or watchout4snakes.com/wo4snakes/Random, can help you mash words together. Google can translate the word for your product in numerous languages, including Swahili. On the other hand, getting your favorite beverage and a group of friends together may be the most fun.

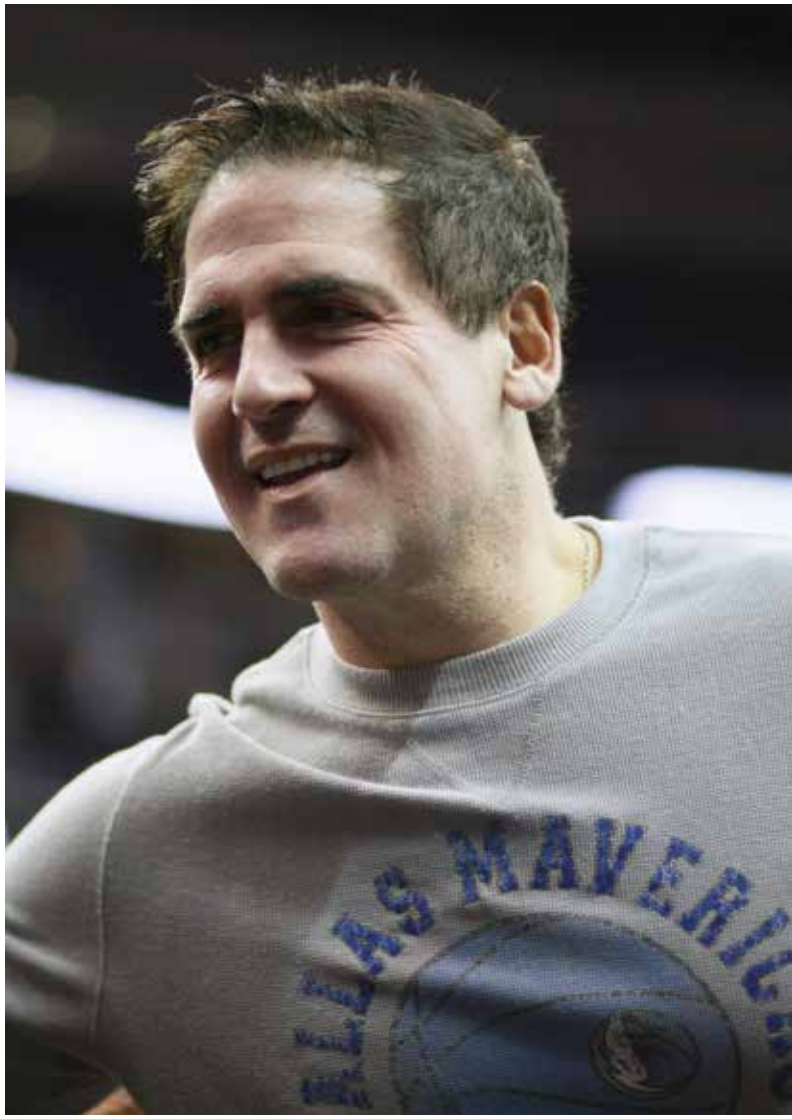
Once you have chosen a name, search domain names to see if a URL is available. Also do a general web search to make sure there is no one in the same category with a similar name to avoid potential consumer confusion as the product matures.

Answering these questions will help you gain perspective on your idea and guide you through the crucial product-development process. So, when you think you've got a great idea, crank up your favorite tunes for inspiration—and illumination.

Shark Tank's Mark Cuban

TALKS PATENTS, ENTREPRENEURS AND SOFTWARE

BY GENE QUINN



Mark Cuban is a businessman, investor, TV personality and owner of the NBA's Dallas Mavericks. Cuban's fortune came as the result of the founding of Broadcast.com, which was acquired by Yahoo! in 2002 for $5 billion in Yahoo! stock. Over the past five years, Cuban has become a pop culture icon as the result of appearing on the widely popular *Shark Tank* reality television series, in which aspiring entrepreneurs pitch a panel of investors, affectionately called "sharks," for funding.

Cuban is no stranger to the patent policy debate and has gone on the record numerous times explaining that he thinks software patents should be abolished. In fact, in 2012 Cuban donated $250,000 to the Electronic Frontier Foundation to create a position known as the "Mark Cuban Chair to Eliminate Stupid Patents."

Following is a November 10, 2015 interview with billionaire entrepreneur Mark Cuban published on IPWatchdog.com.

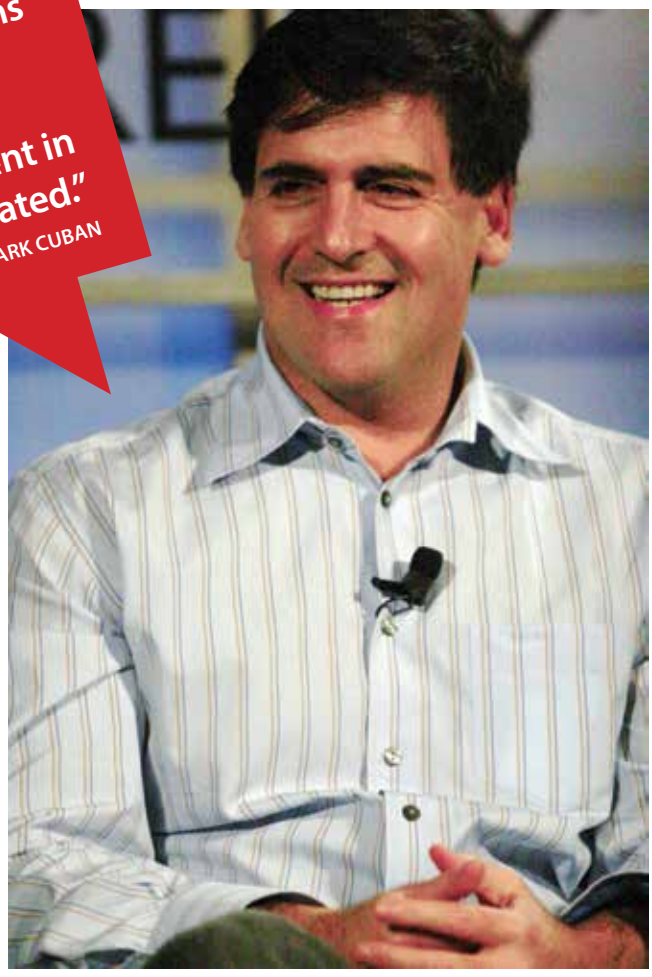
Note: Interview has been edited for clarity.

Gene Quinn: Do you believe the patent system as a whole fosters or inhibits innovation?
Mark Cuban: I think for technology, it inhibits it dramatically.

GQ: Most presenters on *Shark Tank* are asked if they have a patent, and it seems that when there is a patent that covers a product, they are given higher valuations for their startups. Generally speaking, do you believe having a patent that covers a product or service increases startup value? Why or why not?
MC: I'm not the one asking. The other sharks ask, and it's mostly for physical products. For many companies, it shows entrepreneurs have no idea what they are doing, and they have wasted valuable cash getting a patent before they know whether or not they have a legit business. Just because a patent is issued doesn't mean the company will be successful. Often the cash wasted obtaining a patent could be better used elsewhere. The few times I ask, I want to know if it's a situation where the money is wasted, or I'm concerned they may get sued by someone else, so having a patent offers some form of protection against the idiocy of the system. Patents drive litigation. Having a patent can give you a response to a suit. That is their greatest value in the tech industry these days.

GQ: It is true that burning through capital and wasting money is a big concern for any entrepreneur or startup, and sometimes pursuing a patent doesn't make good business sense. But in your answer, you seem to suggest that they (entrepreneurs) need to first determine whether they have a legit business. Can you elaborate on that?
MC: I can't even begin to tell you how many times I get stopped by desperate people telling me how amazing their patented product is, but they went into debt to get the patent and have no idea

"Punchless patents, those with no revenue sources, create huge problems for the system. They become golden tickets for trolls, which is why I think that if you can't monetize your patent in a given period, it should be invalidated."
—MARK CUBAN



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how to make money with their product and pay off their debt. A patent by itself is worthless. If you don't have a way to make money, you have wasted thousands of dollars. To some people, there is a pride of patent ownership. That's fine. It looks good on a wall. Punchless patents, those with no revenue sources, create huge problems for the system. They become golden tickets for trolls, which is why I think that if you can't monetize your patent in a given period, it should be invalidated.

GQ: What advice would you give inventors and entrepreneurs? Too often they run in headfirst, without laying the appropriate business foundation. For Mark Cuban, the investor, what would that foundation look like?

MC: First, never use inventor services. The ones I have seen advertised are a joke. Second, because a lawyer tells you something is patentable doesn't mean you should (patent). Third, if you don't know how you will make money from your patent, then it's not a business. Know how you will create revenue or don't start the business.

GQ: A great deal of the proposed patent reforms are viewed by many as harming independent inventors and startups that need strong patent rights if they are going to attract investment and not be pushed around by larger entities. Do you share these concerns about patent reform? Why or why not?

MC: No. I have invested in more than 150 companies and never has having or not having a patent impacted the final decision. Small businesses can and do become great without patents. The problem for little guys with patents is that no patent lives in a vacuum, particularly with software and technology. There is always a work around, and you can always find a patent that enables the big guy to sue the little guy. With few exceptions, the current system doesn't protect anyone. If you get major patent reform, hopefully the big companies have less incentive to try to bully anyone.

GQ: What kind of major patent reform would give large companies less incentive to a bully? What abuses do you see in business and how could the situation be addressed?

MC: Big companies have every incentive to bully right now. They have the money to litigate for years. No small inventor does. So, the current system benefits the big bullies over the little inventors. The first step is to get rid of software patents or, at worst, change them to five years. Let smart people compete rather than litigate. In this day and age of advancing technologies, small companies can outperform the big (companies) everywhere outside the court room. Reduce litigation opportunities, and you improve the little inventors and small and medium businesses' ability to compete.

Part two to the challenge of making a change is that small inventors feel like their patents are the most valuable property they own. They would give up everything before (they give up) their patents. As long as they assign magical powers to their own patents, you are going to get comments like we see on your forum about protecting patent rights. But the reality is that a patent without a business is worthless. No one ever wants to think their patent is worthless. They will fight to convince you of the opposite. That's a huge problem as it applies to reform.

GQ: In the past, you have said that software patents should not exist. I wonder why you single out software patents in particular. Whether a process is carried out in software or hardware is really a design choice. Why should processes carried out by hardware be treated differently than those directed by software?

MC: Code is code. Where it runs doesn't matter. So it's not different. I wrote software for 10 years. Not much, if anything, is completely original in software. Like (Steve) Jobs said, "It's all a remix."

GQ: I assume if you could make one change to the patent system it would be to eliminate software patents. If you could make one other change to the patent system or patent-litigation system, what would that change be and why?
MC: Getting rid of software patents or, at worse, limiting them to five or seven years is a huge step forward. After that, if you don't utilize the patent in a product or service, somewhat similar to how a trademark works, you lose it. I would also disallow patents created without knowledge of the other. If multiple people independently come up with the same or comparable idea within a given time frame, then to me, it can't be original.

GQ: No one seriously disputes the fact that there are bad actors, sometimes referred to as patent trolls, involved in what can probably be best described as extortion-like activity, as several federal courts have called it. Why do you think it has been so difficult for courts and Congress to figure out a solution that punishes the bad actors without punishing the masses?
MC: No bad actor thinks he is bad, and neither does his attorney.

GQ: Having listened to you over the years and read many of your comments on the patent system, it seems you are driven by business concerns associated with being held up by nefarious actors using patents as a weapon against startups, in particular. While it may be obvious to many, can you explain why the threat of patent litigation, or litigation in general, is such a serious concern for startups?
MC: The greatest risk every tech company faces after execution and direct competition is the unquantifiable risk of patent litigation. On the flip side, get rid of software and tech patents, and inventors will still invent. Coders will still code. Entrepreneurs will still start companies. That's what we do. The goal of creation, no matter what it is, drives people. Money is a great reward, but people will find a way to make their inventions, code and companies happen without patents.

GQ: Fundamentally, I know you are right. Creative people create, it is what they do. The question for me is whether we can get the level of creation we want from those creative people. I always use the example of Van Gogh. If he needed to work a day job, he would have created a lot less, and I think the world would be worse off for it. So, I want people like that, whether inventors or artists, to be able to make plenty of money from the activity so that they do more creating. When it comes to software, there is no doubt that people will create software even without patents, but what would that software look like? I can't imagine IBM would have spent the billions of dollars invested to create Watson, for example. Granted, we have a one-size-fits-all patent system, which is probably at the root of this problem, but I think you err in lumping all software together and treating it the same. The most useful software couldn't be created without, at least, perceived ownership of the intangible rights.
MC: Did Van Gogh get paid enough to live from his first painting, or did he live at home with his parents? I don't know. IBM isn't going to let itself go out of business. It is not going to stop investing in Watson because, if it did, all those stock options management owned would become worthless. How and why did creators create software before it was patentable? And what happens when machines create software and do it at light speed? They will create trillions of lines of code and parcel them automatically, hoping to find the needle in the haystack that turns into something of value. Then what?

GQ: In comments to several articles on IPWatchdog.com you said that you did not threaten to sue Walmart on U.S. Patent No. 8,738,278, which covers what many are calling a hoverboard. You also suggested that you do not own the '278 patent nor have an interest in that patent. What is your relationship with the patent owner and what, if any, interest do you have in the patent? Were you involved with the decision to bring suit against IO Hawk?
MC: I have a non-contractual business relationship with him. I was not involved in bringing the IO Hawk suit.

(Continued on page 43)

Mark Cuban
UP CLOSE AND PERSONAL

- **Favorite pastime or hobby:** Playing basketball.
- **Favorite sport:** See above; rugby is second.
- **Favorite movie:** I love any and all end-of-the-world disaster movies. No idea why.
- **What historical figure would you most like to meet and why?** Steve Jobs. Never met him. Would love to ask him about patents and Xerox and the early days of Apple.
- **Coolest invention of all time:** The semiconductor.
- **Best fictional inventor:** Emmett Brown (*Back to the Future*), Q (James Bond), Tony Stark (Iron Man), or you can go off the board. Why? Tony Stark. He has fun with it all.
- **Star Trek or Star Wars:** Neither.
- **If you could go back in time and give the 25-year-old Mark Cuban advice, what would it be?** Be prepared for everyone to ask you stupid questions about now in 25 years.

As the United States Makes Innovation Harder, Companies Must Diversify

TAKING ADVANTAGE OF GLOBAL PATENT MARKETS

BY GENE QUINN

At the 2015 IP Dealmakers Forum held in New York City in December 2015, the general consensus among the attendees, which included some of the biggest dealmakers and patent owners in the industry, was that things seemed to either have flat-lined in 2015 or were on a slight uptick. While there was no unanimity as to whether the patent market has hit the bottom yet, many seem to think it has—or soon will.

Those who believe that the market has not yet bottomed acknowledge they are starting to acquire patents again, because even if the bottom hasn't been hit, it is near, and those who seek to time a market bottom always wind up getting burned. Whether it's because things couldn't get any worse or because there are positive signs on the horizon, there was near agreement that a mildly bullish outlook for 2016 seems appropriate after a 2015 that showed some signs of life.

"We all know...that there were two cyclones we got hit by that really unwrapped themselves in 2014," said keynote speaker Edward Jung, co-founder of Intellectual Ventures. "In one sense, we saw some legislative reforms that happened to quash nuisance suits but probably happened too big, too fast and had a lot of unintended consequences, or at least, I think mostly unintended consequences [that] damaged the innovation economy in general." Jung went on to cite the uncertainty created by the Supreme Court's decision in *Alice v. CLS Bank* as the other event that ran through the industry in 2014. Jung told the audience that when policy shifts, "You create uncertainty in a business environment; it becomes harder to price your asset…and that makes it hard for people to invest in it."

Stay the Course

Jung cautioned not to overreact to market downturns, as others, including Jim Skippen, CEO of Wi-Lan Technologies, did during the course of the conference. "Downturns happen," Jung explained. "It may not have been as common in our market or as well-known, but they happen in every market. They happen in venture capital; they happen in real estate. … If you're a gold investor, you're probably not happy right now, but downturns happen. But I think, just as important, they're temporary. People figure out how to actually recover from the downturn, turn things around, and the IP market will do the same thing. I think it's important for a lot of people who are in this business to stay the course, because if you give up too early, you never know when you are just around the corner from success."

It was at this point in the presentation that Jung posted the popular quote from Edison about how a lot of people who failed gave up when success was right around the corner. "Of course, you

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"On the enforcement side, China is also a very attractive venue. There is a sense the policymakers in China are trying to have China deliberately find in favor of patent holders in order to build up the incentives for China to file patents and build up their innovation rate. …"

—EDWARD JUNG

don't see a lot of quotes from the people who failed, so take it with a grain of salt," he added. The message is clearly that Jung does not see now as the moment when the industry should retreat from the IP monetization model, although it may need to evolve and adapt to new realities. "IP is still pretty fundamental to the economy. Patents remain strategically important," Jung said. He also told the audience that he believes IP will continue to be protected and remain "super important" in "high-growth industries, like 3D printing, graphing, AI and so on."

Three Types of Diversification

As the conversation pivoted to how to navigate these uncertain times, Jung told the audience that as the patent market has been evolving, Intellectual Ventures has been focusing on three types of diversification as part of an overall strategy: "The first one is commercialization," Jung said. "The media mostly talks about our assertion and licensing activities, but we've always had things like startups and joint ventures that we do. These are startups. We're going up to a run rate of about a dozen new company formations per year, so actually, we'll produce more companies than many venture capitalists do.

"And it's interesting because there isn't an Instagram-like company in here. It's not like trying to do software, where the technology is not the limiting factor; it's consumer acceptance. This stuff is all technology as the limiting factor. It is actually very difficult technology. In many cases, like the metamaterial ones, we invest in the R&D for almost 10 years before the first company gets started, so even before the first venture capitalist stepped in. … These are very, very deep technology things that cannot be done without strong patents. No investor will invest over that time horizon, and no investor will trade with another investor to a longer time horizon or a shorter time horizon without the notion of having patents there.

"Joint venture is another example," Jung continued. "There are a lot of companies…that are looking to try to innovate, and one of the possible ways of innovating is to do a joint venture with those companies to create a new company that can take their technology and mix it in with many other people's technology and know-how, and build value that way." Jung gave an example of a company backed by Intellectual Ventures that has a technology that can improve the production of milk, with the joint venture currently valued at over $600 million.

The second part of a diversification strategy is to look beyond the United States. Injunctions are readily available in Europe but practically impossible to get in the United States. Some types of software are more likely to be patented in Europe than in the United States—and are more likely to remain valid if patented.

"The United States has been a challenging place to be," Jung said. "A lot of European multinationals, possibly because they've gone through great challenges, seem to be much more open-minded about looking at new models, and I think we're finding a lot more attraction in deals there. Also, as many people here know, there are a few areas in Europe where the litigation environment is very friendly. Presuming that the Unified Patent Court continues its progress as currently specified, that's actually very, very good news for those who want to assert their IP. So European diversification is very important."

China Favors Patent Holders

"On the enforcement side, China is also a very attractive venue," Jung continued. "There is a sense the policymakers in China are trying to have China deliberately find in favor of patent holders in order to build up the incentives for China to file patents and build up their innovation rate. … Injunctions are virtually guaranteed. It's very cheap, it's very fast and, of course, many things are made or sold in China, so it's a very interesting venue there.

"At the end of the day, innovation is important," Jung explained before he lamented the fact that the United States "seems to be making it harder and harder to be competitive globally. …" Jung ended his presentation by pointing out that in 1820, the United States contributed only 1.8 percent of world GDP, but that thanks to an innovation economy, since 1960, the United States has contributed 30 percent on average to world GDP "predominantly driven by invention-driven industries like automotive, like aerospace, like pharmaceutical and so on. These were all based on key inventions that the United States dominated the landscape on. That's clearly not going to be the case going forward. It's going to be much more distributed across many different countries, which is why I think, again, diversity is going to be the key." ◆

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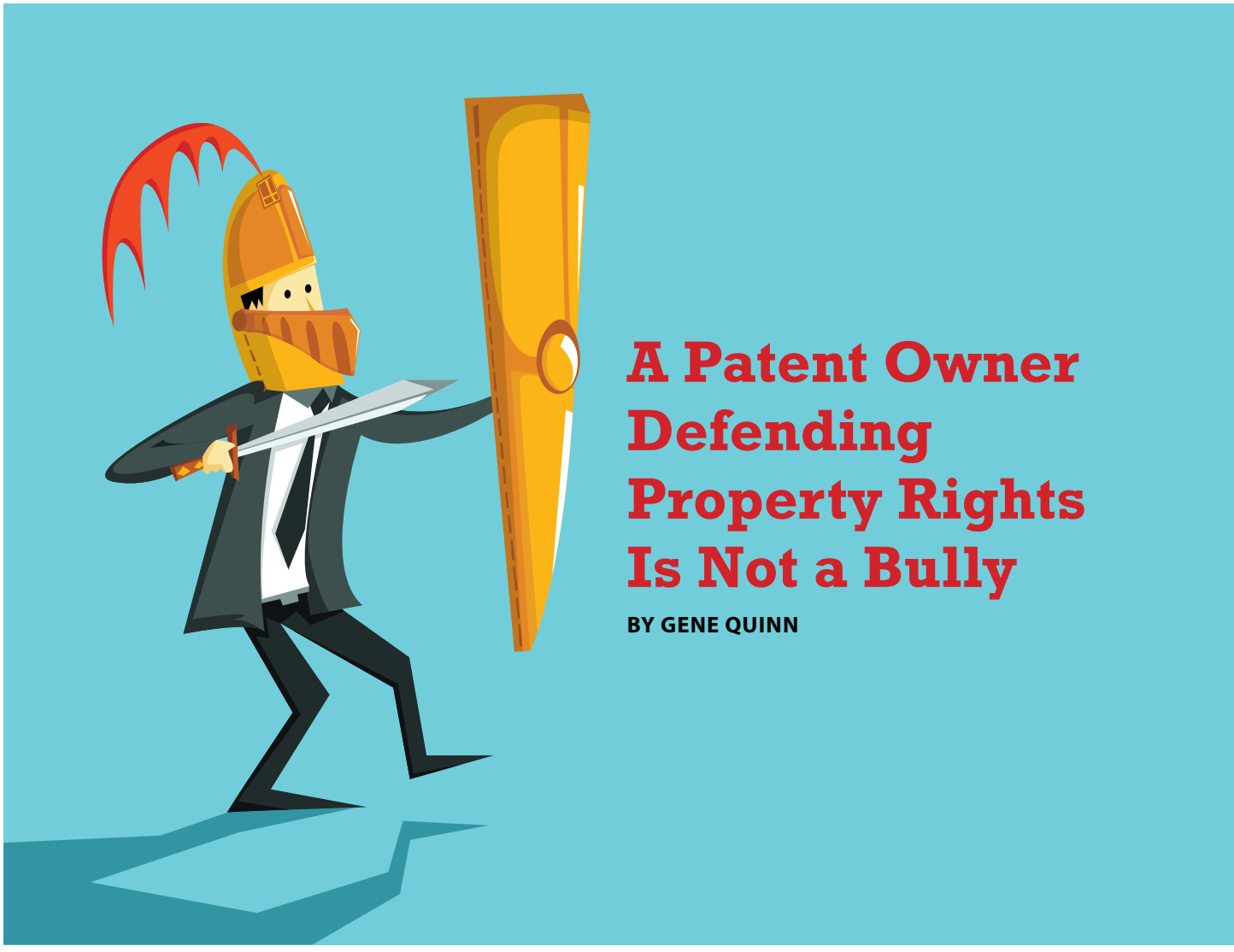

A Patent Owner Defending Property Rights Is Not a Bully

BY GENE QUINN

Colleen Chien, a law professor at Santa Clara University and a former senior advisor to President Obama on intellectual property and innovation, recently wrote in *The Wall Street Journal* that small businesses may want to simply ignore letters they receive from patent owners alleging infringement of a patent.

This is rather astonishing for several reasons. First, a patent is a right granted by the federal government that is presumed to be legally valid. A recent senior advisor to the president that is advising potential infringers they should ignore notices telling them they are infringing speaks volumes about how the executive branch views patents and patent owners. Once upon a time, patents and inventors were highly regarded in our society; today they are seen as nuisances that can and probably should be ignored, even by the White House.

It is also astonishing to hear a former senior advisor to President Obama suggest that it is appropriate to ignore a letter alleging patent infringement, since his administration has been so thoroughly supportive of further rounds of patent reform. Various pending patent-reform bills that are stalled in Congress have provisions relating to abusive, fraudulent and misleading demand letters sent by patent owners. If ignoring demand letters is both an acceptable and viable strategy, why is it necessary to encumber the Patent Act with superfluous and unnecessary legislation? Simply ignore the letter sent by the patent owner, and everything will be fine. No further patent-reform legislation is required.

Bad Legal Advice

As an attorney, I find it astonishing that anyone would advise a person to ignore a letter that puts him on notice that he is, or may be, infringing an issued patent. Sure, there are bad actors in the industry who dramatically overstate matters in demand letters, but is someone who is not legally trained capable of making the fine-line distinctions between an abusive demand letter and a legitimate business grievance? It is an extraordinarily bad recommendation to ignore a letter that suggests the sender has an actionable grievance against the recipient.

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Also troubling is how Professor Chien characterizes a large competitor who sues a small company as a "patent bully." As with many complex issues, those surrounding the patent system defy simple characterization. Explaining these issues in a few words is difficult at best and can easily lead the uninitiated reader to believe something that is simply inaccurate. That is precisely what is happening here.

The problem is with the term "patent bully," which continues to foster a false narrative about patent owners. "Bully" is defined as "a person who is habitually cruel or overbearing, especially to smaller or weaker people. A hired ruffian; a thug."

Defending Property Rights

A patent owner who seeks to prevent another from infringing is not a bully. A patent owner that takes action to prevent infringement is merely protecting the property right he has been granted—a right purposefully granted by the federal government after a lengthy examination process.

It should be evident that you cannot be declared a bully when you are standing up to protect a given right. Would you consider a business owner that prevented someone from breaking into his store and stealing a tangible product to be a bully? Of course not. The owner would be taking reasonable steps to protect himself and his property from the thug who was stealing. If that is the case, why would you consider a patent owner who protects and defends his rights to be a bully?

Of course, you can always engineer around and pursue an entirely new and innovative path. That is the very purpose of the patent system and exactly how the patent system fosters continued innovation.

The truth is: You could only consider a patent owner to be a bully if you do not believe patents are property rights. While everyone is entitled to hope and dream, we have a definitively correct answer. The Patent Act (*35 U.S.C. 261*) unambiguously says: "Patents shall have the attributes of personal property." Thus, if a shop owner defending a tangible item against a thief is not bullying, neither is a patent owner defending rights against an infringer. These examples are perfectly analogous from a legal standpoint.

Discussing a large entity enforcing a patent against a smaller entity also suggests that Chien believes that small companies should be allowed to infringe because they are small. There is no *de minimis* exception that allows infringement when a large company engages in infringing activity. Similarly, there is no exception that allows a small company to engage in infringement, either. Patents are intentionally exclusionary. You cannot engage in activity that is infringing unless you obtain the rights from the patent owner. If you do not want to obtain the rights, or you cannot obtain the rights because the owner is a competitor, you have to abstain. Of course, you can always engineer around and pursue an entirely new and innovative path. That is the very purpose of the patent system and exactly how the patent system fosters continued innovation.

Is it possible that a litigant might engage in behavior that would make it appropriate to label him a bully? Certainly. But that would be as the result of behavior, not as the result of ownership classification. Thus, it is entirely unhelpful to characterize patent owners as bullies. It perpetuates a false narrative that can only be intended to mislead.

Efficient Infringement

If we want to be perfectly honest about the state of the industry, we would be talking about those Patent Using Entities that Refuse to Pay (PERPs). Thanks to the confluence of patent reform and Supreme Court precedent, the people who are getting bullied the most are patent owners. The PERPs simply ignore all inquiries, even from those with large portfolios and valid patents that are being infringed. They engage in a game of so-called efficient infringement.

Efficient infringement is a sanitary way of saying "willfully stealing without paying." Efficient infringement works because companies know immediately, as Professor Chien points out, that not all those who hold patents that are infringed will sue. Some of those who sue will give up along the way because they can't afford to fight. At least some of those who fight to the end will lose. Some who win will win very little. An even smaller subset will collect anything based on how the Federal Circuit has so thoroughly changed the law of damages over the last decade. Given the climate and Supreme Court precedent and ever more ways to challenge a patent, it is quite likely that many cases will never get past a motion to dismiss. The reality is the infringer has to win once; the patent owner has to win every legal battle.

With the deck so substantially stacked against the patent owner, companies know that if they simply ignore all inquiries, both legitimate and the smaller number considered extortion, they can willfully infringe patented technology without having to pay anything. So why pay? That is efficient infringement—a cold business calculation that results in the patent owner being screwed.

It's Time for Congress to Start Protecting Trade Secrets

BY GENE QUINN

While trade secrets have become more important, advances in electronics, such as flash drives and smartphones, have made data theft infinitely faster and easier. Unlike the threats of a generation ago, when trade secret theft typically benefited a local competitor, globalization of business means that today's insiders often steal on behalf of companies located in other states or countries.

Despite the fact that the reliance on trade secret protection is increasing and the need for a federal civil remedy is becoming more apparent, trade secret protection does not get the same attention as other forms of intellectual property. Congress considering the Defend Trade Secrets Act provides an important opportunity at a critical juncture.

Information assets have rapidly come to form the core of our country's economy. As recently as the late 1970s, only 20 percent of public company value was represented by "intangibles." Today that number is more than 80 percent. In a single generation, we have seen a shift of historic proportions in the nature of industrial property.

The new property that fuels our economy is mainly protected as trade secrets. In a recent survey by the National Science Foundation and the U.S. Census Bureau, companies classified as "R&D-intensive"—which collectively account for 75 percent of private research-and-development spending in the United States—were asked to rank the importance of various kinds of IP laws in protecting their competitive advantage. Trade secrets came out on top—more than double that of patents. This is particularly true for small businesses, which traditionally rely on simple secrecy over costly patents.

Results of Trade Secret Theft

Trade secret theft hurts all types of companies, as well as our economy. When large companies lose secrets to foreign competitors, the competitors can go straight to manufacturing without the costs and risks of honest R&D, which allows them to undercut U.S. companies, which then lose profits and jobs. Things can be much worse for small businesses that rely on a single line of products. When they lose the technology that gives them a competitive edge, they may have to close.

To maintain legal protection, companies have to take reasonable steps to keep their information secret. When I first started working in this area, information security was fairly simple: All a company had to do was guard the photocopier and watch who went in and out the front door of the building. Since then, technology has increased the ease and speed of corporate theft. The new environment enables not just external hacking of corporate networks but also misappropriation by trusted insiders like employees, consultants and suppliers. In a few decades, our economy transformed to near-complete reliance on information for competitive advantage; at the same time, technologies were invented that made it easier to steal that information and move it quickly out of the country.

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Remedies for Misappropriation

Traditional remedies for trade secret misappropriation by the states are too inefficient to fully meet this new challenge. The Uniform Trade Secrets Act has been widely adopted, but with many irregularities. In addition, state procedural laws were not designed for efficiency in cross-border litigation. If a case in Illinois requires testimony of a witness in California, getting the required orders from each state can take weeks or months. The Economic Espionage Act makes some trade secret theft a federal crime, but relying on the U.S. Attorney to file criminal actions would deal only with a tiny fraction of the cases.

So it should be apparent that neither state law nor the EEA offer a satisfactory solution to the time-critical nature of interstate and international misappropriation of a company's know-how. Federal courts, however, can provide the necessary resources. They can apply a single, national standard for trade secret misappropriation and a transparent set of procedural rules. This would allow nationwide service of process and enable quick action by trade secret owners even when confronted with actors in multiple jurisdictions. American businesses—small and large—operate across state and national borders, and they deserve a federal civil remedy when their knowledge is stolen.

I strongly disagree with those who argue that we don't need federal legislation because state laws are uniform enough; that the DTSA's seizure provisions are too broad; or that the legislation would burden small companies with higher costs and interfere with the right of individuals to change jobs.

- **First,** the state-by-state variations in the UTSA today are in some cases worse than those that existed before it was proposed. These inconsistencies burden small and large companies that conduct interstate or international business. Enacting the DTSA will provide a level of uniformity across the federal system that we didn't get with the UTSA.
- **Second,** the *ex parte* seizure language in the DTSA is narrow and carefully designed to avoid abuse. The application must clearly and specifically demonstrate all the required facts. Only property "necessary to prevent the propagation or dissemination of the trade secret" can be seized. The order has to minimize interruption to the defendant's related business and avoid any disruption to unrelated business. These protections are greater than exist for the other *ex parte* form of relief—a temporary restraining order.

Getting any *ex parte* order under these restrictions will be extremely difficult. And the consequences of a careless petition can be severe, including damages for wrongful seizure that are not limited by the amount of the required bond.

- **Third,** the DTSA will not increase the cost of trade secret litigation. After decades of experience with federal courts handling state-law trade secret cases under supplemental or diversity jurisdiction, there is no evidence of any difference in costs.
- **Finally,** the DTSA presents no danger to the mobility of labor. It uses precisely the same language as the UTSA in permitting injunctions against "threatened" misappropriation. And it adds language barring injunctions against taking a job "under conditions that avoid actual or threatened misappropriation." This provides additional assurance and is consistent with the law in every state that has enacted the UTSA, including California.

We need the DTSA, to fill a gap in remedies available to U.S. businesses operating in an information-based, global economy. The DTSA has been carefully fashioned to deter and punish abuse. Using well-established definitions and norms, it provides businesses a choice to file a familiar claim in an effective forum. And it does this without creating any new risks for small companies or individuals.

Mark Cuban

(cont. from page 37)

GQ: How do you reconcile funding the EFF Stupid Patent Chair, your dislike of software patents and your decision to heavily invest in Vringo? It seems your decision to invest in Vringo was substantially related to its patent-infringement lawsuit against Google. Is that correct?

MC: It was a cheap hedge. The company asked for support. I told them the same thing. Other shareholders asked for support. I said the same. When markets act with stupidity, I often hedge by buying instruments that I would not otherwise buy. I think high-frequency trading is an enormous market-structure risk. I spend far too much money hedging my investments as a result. I picked Vringo out of nostalgia. I thought the old Lycos patents had at least a chance. If there wasn't a Vringo, I would have put the money elsewhere. If patent law was not so bad, I would have kept the money in my pocket.

If there wasn't a Vringo, I would have put the money elsewhere. If patent law was not so bad, I would have kept the money in my pocket.

GQ: With respect to your Vringo answer, can you understand why people might think this position undercuts your views on software and patent trolls?

MC: No. It makes no sense that they don't understand it. The system is corrupt and doesn't work. There is no more important time to hedge.

GQ: It seems, based on your definition of patent trolls, you turned into a patent troll when you invested in Vringo. I don't personally think Vringo is a patent troll, but the optics seem bad. I find it hard to believe there weren't equally enticing investment opportunities that wouldn't have required you to go against your beliefs.

MC: Of course Vringo is a troll. That's exactly why I used them as a hedge.

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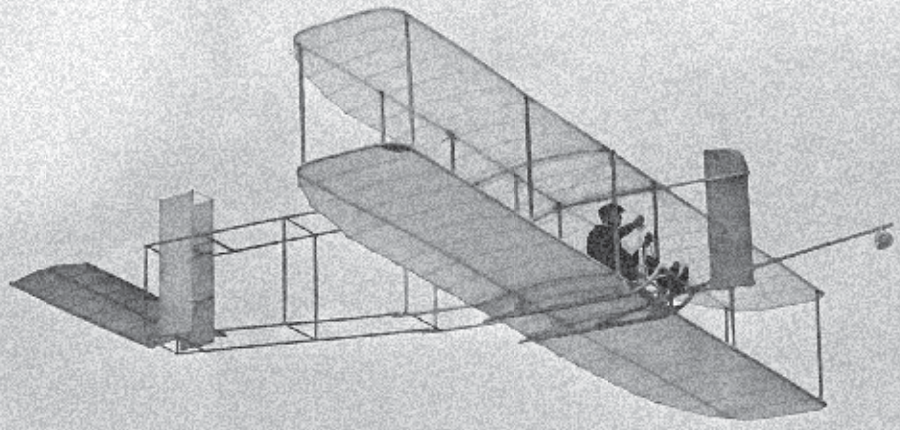

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