

Inventors

JANUARY 2017 Volume 33 Issue 01

DIGEST



VEGAS AMUSEMENT'S TECH INVENTIONS COULD TRANSFORM CASINO GAMING

The Internet of Things

TRACING THE ORIGIN OF CONNECTED DEVICES

Help From the Hill

CHARLIE SAUER ADVOCATES FOR INVENTORS

Learning From Failure

A VETERAN INNOVATOR RUEFULLY LOOKS BACK



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DIGEST

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EDITOR'S NOTE



Ring In the New, Savor the Tried and True

January 1 is not just a time to make resolutions and start anew; it's a time to renew our appreciation for people and things that make our lives better. In the case of *Inventors Digest*, that means our regular contributors—subject-matter experts in their respective inventing-related fields who are the backbone of this magazine.

A new year seems like the perfect time to provide readers with a fresh look at these industry professionals that goes beyond the bios that appear with their stories. Here's a little more about them.

Jack Lander has the longest ongoing association with *Inventors Digest* among our regular writers, having written "Lander Zone" for the past 20 years. He's an electromechanical engineer with corporate experience as a manufacturing engineer and new-product designer. Jack has 14 patents, four of which are for the world's first disposable laparoscopic surgical instruments. He mentors inventors and start-up entrepreneurs.

The first ID article by **John Rau** was 19 years ago this spring. In addition to his role as president/CEO of Anaheim, California-based Ultra-Research Inc., he is a board of directors member of Inventors Forum, one of the largest inventor club organizations in the United States. He mentors student entrepreneur teams in Southern California and is a certified counselor and mentor for the U.S. Small Business Association's SCORE organization.

Edie Tolchin, who has contributed to the magazine since 2000, has another writing life. "I've written nonfiction for almost 20 years," she says. "My obsession for the past 2 1/2 years has been my new comedic (debut) novel called 'Fanny on Fire,' based on my growing up as a naughty outlier from the Bronx." She's seeking a publisher for that and working on her fourth book for inventors, which she says will have a feminist twist.

Patent attorney **Gene Quinn**, our Eye on Washington watchdog, has contributed regularly to the magazine for nine years and has been a monthly contributor for two years. He's heavily involved in improving his IPWatchdog.com resource, as well as re-dedicating himself to working out. Gene loves football, especially fantasy football. "Inventing is the story of creating what the mind's eye is inspired to dream," he says.

Jeremy Losaw, an engineering manager for Charlotte-based Enventys who has been a regular contributor for four years, loves solving problems and building prototypes. He says he's into photography, building model cars and growing orchids—"sometimes all at once." Jeremy's claims to fame include: "once raced against Kyle Busch and lost; have been to AC/DC concerts on two continents; have two 3D printers, and neither of them works."

Don Debelak, who began contributing to *Inventors Digest* last June, runs the website onestopinventionshop.net, which helps inventors patent, license and market their inventions. He loves the unique approaches of inventors, especially their "unlimited tenacity and persistence to achieve success." Don likes to play golf and find ways to minimize some of the costs inventors pay to launch their products.

Join me in appreciation for these well-rounded professionals.

—Reid (reid.creager@inventorsdigest.com)

INGENUITY IS AMERICA'S MOST VALUABLE RESOURCE.

DON'T TREAT IT LIKE A CHEAP COMMODITY.

Our strong patent system has kept America the leader in innovation for over 200 years. Efforts to weaken the system will undermine our inventors who rely on patents to protect their intellectual property and fund their research and development. Weaker patents means fewer ideas brought to market, fewer jobs and a weaker economy. We can't maintain our global competitive edge by detouring American innovation.

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Contents

January 2017 Volume 33 Issue 1



Features

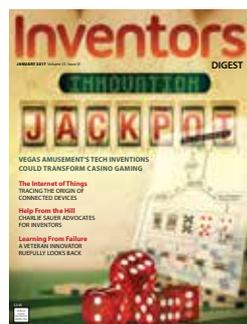
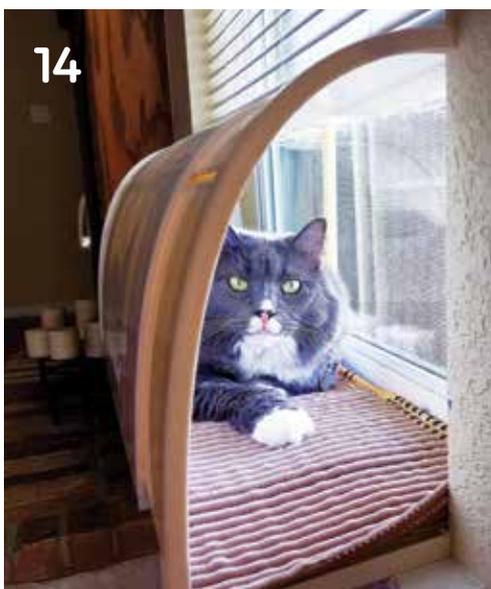
- 18 Innovation Jackpot**
Vegas Amusement's 2 Inventions
May Revolutionize Casino Gaming
- 24 Help From the Hill**
Charlie Sauer Advocates for Inventors
- 28 Cane Wins U.S. Competition**
First Rite Aid Innovation Challenge

American Inventors

- 14 Exploring Outdoors, Indoors**
Cat Window Seat Has Many Benefits
- 16 Simple Fizzics**
Beer Dispenser Is a Quick Success

Departments

- 6 Bright Ideas**
Spotlight on Innovation
- 8 Time Tested**
Serendipity Played Key Role
for Super Glue's Inventor
- 10 Lander Zone**
An Inventing Flop—and a Lesson
- 12 Inventing 101**
Your Aha Moment May Be Coming
- 30 Patent Pending**
5 Reminders for Patent Hopefuls
- 32 Prototyping**
Part 1: The Internet of Things
- 34 Eye on Washington**
Trump's Challenge to Revive U.S.
Manufacturing; Pence's Possible
Influence on Patents; Thiel's Views
- 46 Inventiveness**
Focus on the Fun and Fascinating



ON THE COVER
Vegas Amusement
photo illustration
by Jorge Zegarra

BRIGHT IDEAS

Vixole

CUSTOMIZABLE E-SNEAKER

vixole.com

Billed as the world's first customizable mid-top E-sneakers, Vixole comes with flexible LED screens and eight embedded sensors. Using your smartphone, you can personalize your footwear with thousands of unique designs, animations and photos.

The LED screen is built into the surface and wrapped around the back of the shoe, covered by composite half transparency material. It is waterproof and safe to wear in the snow. The charging board powers the Vixole for eight hours with a two-hour charge.

Vixole Plus features step tracking, and is motion and sound interactive. The open API lets you integrate Vixole Plus with your existing apps and play AR/VR games. You can also develop your own app. It also has an NFC sensor; simply touch shoes with a new friend and exchange contact information. A navigation tool guides you through vibration on the left or right sneaker.

The manufacturer's suggested retail prices are \$275 for Vixole Basic, \$325 for Vixole Plus. Shipping is set for June.



Think Ink

FIDGETING TOOL FOR FOCUS

thinkinkpen.com

The 21st-century answer to the stress ball or Rubik's Cube, Think Ink is a discreet focus tool with a writing implement inside. It's a titanium, steel pen that twists, bends and spins.

The spring-like resistance of the pen's stainless-steel flexo shaft is perfect for creating fidgeting, as are rare-earth, silent magnets that create a floating, silent spinner. Also, people who habitually click their pen no longer have to be an annoyance to others in the room; a carbon sphere has a smooth rotation that can be played with quietly.

Think Ink said it tested the product in a classroom and found that after a few minutes of fidgeting with their Think Ink pen, students finished their work in half the time it took with no focus tools.

The suggested retail price is \$50, with an April delivery date.

Bixi

TOUCH-FREE SMART CONTROLLER

Kickstarter.com

Bixi commands your smartphone apps, LifX & Hue bulbs, internet speakers, GoPro and many other IoT devices with the wave of a hand. You can control multiple actions of two apps or devices at the same time, which is perfect for hands-free situations.

You can drive safely and control your music, calls, navigation, SMS and more without looking at your phone. Bixi works via Bluetooth Low Energy protocol. The Bixi app connects Bixi to other devices based on wi-fi or other protocols.

Setup is as easy as tapping on “pair,” choosing your profiles and tapping on “sync” at the bottom.

The suggested manufacturer’s retail price is \$118, with a targeted March delivery.



Shaze

MULTI-FUNCTION OUTDOOR CHAIR

shaze.co

Shaze lets you condense many of your needs for outdoor activities into one lightweight package.

The 10-lb. foldable chair with a weight capacity of 300 lbs. has

high-quality, water-resistant speakers, a USB charger for your phone, a drainable cooler, secure storage with a combination lock, and a towel holder.

The chair’s rechargeable, 10,000-milliamp battery lasts for more than five hours of continuous use so you can keep your phone charged and speaker playing. All of its electronics work in extreme climates, including subzero temperatures and greater than 200 degrees Fahrenheit. Shaze comes with a removable power bank so you don’t have to set up the chair near outlets.

An attachable solar panel and table that fits onto the chair are available in the deluxe package. The retail price will be \$110. Shipping is set for May.



“The very existence of flamethrowers proves that sometime, somewhere, someone said to themselves, ‘You know, I want to set those people over there on fire, but I’m just not close enough to get the job done.’” —GEORGE CARLIN

Serendipity Shaped Life of Super Glue Inventor

PRODUCT DIDN'T STICK AS MARKETABLE UNTIL THE SECOND TIME AROUND **BY REID CREAGER**

When Harry Coover passed away in 2011, virtually all of the obituaries written by news outlets highlighted the fact that his discovery of Super Glue was a happy accident. Few reported that a serious accident nearly prevented him from turning 17.

The 16-year-old native of Newark, Delaware, whose 100th birthday is this year, was driving a car when hit by a train at a railroad crossing. Coover lapsed into a coma that lasted well over a month; the National Academy of Sciences said two of his sisters nursed him back to health. He never remembered the accident or anything in his life before that.

"Serendipity gave me a second chance," Coover once told the National Science and Technology Medals Foundation. Regardless of that statement's intended context, it was true in more ways than one.

Too sticky, until....

As an undergraduate at Hobart College in Geneva, New York, he chose chemical science as a major and later joined Eastman Kodak as a research chemist. While experimenting with cyanoacrylate for use in clear plastic gun sights in 1942 during World War II, he was pleased with the compound's durability—but not so pleased with what he considered a big drawback.

"Everything was sticking to everything," Coover recalled on more than one occasion. The U.S. government eventually canceled the contract.

Nine years later, while testing a heat-resistant polymer for use in aircraft windshields, he remembered his work with cyanoacrylate. A colleague was able to permanently bond the lenses of an expensive optical instrument with one drop of the liquid.

The cyanoacrylate solidified following contact with trace amounts of moisture, creating a super-strong polymer layer between the two surfaces.

Suddenly, the super stickiness was not an obstacle but a marketable invention with many uses. On Oct. 23, 1956, Coover received U.S. Patent No. 2,768,109 for an "Alcohol-Catalyzed Cyanoacrylate Adhesive Compositions/Superglue" and began plans for commercialization. Eastman Kodak packaged the adhesive as "Eastman 910" and began marketing it in 1958.

"You can make the greatest invention in the world, but it really will never amount to anything until people... take it and make it available and teach people how to use it," he said on November 17, 2010, the day he received the National Medal of Technology and Innovation at the White House. "Just inventing something is not the whole story, by a longshot."

Once Harry Coover became known for Super Glue, he turned into a savvy self-marketer who ended up with 460 patents.



INVENTOR ARCHIVES: January

JANUARY 8, 1783:

Thanks largely to the perseverance of **Noah Webster**, Connecticut passed the first U.S. copyright statute. Webster was the author of the *Blue Back Speller*, the forerunner to his dictionary that was published in 1828. After he began using his speller in his classroom, he wanted to publish it for use by other teachers. But he had no copyright protection because the newly formed United States had no such law for authors.



Webster traveled state to state in his quest but was thwarted several times by bad timing with states' legislative schedules. As part of his crusade, he wrote: "An attention to literature must be the principal bulwark against the encroachments of civil and ecclesiastical tyrants.... America must be as independent in literature as she is in politics, as famous for arts as for arms...."

Connecticut soon passed the legislation, called "An Act for the Encouragement for Literature and Genius." The copyright provision was eventually adopted by each of the original 13 states and eventually got federal protection via the Copyright Act of 1790.

JANUARY 31, 1983:

Michael Jackson's "Thriller" was copyrighted. The song is from his album of the same name, released on November 30, 1982.

Inspired by "The Nutcracker Suite," "Thriller" is the best-selling album ever. The top-selling album in 1983 and 1984, it sold more than 65 million copies and won an unprecedented eight Grammys in 1984. "Thriller" is the first music video to be added to the National Film Registry of the Library of Congress.

Jackson and his estate have been involved in several widely publicized copyright issues, most notably his outbidding Paul McCartney for the Beatles' catalog in 1985. In 1994, Jackson was unsuccessfully sued by a woman who claimed that he had plagiarized her song "Dangerous," the title track from his 1991 album. Jackson proved his case by singing to a Denver courtroom. He and his label, CBS Records, also won two plagiarism lawsuits connected to his 1982 duet with McCartney, "The Girl is Mine."



The original caption for this demonstration of the product then known as Eastman 910 Adhesive said it supported a weight of more than 2 ½ tons based on a 3.15-square-inch, steel-to-steel bond.

Harry Coover was most proud of Super Glue's function during the Vietnam War, when a spray version was used as a coagulant on gaping wounds.

Proud successes

Coover got creative with ways to showcase the product, most notably during an appearance on the TV game show "I've Got a Secret" in 1958. He amazed millions of viewers by lifting host Garry Moore off the ground using one drop of the Crazy Glue. He also appeared in a TV commercial for the product.

Once word spread about the product's effectiveness, it was found to have a number of crucial uses besides repairing household and personal items: sealing blood vessels in open-heart surgery; gluing leg fractures in rabbits and dogs; recovering fingerprints at crime scenes. He was most proud of its function during the Vietnam War, when a spray version was used as a coagulant on gaping wounds.

By the time Coover retired, he had 460 patents, a large number of those related to his glue. He was also responsible for advances in areas such as graft polymerization, olefin polymerization and organophosphorus chemistry. He was inducted into the National Inventors Hall of Fame in 2004.

In perhaps one more accident, Coover didn't become rich through Super Glue.

His son-in-law, Dr. Vincent E. Paul, told *The Daily Mail* that the product didn't become successful commercially until the patents expired. "He did very, very well in his career," Dr. Paul said, "but he did not glean the royalties from Super Glue that you might think." 📖



What You Can Learn From My Latest Flop

CONDUCT YOUR OWN THOROUGH PRODUCT SEARCH;
BE CRITICAL OF ALL PRIOR ART **BY JACK LANDER**

My latest invention was a failure, because I killed it myself.

It wasn't rejected by a jealous corporate new-product specialist. The United States Patent and Trademark Office didn't reject my application. Simply put, I made a very good prototype and tested it side by side against a cheap supermarket equivalent, which turned out to perform better than mine.

One day my wife, Mary, was preparing lunch and attempting to open a can of soup that had a pull tab. The lid wouldn't yield for her, so I came to help out. I didn't admit to her that I was ready to give up and resort to our electric can opener when the lid finally yielded, leaving me with a slightly sore index finger.

During my recovery, I had an "ah-hah" moment. I set about designing a device that would slip under the tab, grip it securely, and, with the advantage of leverage and a secure hand grip, enable the user to peel back the lid with ease. My first step was a patent search and a product search. Neither revealed a similar device.

After a few sketches and conversion to CAD drawings, I was off to an abrasive water-jet vendor to have my prototype parts made. I had decided on 18-gage stainless steel. My prototype was going to be elegant as well as functional. I chose water jet cutting because it cuts sheet metal cleanly, without distortion, and without the need for special tooling. The drawing's digital file drives the machinery. And the 50,000-psi. jet, infused

with abrasive particles, cuts through the hardest metal like a fire hose through pumpkin pie.

Two weeks later, I got my parts and was ready for the moment of truth. It worked well but needed a small dimensional change in order to accommodate the 16-oz. ounce cans. I was ready to file my provisional patent application. However, I'm well aware that we inventors tend to find what supports our wishes when we search patents and products, so I did a more careful search of products. This time I found a tab-top can opener about 15 pages into Amazon.com. But will it perform as well as mine? I wondered.

Sad revelation

I ordered it. You know the rest. It was easier to use than mine, which had a moving part. The competing device was a simple, one-piece lever.

Was I devastated? Not at all. I've been through this kind of conclusion many times, both as a corporate product designer and an independent inventor. I've come to understand that failure is the more likely outcome of any venture involving creativity. It matters not whether you write a novel, paint a painting, attack an enemy stronghold or invent a can opener; disappointment or complete failure is often the result. And this is true whether your name is Thomas Edison, Jack or Jill. Winston Churchill has said that "Success depends on going from failure to failure without loss of enthusiasm."

I learned one lesson. I knew the correct steps by heart and had practiced them for years. But I neglected the discipline that is required to perform each step as though avoidance of failure depended on it, which it does. We must not let our zeal for creativity cloud our minds and lead us to shortcut the patent and product search at the outset. I still think I had done a good product search, but it is probable that I didn't look deep enough the first time. Rather than seeking all forms of prior art responsibly before spending time and money on a prototype or a patent application, I possibly had fooled myself because it is human nature to overlook obstacles to something we are eager to pursue. We inventors must remember that prior art is revealed not only in a professional patent search but in products of the past and present, as well as any form of publication that is not protected by confidentiality.

In my work with inventors, I constantly find conflicting unpatented products that are already on the market, and for which a patent attorney has expressed a "go-ahead" in his or her patentability opinion. You may feel great about a positive patentability opinion and proceed to file. You may even be granted a patent,

because, in my experience, patent examiners don't dig for prior art beyond the patent files and certain publications. I've never heard of a patent application being rejected with a statement such as "This device exists as a product, and is sold by Amazon.com." But if your patent is ever tested in court, you can be sure that your opposing lawyers will have discovered the existing product. As the great scientist Carl Sagan said, "Absence of evidence is not evidence of absence."

So, if you learn something from my experience, it should be at least this: Do your own product search and be critical of all prior art. Remember, obsolete products are as much prior art as is an existing product. You have to dig deeper to find it, but it can hurt your chances of prevailing if your patent is ever contested. Do your own product search because your patent attorney most likely hasn't done it for you. Certainly your patent searcher hasn't done it, either.

We must not let our zeal for creativity cloud our minds and lead us to shortcut the patent and product search at the outset.

Earlier lesson

As a corporate product design engineer, I once had to make an expensive addition to an electro-mechanical relay because my company's competitor had patented a hinged armature in which the hinge pin had spanned the armature and engaged pivots only at each end of the pin. Years later, it occurred to me that the Red Flyer® wagon I had as a kid, and which is still produced today, had exactly that same pivot arrangement.

Whether our patent attorney could have successfully argued the obviousness of such a design for our case, I don't know. But the doubt he could have raised may have caused our competitor to back off and decide against litigating the case. So it

is not just independent inventors who can be hurt by a failure to search for physical forms of prior art. It is well-established businesses, with better resources than ours, that also can be hurt by the absence of a comprehensive prior art search.

Don't lose enthusiasm if your present invention is a failure. My can opener venture was not my Waterloo, nor will it likely be my last failure. I like to remind myself that the legendary Babe Ruth failed to get a hit 66 percent of the time. Maybe I can do a quarter that well if I don't let my enthusiasm get in the way of my homework. 📖

Jack Lander, a near legend in the inventing community, has been writing for *Inventors Digest* for 20 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.





Your Aha Moment May Be Coming

BUT IT'S HARD TO KNOW WHEN THE LIGHT BULB WILL TURN ON

BY JOHN G. RAU

Have you ever had that “light-bulb moment” when suddenly, you see the solution to a problem? Whether you’re an inventor or not, this is also called an “aha moment,” which the Merriam-Webster Dictionary defines as “a moment of sudden realization, inspiration, insight, recognition, or comprehension.”

Henry Ford described this phenomenon: “The air is full of ideas. They are knocking you in the head all the time. You only have to know what you want, then forget it, and go about your business. Suddenly, the idea will come through. It was there all the time.”

A study conducted several years ago at Northwestern University showed that solving a problem that requires creative insight prompts distinct changes in brain activity that don’t occur under normal problem-solving conditions.

Timing can be random

In terms of timing, “aha moments” are on their own schedule. You may wake up in the middle of the night to tell your sleeping partner that you just got a brilliant idea—only to be told to go back to sleep and talk about it in the morning. Albert Einstein said: “Why is it I always get my best ideas while shaving?” J.K. Rowling, British novelist best known as the author of the Harry Potter fantasy series, conceived the concept while on a delayed train from Manchester to London in 1990.

Probably the earliest documented example of an aha moment occurred around 250 B.C. when Archimedes, the most famous mathematician and inventor in ancient Greece, was in the bathtub.

As the story goes, he was asked by the king to determine whether a crown was pure gold. During a subsequent trip to a

public bath, Archimedes noted that water was displaced when his body sank into the bath, and particularly that the volume of water displaced equaled the volume of his body immersed in the water. Having discovered how to measure the volume of an irregular object, and conceiving of a method to solve the king’s problem, Archimedes allegedly leaped out of the tub and ran home naked, shouting “Eureka!” (I have found it). Hence the origin of the term “eureka moment” or the aha moment.

One night in 1902, young American engineer Willis Carrier was waiting for a train, watching fog roll in across the platform, when he had a sudden flash of insight. Specifically, he could exploit the principle of fog to cool buildings. As is well documented, he patented the idea and made a fortune.

Aha moments in Time

One wonders how many aha or eureka moments might have occurred relative to “The best 25 inventions of 2016,” reported in the Nov. 28/Dec. 5 issue of *Time* magazine. Among those:

- A new design for home roof solar panels called the Solar Roof. It involves a series of tiles designed to blend together and not stick out.
- Tires that spin in every direction based on Goodyear’s new spherical concept tire that would allow cars to move in many new directions, including sideways into a parallel parking space and at specific angles and speeds to counteract slippery surfaces.
- The ultimate alarm clock that, in conjunction with its companion pillow sensor, could monitor your sleep cycles and wake you when you’re least likely to feel groggy.
- A new line of cannabis vaporizer pens that could replace pills. When inhaled, the pens dispose a dose of cannabis oil that has been chemically engineered to make people feel

J.K. Rowling, British novelist best known as the author of the Harry Potter fantasy series, conceived the concept while on a delayed train from Manchester to London in 1990.

calm, sleepy, or relieved of pain without getting high.

- A newly designed state-of-the-art drone called Mavic Pro that includes obstacle-avoidance technology, a 4K camera, the ability to track subjects while flying. It can also fold down to the size of a loaf of bread.
- A prosthetic arm called IKO that is designed to enable children who have lost a limb to play by using toy-like attachments.
- A new Nike product, Nike HyperAdapt 1.0, for shoes that tie themselves. When wearers press a button near the tongue, the shoe automatically ties or loosens around the foot.
- A new James Dyson product called the Supersonic hair dryer, which uses a tiny, jet-engine-like motor that makes it ultra-sonic and therefore inaudible to the human ear.
- A levitating lightbulb called Flyte that relies on electro-magnetism to levitate and spin, using resonant inductive coupling (a technical term for wireless power transmission) to shine. Now there's your light bulb moment.

Time also recently referenced a potential aha moment opportunity, reporting that the National Aeronautics and Space Administration is offering a \$30,000 reward to whoever devises a replacement for diapers so astronauts can eliminate body waste hands-free during space missions. Any light-bulb ideas for that one?

It's what you do with these aha or light-bulb moments that count. Nolan Bushnell, often called the father of the video game industry, said: "Everyone who's ever taken a shower has had an idea. It's the person who gets out of the shower, dries off and does something about it who makes a difference." ☺

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.



2 Critical Steps to getting your NEW PRODUCT "out there"

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Exploring the Outdoors, Indoors

COUPLE'S CAT WINDOW SEAT
PROMOTES TUNNEL PLAY, PRIVACY
WHILE PRESERVING BLINDS

BY EDITH G. TOLCHIN



I often get inquiries to manufacture new pet products, so I know there are many dog and cat inventions brought to market every year. If you Google “new dog and cat inventions,” you get 45.9 million entries!

Cats are explorers by nature, whether inside or outdoors. My little old indoor kitty, Missy-Pups (it's a long story), likes to climb up on her soft window perch to observe the outside world.

The WindowKitty® cat window seat allows the kitty to enter into a cylinder and look out the window while leaving your blinds unharmed. Christina and Brian Martinez of Temple, Texas are the couple behind the invention, which was named a 2016 Fave Find by Modern Cat magazine and won the votes to be a QVC Sprouts product.

Edith G. Tolchin: Tell us about yourselves and your backgrounds. Is this a team effort?

Christina Martinez: Brian and I are married and have five boys ranging in ages from 9 to 18, seven cats, two dogs and fish. We are both veterans, having served in the Army as military police. We both work in information technology in the private sector; Brian is in health care and I am in life insurance. We are looking forward to working on WindowKitty full time. We lean on each other during the tough times, and both bring different strengths to the WindowKitty brand.

EGT: How did WindowKitty come about?

CM: WindowKitty is a place where cats can play or bask in the sunshine, or just have some privacy in the enclosed tunnel. This idea came about because our cats were sitting on our windowsills and pushing the blinds off the sill, or breaking and/or bending our blinds to sit at the bedroom window. The cats liked to sit

in a particular window as it faced the street. We had neighbors who were always outside. I thought they could see in through the broken blinds. We raised the blinds for the cats, but I didn't really like to leave the blinds raised. I searched online and found that this was a pretty big problem that had no solution.

EGT: How is it different from other cat window perches?

CM: WindowKitty is a multi-functional pet product. It differs from other cat window perches as it blocks the view into the window, so people outside cannot see in. Window blinds rest safely out of your cats' way on top of the product. It's a fun tunnel; cats like to be enclosed, which gives them privacy. There are two toys: one hangs inside the tunnel and one underneath. These features are also the advantages of buying a WindowKitty over a regular window perch.

EGT: How did you create your prototype, and how many versions did you have before you knew WindowKitty was a hit?

CM: We had about 10 prototypes made. Brian and I tried to make a few with items from a home improvement store. We had a prototype 3D-printed locally, and the others were hand-made prototypes by our manufacturer.

EGT: Tell us briefly about your patent process.

CM: Initially, I reviewed the United States Patent and Trademark Office's website to understand the process. I knew that I



“This idea came about because our cats were sitting on our windowsills and pushing the blinds off the sill, or breaking and/or bending our blinds to sit at the bedroom window.”

—CHRISTINA MARTINEZ,
SHOWN WITH HUSBAND BRIAN

would not be able to do the patent search myself and found a patent lawyer based in Kansas to help us with our patent search in late 2013. If our search came back positive, we would move forward. We received positive results and decided to file a utility patent with the same lawyer. We filed in early 2014. In late 2015, our claims were reviewed. We did complete a few adjustments and were patented in March 2016. It was very exciting to receive the actual patent!

EGT: Have you encountered any product development challenges?

CM: Yes. We found a fancy product design company based in California that drew our designs for us. They were awesome to work with, so we continued with them for the design drawings. The company did not deliver like they did on the drawings. We were not making progress, and we were not receiving deliverables. The design process was scheduled to take three weeks; it ended up taking over six months. We escalated to dealing with the owner. He backed up his personnel and told us we weren't worth their time.

There were a lot of sleepless nights, and we lost a lot of money with this company. We submitted the designs to our manufacturer and found the drawings were not complete. We found a local engineer through MakeXYZ.com. We had him review the designs and fix them. From his corrections, we were able to get the product manufactured.

EGT: Are you manufacturing in the United States, or overseas? How has production gone?

CM: We were not able to find a U.S. manufacturer and are manufacturing WindowKitty in China. Our experience has been very positive with our manufacturer. While the price may be cheaper for the product, shipping from China is very expensive. When working with China, you must take into consideration the holidays. All work stops for the Chinese New Year. Shipping takes a month or longer, so it is a very long process. Also, it is a good idea to purchase open ocean cargo insurance in case you lose all your products in the ocean! We were lucky to have a shipping representative explain the entire process.

EGT: What about your logo and packaging?

CM: Working with a company to develop a logo and packaging

is very expensive. We created our logo through LogoGarden and then purchased different designs and colors through Fiverr.com. For packaging, we just went with a plain brown carton and black ink, sort of like Amazon. The next time we order inventory, we will have a new box design. We will be using our own pictures for a display box. On our website we use a pink and black logo, which I think captures our brand effectively and will be on our next box.

EGT: What are your sales channels?

CM: Currently we are selling through our website, as well as on Amazon and eBay. We also attend local shows such as cat shows, fairs and pet expos.

EGT: What about PR and marketing? Have you tried crowdfunding?

CM: We just completed a four-month PR campaign and have met with marketing firms for consultation. The PR campaign

was helpful in getting us linked up with bloggers and in magazines for features. We tried two times to raise funds through Kickstarter; both were unsuccessful in reaching our funding goal. But we did meet our manufacturer through our campaign, so in that way it was successful.

EGT: Any advice regarding the invention process?

CM: Be patient, as it is a slow process. Find as much help as you can from local companies. Have a business plan (and stick to it), and ask questions if there is something you don't understand.

EGT: If you could invent a new product for world peace, what would that be?

CM: In my experience, when a baby is born in the hospital, music is played. When you hear the music, it promotes hope in new life. I think that if a product could promote hope for all people, maybe we could have world peace. 🐾

Details: WindowKitty.com

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.





Beer Dispenser is Simple Fizzics

TAP-ROOM BANTER, 3 A.M. DISCOVERY IN CHILD'S NURSERY LEAD TO MILLIONS IN SALES **BY JEREMY LOSAW**



America's love for beer is foaming over in an extreme way, as are new flavors. The number of U.S. breweries skyrocketed from 2,456 in 2012 to 4,269 in 2015, according to The Brewers Association. Brewers are using new strains of hops, yeast, fruits and herbs to create styles and flavors not seen before in the industry.

Despite the innovation with the beer itself, relatively few accessories are available to increase the enjoyment or enhance the experience of drinking it. One of the biggest challenges to brewers is to keep a consistent flavor profile across the different forms of packaging and distribution. The same beer poured from a tap can taste wildly different when enjoyed from a can. Fizzics, a new beer-dispensing unit, enhances the brew's natural flavor and gives drinkers a fresh-from-the-tap taste.

Fizzics is a home-based beer tap that gives it a head of microbubbles. Pull down the tap, and beer is dispensed head-free. Push up the tap handle, and the last couple of ounces of the pour are given a perfect creamy head that releases the beer's aromas. The chamber can dispense beer from a single 12-oz. can or bottle up to a 64-oz. growler, making it very versatile for the home beer enthusiast.

Unlikely turning point

Fizzics co-founders Philip Petracca and David McDonald were enjoying a brew at one of their favorite spots, the Brooklyn Brewery, when they started wondering why beer does not taste as good out of a bottle or can as straight from the tap. This simple question kicked off nearly a year of research and prototyping. The duo researched how taste is interpreted and what influences the "mouth feel" of beer. They found that the head of a beer is the key to the flavor. A beer poured in the normal way creates a head that dissipates too quickly, resulting in a flat taste. They also found that additives such as nitrogen imparted unwanted flavors.

Their research kept leading them down blind alleys until they found their breakthrough from an unlikely source. "We had all but given up on this pursuit," Petracca says. "My son was an infant and was sick. I was in his nursery and we had a humidifier in his room, and like most engineers do, I start wondering how things work. At 3 o'clock in the morning I had this humidifier in a million pieces, and I discovered that they were atomizing water utilizing a sound pressure wave generator.

Fizzics co-founders David McDonald (top) and Philip Petracca had all but given up on their pursuit until a breakthrough occurred.



“I immediately called Dave in the middle of the night and said, ‘Hey, I think this is a great piece of technology that we can use.’” Within 48 hours, the two had built their first prototype from the sacrificed humidifier. It worked well, creating a microfoam head on the beer. Their friends and family all loved it—including Petracca’s wife, a devoted wine drinker.

But they knew they had to prove the technology with beer enthusiasts. Fortunately for the New Jersey residents, one of the biggest beer festivals on the East Coast—The Atlantic City Beer & Music Festival—was right down the road. The two-day event with hundreds of brewers and more than 40,000 attendees was the perfect opportunity to debut the product. They prettied up their breadboard prototype with some 3D-printed parts, took it to the festival, and it was a huge success.

“It was surreal,” Petracca says. “We had a line of people at our booth from the time we opened until the time we closed. We had brewers coming to us with their beer... saying, ‘I need to understand what everyone is talking about. How are you going to improve my product?’” The response led the team to file a series of patents on the product. Although they could not afford a big-time patent firm, they found an independent patent agent who was a former engineer to help them write up the patents. They have now filed 11 different domestic and international patents to cover the product.

Indiegogo adds momentum

The real breakthrough came when Fizzics was launched on Indiegogo. McDonald and Petracca did some research on crowdfunding and decided it would be a great way to gauge the product’s commercial efficacy.

They launched the campaign in Summer 2015 and hit their funding goal of \$50,000 on the first day.

The co-founders quit their jobs that day to work on Fizzics full time, and the campaign finished with more than \$250,000 raised. Their next big challenge was finding a manufacturing partner to hit their delivery date. Fortunately, Petracca had lived in China for a couple of years to support projects at his day job, so he had relationships with overseas manufacturers.

The unit enhances beer’s natural flavor and gives drinkers a fresh-from-the-tap taste. The product reached its \$50,000 funding goal on Indiegogo on the first day.

He found an original design manufacturer that could do the molding and assembly for the product as well as help work through some of the design details.

Petracca and McDonald delivered units to Indiegogo backers on time, just five months after the close of the campaign. They struck a deal with Brookstone to get the product into the company’s catalog and became the publication’s top seller last holiday season.

The enthusiasm for Fizzics shows no signs of slowing down. The team was approached by the producers of the TV show “Shark Tank” after a New York Times article featuring the product’s success last January. After months of back and forth with the “Shark Tank” team, Petracca and McDonald were fortunate to make the final cut, beating more than 100,000 applicants. Their episode aired in September and was a big hit: For the first time in the show’s history, all six sharks wanted in on the deal. In the end, they struck a deal with Mark Cuban and Lori Greiner worth \$2 million.

In less than three years, Fizzics has gone from tap-room banter to millions in sales.

The two continue to grow and expand the technology. In early 2016, Fizzics struck up a partnership with the global design and strategy firm Frog Design and worked together to design the Fizzics Waytap, which uses the same ultrasonic technology but in a sleeker and smaller package. The project, launched on Kickstarter in October, raised \$1,086,819.

The Fizzics team is also looking to add the technology to commercial tap systems so that breweries and bars can pour the perfect pint straight from the tap. So even if you are not interested in using the system at home, you may soon be able to taste the benefits of the technology at your local watering hole. ☞

Details: Fizzics.com

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VEGAS AMUSEMENT'S 2 NEW TECHNOLOGY INVENTIONS MAY CHANGE THE FACE OF CASINO GAMING **BY REID CREAGER**

Julian J. Kennedy never imagined he would lead a company that has developed two major technological breakthroughs poised to transform a nearly \$200 billion industry. He just keeps creating, and walking.

"Some people refer to the innovation process as being like a corridor effect," says the president of Vegas Amusement, a North Carolina-based company that invents, develops and licenses products for the gaming and lottery industries. "Not until you've walked down the entire corridor can you see the whole picture." This far along the walk, Kennedy has been awarded 13 U.S. patents and granted an additional 28 internationally.

Vegas Amusement (VegasAmusement.com) is now marching into uncharted territory. Its revolutionary patented SEGO® Digital Playing Cards development led to a patented progressive technology, MAX-Link®, that enables progressive jackpot slot machine technologies to be applied to

electronic card games. "This solves a fundamental problem in the gaming industry that has been around since the creation of electronic card games," Kennedy says. Both have the potential to reshape the casino card gaming industry segment and be literal game-changers for its millions of card game players worldwide.

A hobby turns serious

Headquartered in the North Carolina mountains near the small town of Bryson City, Vegas Amusement seems a world away from the vacation destination for which it's named. So are the rural small towns of Ohoopie, Georgia, and Thorsby, Alabama, where Kennedy (known to friends as Jamey) and company Vice President Tim Price grew up.

The two met in graduate school at the University of Alabama, where both got their MBAs at the university's Manderson Graduate School of Business. Kennedy, an Applied Mathematics graduate, and Price,

an Electrical Engineering graduate, found a common interest in software development. "We started monkeying around with card games and designing software in 1993 just as a hobby, and here we are," Kennedy says.

"When Jamey and I started doing this together, we were in our 20s, single, and just having fun," Price says. It wasn't about a passion for gambling—both describe themselves as casual gamblers—but about the software design and development process. "We were just putting money back into it and enjoying what we were doing. The more we did it, the more we wanted to see what we could do with it. It turned into a business before we knew it."

The original operating entity, Vegas Amusement, Inc., was formed in 1994 and incorporated the next year. It's primarily a software company, though it has a diverse collection of expertise in mechanical engineering, product design, data science and more. Five to seven developers, engineers

and artists work steadily with the company, which also utilizes a larger group of 10 to 15 specialty substitutes. Light manufacturing, prototyping and software testing take place at their shop in the mountains.

Vegas Amusement LLC, an Intellectual Property Holding Company, was formed last year as part of a planned restructuring to focus more upon intellectual property development and licensing going forward. “Intellectual Property development is where we wanted to transition the business focus going forward,” Kennedy says.

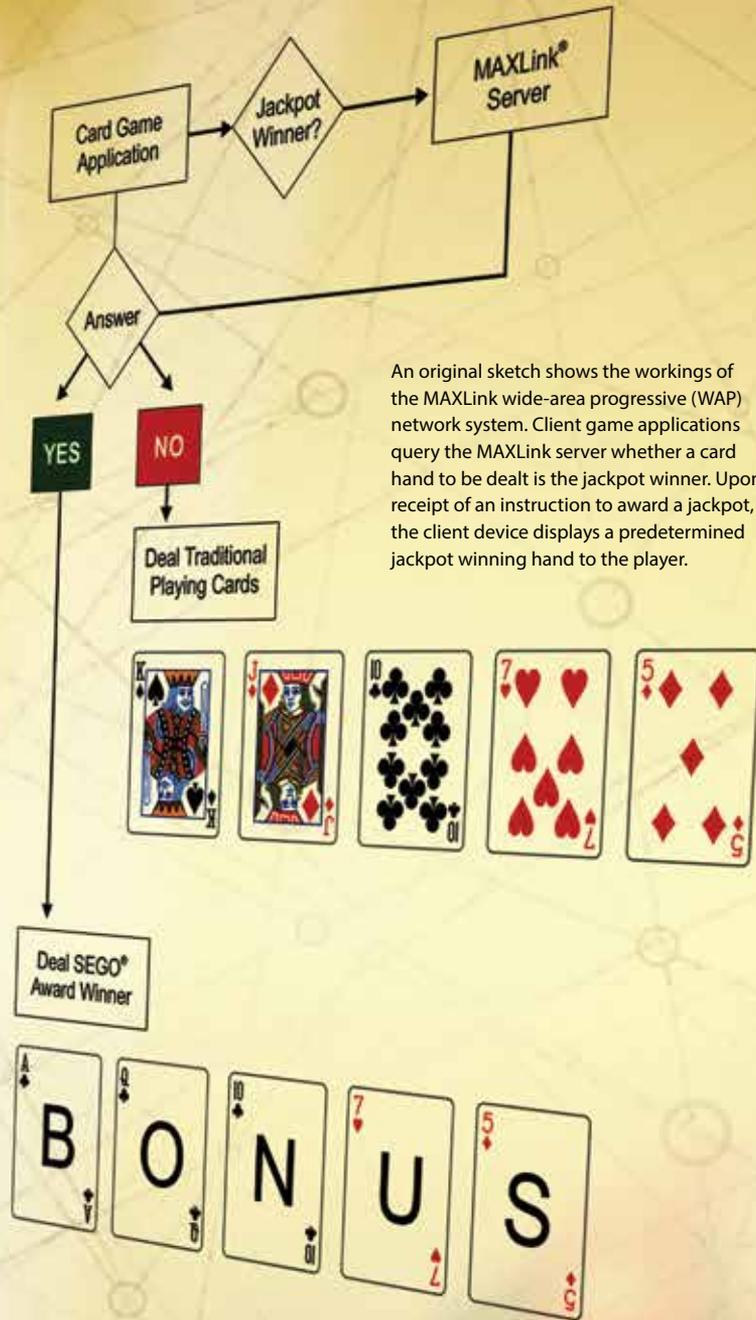
The first breakthrough

SEGO, which stands for secondary game outcome, represents a major recent accomplishment. It’s a new line of electronic-only card games that retains all of the traditional playing card characteristics—card suit, card color, card value—while introducing a patented addition: an independent outcome from a second game of chance. The secondary game of chance can be any other game or event.

With SEGO dice cards, dealing each playing card also delivers the outcome of one dice roll. With SEGO lotto cards, dealing each card also delivers one number selected in a lottery draw. With SEGO roulette cards, dealing each card also delivers one result of a roulette wheel spin. Secondary outcomes are delivered with the exact statistics of their respective independent games. This sets up the possibility of an unlimited number of secondary game and event outcomes.

By utilizing the step of independent outcome, and depiction upon a playing card of that independent outcome, the cards provide the true statistics of the second game that’s being played independent of the respective playing card. This enables, for example, dealing five SEGO dice cards, which provides the random outcome of five cards being dealt plus the random outcome of five dice being rolled.

The game provides breakthrough mathematics, introducing new SEGO outcomes for game pay and unlimited new combinations of occurrences for pay. “The breakthrough was the random assignment of those symbols on the cards,” Kennedy says. “That’s the key to the SEGO games.”



An original sketch shows the workings of the MAXLink wide-area progressive (WAP) network system. Client game applications query the MAXLink server whether a card hand to be dealt is the jackpot winner. Upon receipt of an instruction to award a jackpot, the client device displays a predetermined jackpot winning hand to the player.



The company has been granted three U.S. patents for this invention.

As with most breakthroughs, it took an amount of time and energy that looks daunting in retrospect—“many years, maybe seven or eight, of card game statistical analysis,” Kennedy says, “easily 10 hours per week after work we were developing custom software simulations, mathematical models, etc. I bet that Tim and I colluded on 500-plus various statistical testing projects.”

The first SEGO game title was Roulette 21®, which was laboratory approved in 2013. (Laboratory approved is not the same as getting a patent. Gaming Laboratories Incorporated is an independent lab that tests all devices, system software, game software and updates for compliance with rules and regulations to more than 475 differing jurisdictions worldwide.)

“After three years in our original field trial eTable in Shawnee, Oklahoma, it’s wildly popular with millennials,” Kennedy says. “They like the additional stimulation. Try and overstimulate millennials. Good luck with that.”

Roulette 21’s success was an eye-opener. Price says Roulette 21 is his favorite SEGO game because it was the first. “When I look back at it, for years we worked upon this development, and to now get to see players really enjoy it is very rewarding.”

SEGO also filled the important role of providing exclusive content that could be played on Vegas Amusement’s original product development from the 1990s, the TableMAX® brand eTables—the electronic equivalent of live casino card tables without a dealer. “We didn’t just set out to create a new electronic card game,” Kennedy says. “It was from this context of trying to strategically create exclusive content for our eTable device that we went down this road.” One of the industry’s first PC-based gaming machines submitted in 1997, the first model TableMAX eTable received GLI approval in 2000.

Other new SEGO games have been developed and are currently pending laboratory approval: BigTime Blackjack®; Bluegrass Poker®; Roll The Dice

Poker®; and Bonus Blackjack®. “We haven’t even scratched the surface of game possibilities,” Kennedy says. “We already have several video poker variations designed using SEGO cards.”

MAXLink, the game-changer

Just as the TableMAX eTable led to SEGO, SEGO has pushed Vegas Amusement toward even greater potential impact and opportunity in the casino gaming world. But it couldn’t have happened without Kennedy acquiring some important real-world education a couple years out of graduate school.

“I went down the road of building the first eTable device. As I learned more about the industry, I found out about a portfolio from intellectual property related to card games—including a world-famous card game called Caribbean Stud Poker® that was patented by a guy named

Danny Jones. There were 20 to 30 patents in the related patent portfolio.

“It was exclusive, and people had to pay a monthly lease to lease the game. I found it all just fascinating and it influenced significantly what I wanted to do with the eTable. I went down and talked to the company, PGI, at their Florida headquarters in 1996 and told them what we were working on, the electronic table device development that later became the TableMAX brand eTables. Shortly thereafter, I was able to make what was a very significant investment at the time: Our company acquired the rights to utilize in electronic format their entire patent portfolio for one gaming market. So then we started developing all their games for eTable play and we got very familiar with all of the associated progressive technology that was being utilized on live card tables globally. This developmental experience had a significant influence in the product design and development of our first approved TableMAX eTable product.”

Kennedy’s timing proved to be very good with this original IP license acquisition in 1996. Two years later, PGI was sold to Mikohn Gaming for \$35 million in cash. “We have been fortunate in that a couple of subsequent deals were made with partners and today all the original PGI games, including the card game Caribbean Stud Poker, are exclusive game content offered upon our TableMAX brand eTables worldwide.”

From the knowledge gained along this earlier path, and shortly after inventing the SEGO Digital Playing Cards and considering all of the mathematical possibilities, it became apparent to Kennedy that the company could utilize the patented random generation and SEGO assignment methodology to create a wide-area progressive (WAP) network of electronic card games.

“My prior experience of developing the first eTable utilizing the Jones Progressive Patent portfolio made me aware of technical issues with WAPs and electronic card games operation,” he says—namely,

Vegas Amusement President Jamey Kennedy says the random assignment of the symbols on the cards is the key to the SEGO games. Each SEGO dice card reveals a traditional card value as well as a random dice roll outcome.



New SEGO card games for the TableMAX eTables include, from top, Bonus Blackjack, which utilizes SEGO symbol cards; Roulette 21, which uses SEGO Roulette cards; Roll the Dice Poker, which utilizes SEGO dice cards; and Bluegrass Poker, which uses SEGO symbol cards.





This is the 2016 E Series model eTable, a TableMAX brand. An eTable is an electronic table game without a live dealer. Vegas Amusement developed the gaming industry's first eTable in the 1990s.

The MAXLink progressive jackpot system “enables popular slot machine large jackpots ... to be played on electronic card games.” — JAMEY KENNEDY

current limitations precluding the utilization of WAPs in electronic card games.

The first limitation: An initial challenge with card game-based WAPs is the aspect of multiple points of jackpot determination. Existing slot machine WAPs use a client/server architecture that enables a server to be the single source of calculating a jackpot award. A winning message is sent to a unique slot machine on the WAP network. Card game devices—dealing and scoring unique card hands—are each the source of jackpot award calculation. Modern, slot-based WAP network operation requires a central determination architecture.

Basic card game mathematics is another issue. “A royal flush was used commonly in the PGI live table game progressives—649,740 to 1 odds—and that’s not sufficient to run a WAP network jackpot that’s linking multiple properties and multiple machines,” Kennedy says. “You have to have a really big number, like 100 million to 1. However, in many card games as blackjack, which deals a two-card player hand initially, there simply is not a mathematical combination possible to reach the level needed.”

Third is the problem of segregation of card game jackpots. Because card games differ so significantly—from cards utilized, to game-playing rules, to possible jackpot awards—only card games with the same jackpot award mathematics can be linked to a common jackpot, resulting in many separate, smaller jackpots grouped by unique card game attributes.

MAXLink progressive technology solves these technical problems when connecting electronic card games to a WAP. It introduces a patented separation of electronic card game play and jackpot operation. With MAXLink, licensed card game software is developed to enable the award of WAP jackpots based upon instruction from the MAXLink server. The network operates with industry-standard client/server WAP architecture utilizing a single point of jackpot award determination handled by the MAXLink server.

Jackpot awards are no longer based on the use of card combination mathematics; instead, they’re formed by jackpot algorithms on the server that can utilize unlimited mathematics. Upon instruction of a jackpot winner, a licensed client device displays the jackpot award to the

winning player during play of the respective card game.

“Now we can bring this whole industry segment that’s been ostracized from progressive jackpot WAP connectivity into the mainstream,” Kennedy says. “And that’s what the MAXLink progressive jackpot system is—a patented, progressive technology that enables popular slot machine large jackpots, such as Megabucks® or Wheel of Fortune®, to be played on electronic card games.” Says Price: “The beauty of MAXLink is anything that deals electronic cards, you can jackpot link it with the MAXLink progressive system.”

The company is now focused on deploying the first MAXLink network, “which will utilize 20 to 25 of our current E-series and new model eTable devices exclusively in one small jurisdiction,” Kennedy says. “We are going to complete a proof of concept and illuminate this patented competitive product feature on our eTable technology.”

A new industry hierarchy

Looking ahead has gotten a little more interesting lately, due to events out of the company’s control. Since Vegas Amusement filed its first MAXLink patent application in 2013, the industry has seen a dizzying flurry of mergers and consolidations in the past couple years, some of them chronicled by Global Gaming Business magazine: “Crane Payments acquired MEI. Scientific Games bought WMS. Bally acquired SHFL, and then was bought by Scientific Games. IGT acquired DoubleDown and then was scooped up by GTECH. And AGI/Novomatic seemed to be buying every company in Europe.”

The result, Kennedy says, is that Scientific Games Corp. and IGT are left standing as the two behemoths of the gaming and lottery industry. “Because they now manage state lotteries and gaming devices on casino floors, they have this new electronic cross platform product span, the technology, WAP connectivity, the branded jackpots, everything needed to implement this new MAXLink technology.

“Our goal is licensing another company to utilize and implement this technology as we continue to focus forward on our continued Intellectual Property

development.” Vegas Amusement has had initial talks with Scientific Games.

“We’d really like to see MAXLink grow internationally through IGT and/or Scientific Games” Price says. However, there are some interesting smaller possibilities. “A multi-property group such as Caesars Entertainment could create a proprietary video poker-based WAP and award a jackpot exceeding \$1 million weekly with just the properties upon the Las Vegas Strip.”

Vegas Amusement is confident that it has the technical experience, developer talent and continued innovation capability to successfully license the technology. “Developing software/products for the regulated Class 3 gaming industry does require a significant amount of capital, and the regulatory approval process required for approving new products is both costly and very time consuming,” Kennedy says. “You literally have 475-plus jurisdictions around the world that have different rules and regulations for gaming,” Price adds.

That said, Vegas Amusement has had success in obtaining patents for its two latest breakthroughs—even in a post-*Bilski* and post-*Alice* world. Those Supreme Court rulings, in 2010 and 2014, respectively, were major blows to software patent eligibility. “Since I filed this first patent application for MAXLink in 2013, the patents (three) have flown out of the patent office even in the face of those rulings,” Kennedy says.

“This application, although it’s a software patent, it represents a network. It has a very clear inventive step and it solves a problem that hasn’t been solved before. That’s what makes it patentable.”

He hopes to get full laboratory approval during 2017. “We’re excited it’s gotten this far,” he says, and is just as excited about what’s next down the corridor. ☺

Wheel of Fortune® is a registered trademark of Califon Productions, Inc.

Megabucks® is a registered trademark of IGT, Inc. Caribbean Stud Poker® is a registered trademark of Bally Gaming, Inc.

TableMAX®, Roulette 21®, Bonus Blackjack®, Roll the Dice Poker®, Bluegrass Poker®, BigTime Blackjack®, SEGO® Digital Playing Cards, and MAXLink® are registered trademarks of Vegas Amusement, LLC.



HERE'S HOW A SEGO CARD GAME WORKS

The first SEGO card game, Roulette 21®, was a matter of giving people what they want—and in a data-sophisticated way.

In part, the game was motivated by data analytics collected among gamers who were playing Vegas Amusement’s early-model electronic table devices. When hundreds of blackjack players were asked, “What would you play if you couldn’t play blackjack?” a significant number of them said, “red or black on a roulette table.” So the game design objective of Roulette 21 was to present players with the option of simultaneously playing both.

Roulette 21 utilizes SEGO Roulette Cards. Each playing card has a graphical depiction of one random outcome of one spin of a European roulette wheel. European roulette—more favorable to players than American roulette—utilizes a wheel with outcome slots: 18 red, 18 black and one green.

The math of playing a red/black wager in European Roulette is a winning probability of 48.65 percent, and with payout of 1 to 1 upon winning wagers a return to player of 97.30 percent. Roulette 21 has identical odds and ratios across the board.

In Roulette 21, the game table presents to players the side option of placing red/black wagers before the beginning of card game play. Cards are dealt, and play of the blackjack game begins. A single card dealt to form the dealer’s hand

is utilized to settle the red/black wagers placed. Since each SEGO Roulette Card is populated with one random roulette wheel spin outcome, the odds are statistically exact.

The psychology of playing blackjack and red/black is very similar. Both wagers have a very high win frequency and typically have short oscillating cycles of wins and losses. Combining these together and playing simultaneously enables an improved distribution of positive win events for players.

“During development and approval of the game, we received very positive feedback from beta testing,” said Vegas Amusement president Jamey Kennedy. “However, we had a concern that maybe there might be too much visual stimulation to the traditional blackjack players. It turned out that this wasn’t an issue.

“Upon completion of approval in 2013, we began a field trial in Shawnee, Oklahoma, where we replaced an existing popular card game titled 21+3 on one of our eTables. The first month of operation, the game was slammed with a gross revenue increase of 228 percent over the prior month. After the first full year of operation, each of the three seats upon this eTable were ranked in the top 2 percent of all machines by net win within the casino.”

Roulette 21 remains the most popular game among Millennials in the facility to this day.

Q&A

HELP FROM THE HILL

IN LEGISLATION AND BUSINESS, CHARLIE SAUER
TIRELESSLY ADVOCATES FOR INVENTORS

Charlie Sauer is one of those people whose work eludes simple characterization. He works on Capitol Hill as an economist, policy specialist and a respected leader who has worked for former U.S. Sen. Kit Bond (R-Iowa) and Sen. Chuck Grassley (R-Mo.), as well as former Florida Gov. Jeb Bush. He's founder and president of the Market Institute LLC, a small-business limited government advocacy company. He has written congressional testimony and speeches for politicians, business owners and academics.

A common thread in all of Sauer's work is his ongoing effort on Capitol Hill to help inventors. He is committed, articulate and outspoken when necessary. *Inventors Digest* editor-in-chief Reid Creager asked Sauer about his innovation background and his opinions on current issues in the field.

Reid Creager: When did you become interested in inventing?

Charlie Sauer: I grew up in a Kansas City suburb on the Kansas side and went to school on the Missouri side—William Jewell College, the Harvard of the Midwest. Actually, all liberal-arts colleges in the Midwest make that claim.

My mother was able to get an invention into Wal-Mart in the 1990s. The original invention was called the Bo Ball. She was a single mother dreaming on the couch about how she was going to pay the bills and tried to come up with her own pet rock.

She was a photographer for the Royals, so she had access to Bo Jackson. She couldn't get him to endorse it but somehow she had already filed the trademark for Bo Ball, so she got awarded a trademark for "Bo" but not "Ball." This was before Nike came out with the "Bo Knows" campaign. ... People actually teach her case in law school now for trademarking of famous people's names.

So I grew up around invention. When I graduated college, I got a gas card and drove out to Washington, D.C., to stay with my aunt out here while I got a job on Capitol Hill.

RC: Your bio says you are "known for developing common-sense solutions and effective legislative coalitions." What, if any, common-sense solutions for the independent inventor are being overlooked?

CS: The main one is to solely fund the USPTO by just allowing them to keep all of the fees that they collect. We as a coalition of people fighting for strong patents call that the inventor's tax. The patent fees come in, and then a portion of them are sequestered, so some of the inventor fees go into the general fund to pay for whatever. That means that the inventor's money is going to pay for a bridge someplace instead of more patent examiners to help people get inventions out faster.

A study came out recently that the longer it takes to get a patent awarded, the less effective that patent is in helping



Charlie Sauer is founder and president of The Market Institute LLC, a small-business limited government advocacy company.

people create jobs. Where there are more patents, there are more jobs. There is a direct correlation between economic growth and patents. People say that they support keeping full funding of the USPTO, but the bills that they were looking at in the House in 2015 and in the Senate, neither one of them included full funding of the USPTO. The bill that we would support is the Strong Patents Act, which is in the Senate.

RC: In a blog you wrote for TheHill.com nearly two years ago, you were very critical of comments by Sen. John Cornyn (R-Texas) in support of new patent legislation. He had said that “patents are original, non-intuitive ideas from people skilled in the art, but what brings success is not the idea.” Where does that legislation stand now?

CS: (Laughs.) I love having editors on the back end. I write with a baseball bat on my shoulder (mad), and then you rely on the editors to make it publishable (less mad). That quote by him was not right. For him to say that was just amazing to me. That’s the first time I’ve attacked a politician by name.

That bill didn’t come to fruition. It got hung up but may eventually resurface. It’s a bill that makes it harder to enforce intellectual property. It’s a bill that makes it harder to be an independent inventor. It’s a bill that portrays universities as patent trolls.

RC: You’re similarly outspoken about the America Invents Act, correct?

CS: I see the America Invents Act (signed in 2011, went into effect in 2013) as not just a setback for inventors but an attack on the American Dream, the idea that anybody can build the next-best mousetrap. The America Invents Act was the bill that codified the fact that that statement is no longer true, because now it’s not “I can invent it and I own it,” it’s that I have to invent it and now race to the patent office to own that patent.

I just think that is the worst piece of legislation that they could have passed. Not only that, but the act was meant to harmonize our innovation systems with the rest of the world. That doesn’t make any sense. So you take the most innovative economy in the world and you pull it back to the least innovative economies in the world. The idea of that doesn’t make sense on a barroom napkin; it shouldn’t have made sense in Congress.

RC: Amid recent reports indicating fraud by some examiners at the United States Patent and Trademark Office, what improvements can streamline the operation and make it more accountable and effective?

CS: It’s hard to do anything without the proper funding. The fees are supposed to support the USPTO. When they aren’t allowed to keep all their fees, it makes sense that they aren’t going to be able to keep up with the demands that are put upon them. Not keeping up is when you introduce fraud and other things.

RC: So that’s when oversight is compromised?

CS: That’s when oversight is compromised. Even beyond that, if we pull up again to the 20,000- or 30,000-foot level, the way to fix this is by focusing on the economic benefits of innovation. If we aren’t going to focus on the economic benefits of innovation, then there’s nobody who’s going to spend the time or money necessary at the USPTO.

RC: If you had one piece of advice to give to the small inventor, what would it be? Would that advice be any different than it was, say, a couple decades ago?

CS: The first steps are still the same. You identify the hurdles: Is this product worth it? Does it solve a problem? Where people will get stopped now is when they’re identifying whether it’s worth it to risk their house, house and bank account pursuing that innovation.

That’s because when you

can’t protect your intellectual property on the back end, you’re less likely to invest in it on the front end. ... It’s already a risk to invent, and now it’s becoming riskier to invent. That isn’t a good trend.

RC: When you talk with independent inventors, what excites them? What is frustrating to them?

CS: Inventors do share their problems: how hard the intellectual property system is to understand and progress through for the small inventor, as well as how expensive it is. All independent inventors are almost always the same. They love sharing their ideas and their innovations, and their solutions to new problems as you’re walking around. That’s what I love about working with inventors—that innovative atmosphere. ☛



“It’s already a risk to invent, and now it’s becoming riskier to invent. That isn’t a good trend.”



2016 Inventors of the Year – Dr. Robert Coffin for Amgen Inc.'s IMLYGIC®; Dr. Mark Selby and Dr. Alan Korman for Bristol-Myers Squibb Co.'s OPDIVO® and YERVOY®; Dr. Yan Wu for Genentech Inc.'s TECENTRIQ®; Prof. Dr. Ralf Bargou and Dr. Peter Kufer for Amgen Inc.'s BLINCYTO®; Dr. Hans van Eenennaam, Dr. John Dulos, and Dr. Gregory Carven for Merck & Co. Inc.'s KEYTRUDA®

A NIGHT TO REMEMBER

Inventors and companies that invented six life-saving cancer drugs in the field of immunotherapy oncology treatment were honored at the Intellectual Property Owners Education Foundation's annual Awards Dinner and ceremonies on Dec. 6 in Washington, D.C.

Instead of a single inventor of the year, IPOEF broke tradition and named inventors at four companies for breaking ground with these exciting treatments. Winners were the inventors of Amgen, Inc.'s IMLYGIC® and BLINCYTO®; Bristol-Myers Squibb Co.'s OPDIVO® and YERVOY®; Genentech, Inc.'s TECENTRIQ®; and Merck & Co.'s KEYTRUDA®. Nine inventors led these efforts, as well as the various professionals involved in the innovation process.

Darryl Frickey, Dow Chemical Co.; Michael Cantor, Cantor Colburn LLP; and Daniel Drexler, Cantor Colburn LLP.

Philip Johnson of Johnson & Johnson (left) presents the Distinguished IP Professional Award to Seth Waxman of Wilmer Cutler Pickering Hale and Dorr LLP.





Cane Invention Wins National Competition

FIRST-EVER RITE AID INNOVATION CHALLENGE WAS MANAGED BY EDISON NATION MEDICAL

JAMIE JORDAN IS THRILLED to have won a national innovation challenge—not just because of the long odds of being selected by a Fortune 500 company to bring his product to market, but because other numbers have gotten his attention.

In February 2016, the industrial sales solution specialist from Grapevine, Texas and creator of the Comfort Cane learned his product was selected as the top innovation in the first-ever Rite Aid Innovation Challenge. His ergonomic walking cane has three legs that function independently and provide added stability, especially when walking over uneven surfaces such as snow or gravel. It uses a spring-loaded, shock-absorbing system that helps limit hand, wrist, shoulder and back pain often associated with the use of traditional walking canes.

Jordan has more than comfort in mind with his invention. According to the Centers for Disease Control and Prevention, hospital emergency rooms treat more than 47,000 people age 65 and older each year for injuries caused when they fall while using canes and walkers.

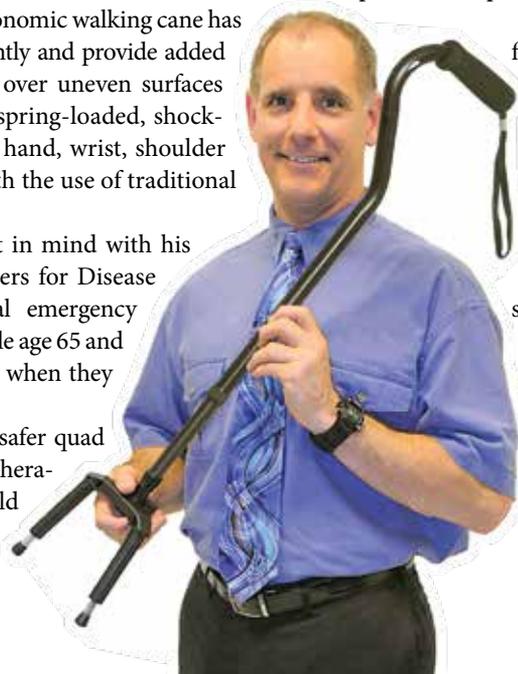
“We sought to develop a much safer quad cane because my friend, a physical therapist named Randy Misenheimer, told me that so many of his patients

were falling after graduating from a single-tip cane to a quad-tip cane,” Jordan said. “A quad cane is much more stable than a single-tip cane—as long as you’re not walking. So is a fencepost, but you can’t walk really well with either one. If you have any kind of a normal gait where one foot is actually moving in front of the other foot, the traditional quad cane is going to tilt, and some tips will end up off the ground.

“With the Comfort Cane, all three tips stay firmly on the ground and you can roll through a normal gait. It grabs the ground at all three of its points of contact at the same time to minimize falling.”

The Comfort Cane was one of more than 100,000 innovation submissions that have been reviewed by Edison Nation historically, and was licensed to Rite Aid after it selected the invention to introduce to consumers in-store and online.

Jordan said the Comfort Cane universally gets positive reactions. “At first, people don’t necessarily get that the device has springy, shock absorber legs,” he said. “Once they feel it and lean on it they go, ‘Wow! That’s really different.’”



Extensive national search

Rite Aid launched the Innovation Challenge in order to give its employees, customers and independent inventors around the world the opportunity to have their new health and wellness ideas brought to market by one of the largest pharmacy chains in the world. The challenge involved submissions from Rite Aid associates, their consumers across the country and Edison Nation members. All submissions went through an extensive eight-stage evaluation process managed by Edison Nation Medical, which was engaged by Rite Aid to direct and host the search.

The Comfort Cane is expected to be launched for sale in many of Rite Aid's 4,600 stores and online at www.riteaid.com this spring.

"We congratulate and thank Jamie for participating in Rite Aid's first-ever Innovation Challenge," said David Abelman, Rite Aid executive vice president of marketing. "Rite Aid is excited to introduce the Comfort Cane to customers as part of our existing home health care offering, and we think it will be well received by patients and customers who use canes, as well as caregivers, as a safe solution for maintaining daily mobility."

Gregg Smith, partner and chief innovation officer of Edison Nation Medical, said: "Edison Nation Medical was honored to have been engaged by Rite Aid to manage and host the innovation search. We operate the largest health care innovation marketplace with deep expertise in open innovation, product development and health care, And it was exciting working with Rite Aid management and reviewing the many new and unique product ideas that were submitted."

The Comfort Cane is expected to be launched for sale in many of Rite Aid's 4,600 stores and online at riteaid.com this spring.

Design was an obstacle

During this process, Jordan, Misenheimer and Simon Chen (vice president of RANjAM, which manufactures walking canes and accessories) began working to make the Comfort Cane manufacturable but initially had problems, especially with the design. "We initially had trouble communicating the design concept of the cane to the company we were working with," Jordan said. "The first design we saw had shock-absorber legs but looked like something out of a lunar landing. I wasn't showing that to anybody."

Eventually, Jordan turned to his niece, Tiffany Kallor, the lead interior architect designer for the newly constructed, state-of-the-art University of Texas-Southwest Hospital facility in Dallas, suggested the use of SketchUp, free 3D modeling software. "We went in and started creating," Jordan said. "That was a major challenge, getting a walkable, 3D model."

The Comfort Cane is more than 10 years in the making, so Jordan is excited about seeing the product in Rite Aid stores. "This is a great honor and opportunity, and we're so grateful to Rite Aid for bringing it to market and Edison Nation for their work in recommending our innovation," he said

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CONSIDERING A PATENT? 5 Things You May Not Know

SOME RULES AND REALITIES IN THE PROCESS CAN BE SURPRISING **BY DAN TSAI**

Whether you are a garage tinkerer or an engineer at a technology company, you probably have considered obtaining a patent to protect one of your ideas or innovations. There is an allure to a government-issued document declaring that you are the inventor of a patent that grants you exclusive rights to your innovation.

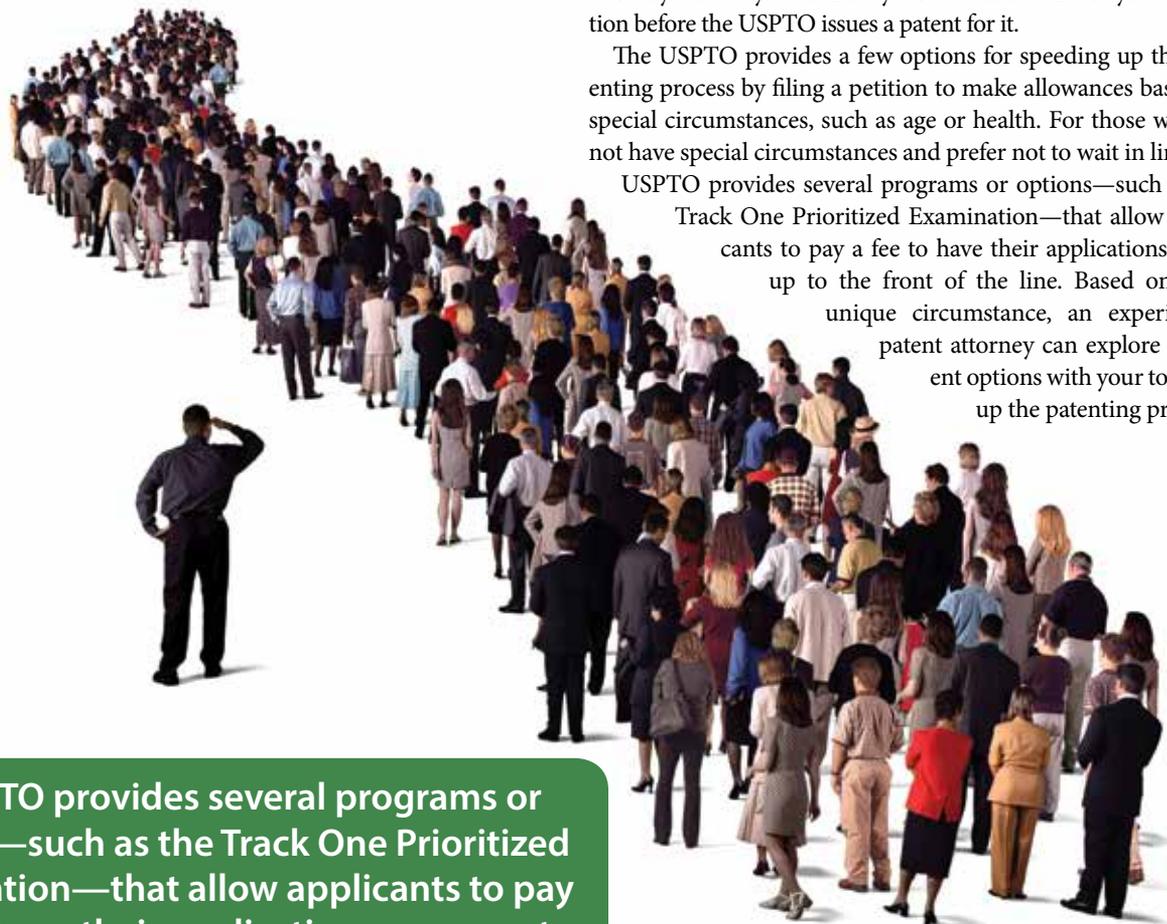
But first, here are five things to consider before calling your patent attorney:

1 Long waits. In 2015, 411,728 new patent applications were filed at the United States Patent and Trademark Office, a total that has increased during each of the past five years. Even though the USPTO has tens of thousands of patent examiners examining these applications, the large volume results in a relatively long backlog of pending applications.

Typically, after a new patent application is filed, it takes about one to two years for that application to be reviewed and examined by an examiner. Another year or two may pass while the patent application goes through several rounds of office actions and responses between the patent examiner and your patent attorney. You may have already won a Nobel Prize for your invention before the USPTO issues a patent for it.

The USPTO provides a few options for speeding up the patenting process by filing a petition to make allowances based on special circumstances, such as age or health. For those who do not have special circumstances and prefer not to wait in line, the

USPTO provides several programs or options—such as the Track One Prioritized Examination—that allow applicants to pay a fee to have their applications move up to the front of the line. Based on your unique circumstance, an experienced patent attorney can explore different options with you to speed up the patenting process.



The USPTO provides several programs or options—such as the Track One Prioritized Examination—that allow applicants to pay a fee to have their applications move up to the front of the line.

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2 You usually don't get a patent for the invention with which you started.

In many cases, others may have already come up with ideas similar to your invention. When examining a patent application, the patent examiner searches various databases and typically finds prior art that describes concepts similar to your ideas. This can result in a rejected patent application for lack of novelty, or for being obvious in view of the prior art. To help you get a patent, your patent attorney will attempt to overcome these rejections by providing arguments and/or amending the patent application to distinguish your idea from the prior art.

Typically, your patent application goes through several rounds of rejections and amendments before the patent application is allowed (assuming the patent application survives the rejections). As such, what you initially claimed or intended to claim in your patent application may be different from what is eventually allowed. To mitigate such surprises, you may want your patent attorney to conduct a prior art search before filing an application.

A prior art search can provide an idea of whether there are prior arts similar to your invention. Based on the result of the prior art search, an experienced patent attorney can provide you with an analysis of how much protection you can realistically expect to obtain from filing a patent application. Typically, patent protection in a more crowded technology area tends to be narrower and is harder to get, in which case you may want to invest your patenting effort in another innovation.

3 Patents don't always protect you from patent lawsuits.

A patent gives you the right to exclude others from making, using or selling the patented technology. However, a patent does not necessarily give you the right to make, use or sell the patented technology.

For example, having a patent on a widget you have invented provides no assurance that you will not be sued by another person if that person believes your widget infringes on his/her patent. This may confuse some people. Imagine that a patent is a sword, not a shield. Thus, having a patent on your widget does not shield you from patent lawsuits, as someone else may already obtained patent(s) that arguably cover some aspects of your widget.

The patent's value is as a sword that fights off others' efforts to infringe on your unique rights. Further, in the event that you are named in a patent lawsuit, having a well-drafted patent will put you in a better negotiating position for cross licensing.

4 You must pay to keep the patent alive.

After waiting several years and paying tens of thousands of dollars to the USPTO and your patent attorney, you finally receive a patent and hope that the patent will stop costing more money. But to keep the patent in force, you have to pay maintenance fees

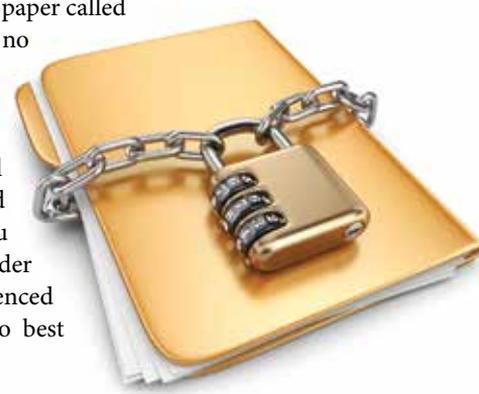
at 3.5 years, 7.5 years and 11.5 years after issuance of the patent.

For example, for a large-entity applicant, the maintenance fees are \$1,600 due at 3.5 years, \$3,600 at 7.5 years, and \$7,400 at 11.5 years. Although there is a 50 percent or 75 percent discount for individual inventors or small organizations, these maintenance fees can still add up when you have to keep multiple patents in force. Thus, you or your patent attorney should periodically review your patent portfolio and consider carefully whether some patents should be allowed to lapse to reduce the cost of maintenance fees.

5 After your patent expires, it becomes public domain.

A utility patent generally expires approximately 20 years after filing, and following expiration the invention becomes public domain—meaning that anyone can make, use or sell the invention. So if you want to keep the exclusive right to your innovative idea for longer, consider other means of protection. For example, trade secret protection is one option that allows an idea to be protected for as long as it is kept a secret from the public. Famous examples of trade secrets include the formula for Coca-Cola, ingredients for KFC's fried chicken, and the formula for WD-40.

The patent system is one of the most powerful tools for protecting innovation. Technology companies have risen and fallen based on a little piece of paper called a patent. However, there is no one-size-fits-all solution when it comes to protecting your intellectual property. Given the substantial costs and time associated with obtaining a patent, you should discuss and consider all options with an experienced patent attorney on how to best protect your innovation. ☛



Dan Tsai is a patent attorney at Haynes & Boone, L.L.P. He has extensive experience working with various technology companies and has helped his clients prosecute thousands of patent applications at the USPTO. For more information, visit haynesboone.com/people/t/tsai-daniel.





The Nest smart thermostat was launched in 2011.

Part 1 of 2

How the IoT has Expanded Our World

'THE INTERNET OF THINGS' ENCOMPASSES TYPES OF CONNECTED DEVICES **BY JEREMY LOSAW**

Until recently, the internet was mostly a network for computers to talk to each other, with little influence on the physical world outside of those borders. The phenomena of the “Internet of Things” (IoT) is changing that.

The IoT is the term used to describe the network and devices that communicate to and are controlled via the internet. Connected devices can help us monitor our home or fitness, curb bad behaviors, find our lost items, or any number of expanding applications. This first of a two-part series on IoT devices will discuss the history of the IoT and the different types of IoT devices. The second installment will reveal the architecture of an IoT network and discuss prototyping methods for IoT innovations.

History

The term “Internet of Things” was coined in 1999 by Procter & Gamble employee Kevin Ashton, who used it to describe radio-frequency identification technology for supply chain management. It may have taken a while to put a name to connected devices and their environment, but they had been in development for years before that.

In the 1980s, Carnegie Mellon University retrofitted a Coca-Cola machine that had network connectivity to tell users whether there was a drink available. This pre-internet application was limited to a few geeky users, but the first IoT device that generated mainstream buzz was the webcam. The first webcams were single-frame still cameras that were thrust into the mainstream when

the website jennicam.com went live in 1996. College student Jennifer Ringley hacked a webcam to take a photo inside her dorm room every 15 minutes and post it to her website. The uncensored behind-the-scenes shots captivated the nation and thrust Ringley into the national spotlight, even getting her an appearance on David Letterman’s late-night show in 1998.

It was not until about 10 years later that products that were specifically designed for the IoT started hitting the market in earnest. First blood was in the fitness and home automation categories. In 2007, Nike collaborated with Apple to create the Nike+ system, which used a vibration sensor installed in a sneaker that communicated with a dongle attached to an iPod. This allowed for data from the sneaker to be sent to the iPod, which was then uploaded to a website. Users could track their performance and share with the community.

The breakthrough IoT device for the home came in 2011, when the Nest smart thermostat was launched. It can sense when you are home, learn your schedule, and is wifi connected so that it can be controlled from anywhere. Its success has made Nest a household name; the company has extended its smart home line of products to include a smoke alarm and security cameras.

These products are just a couple of the most impactful in IoT history but certainly not the last. The incredible sales and consumer interest in these devices have opened the floodgates, and a slew of new IoT devices are launched every year in a variety of consumer categories.

I can remember the first time the internet felt powerful to me. I was a freshman at Union College in 1998, starting my engineering journey in upstate New York. My friend Tally got a visit from a high school friend in Denver, and I exchanged email addresses with her friend.

One day, I wrote an email to her and made a sarcastic comment about Tally. Within the hour, Tally was in my dorm room chewing me out about how offended she was about my comment. Until that moment, I considered the internet to be more a silly diversion to see disgusting pictures from rotten.com or for playing Snood. That day made me realize that if it could cause a rift in a friendship, it was a much more powerful tool than I had imagined.

Fast-forward almost 20 years, and the internet is practically like the air we breathe. It is an ever present and necessary part of our lives for communication, work and entertainment.

Types of IoT devices

A plethora of products are in the category of connected devices, but they can be grouped into categories based on functionality. The three main types are single-ended, bidirectional and hubs.

Single-ended IoT devices are products in which the communication between the device and internet goes one way. An example is a home-monitoring device that reports a measured metric such as temperature or humidity via a wireless connection to a web server. The data can then be viewed by a computer or smart device. However, the computer or smart device monitoring the sensor cannot send back data to it to control the environment

Until recently, the internet was mostly a network for computers to talk to each other, with little influence on the physical world outside of those borders. The phenomena of the “Internet of Things” (IoT) is changing that.

being monitored. These types of devices are the most common because they are the easiest to design and deploy.

The Amazon Dash buttons are another example of a single-ended IoT device. The user presses the button on the device, and a signal is transmitted over the web to the Amazon store to order a prescribed amount of a product.

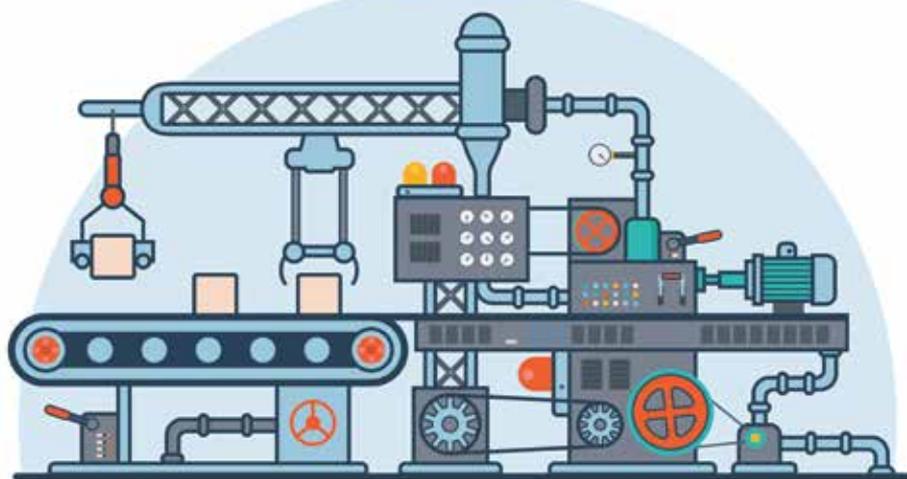
Bi-directional IoT devices are products in which there is two-way communication between the device and the monitoring system. In this instance, signals from the device are transmitted to a web server and data can be sent back to the device to affect its environment. Many home automation products are bi-directional. For example, the August Smart Lock home security system features a device that controls the lock on a house door and a connection to a smartphone. The lock reports back to the smartphone whether the system has been unlocked by authorized users. It also allows the homeowner to send a signal to the lock from his or her phone to unlock the door. The Nest thermostat is another good example of a bi-directional IoT device; it can be monitored and controlled via the web.

Some IoT devices serve as a hub for other IoT products and as another gateway to the internet. These devices can control many other connected devices by voice command, or via a smart device. The Amazon Echo can take voice commands to control multiple devices such as speakers, the Nest thermostat, Philips Hue smart lighting and more. Because it is connected to the web, it can also report back the weather, access your calendar, or report back other data. These types of products are becoming so popular that other companies, such as Google, are coming out with their own IoT hubs.

The Internet of Things is associated with a flood of new connected products to help us monitor and control our environments with a variety of different functionality, and new applications of the technology are being born every day. 📱



This temperature sensor in my greenhouse monitors the temperature and humidity in the growing area, and sends data to the web as well as my phone.



U.S. Manufacturing Vacuum Must End

TIME FOR A DETAILED PLAN TO SAVE THESE JOBS AND IP ASSETS

BY GENE QUINN

In the past decade, it has gotten harder to obtain a worthwhile patent in the United States. Thanks to the Supreme Court's decision in *eBay v. MercExchange*, a victorious patent owner is no longer entitled to a permanent injunction that orders the infringing defendant to cease infringing in the future. Thanks to the America Invents Act and the creation of the Patent Trial and Appeal Board, commercially valuable patents are challenged in administrative proceedings before administrative law judges who ignore the presumption of validity a patent is statutorily promised and apply rules that move the proceedings along so quickly, due process is seriously compromised. Thanks to a tetralogy of misguided patent eligibility cases from the Supreme Court during the past five years, software and biotechnology industries have seen their innovations largely deemed unpatentable.

But a far larger problem continues to loom. By and large, the United States continues to export our intellectual property so foreign companies and subsidiaries around the world can engage in manufacturing instead of making things in America. Unfortunately, when manufacturing exits a country, research and development funding dwindles in direct response, creating an enormous problem for subsequent generations of innovation.

The manufacturing vacuum will continue to be an acute problem unless a concerted effort is made to change it. During the recent presidential campaign, candidate Donald Trump promised to bring jobs back to America. Those on the left, as well as many on the right, panned Trump for a lack of detail in his plan to bring back jobs—although a lack of detail is hardly unusual in a modern political campaign. For better or for worse, the 140-character sound byte world we live in doesn't have time for details. Trump did not win the election because people knew exactly what he would do to deliver on his promises; they voted

for Trump because they hoped he might deliver on his promises.

Now is the time for details. One of the planks in the Trump plan must be a dedicated and concerted effort to bring manufacturing jobs back to America, which would reward the faith placed in him by the many in the Rust Belt states who voted for him on Nov. 8.

Misplaced sense of security

With countless manufacturing jobs gone, the American economy thrives on intellectual property—particularly in the form of innovation. It is mistakenly believed that as long as America is innovating we have no problems and will continue to have a robust and even dominant economy. But since the housing collapse, the U.S. economy has been anything but robust and dominant.

There is nothing wrong with negotiating better, smarter trade deals, but what America really needs is smarter manufacturing policies. After all, what exactly are better, smarter negotiators going to do if the United States remains an inhospitable climate for business, with extraordinarily high tax rates, unreasonable environmental regulations and loopholes that only the richest corporations can leverage? How could we ever reclaim widespread manufacturing in the United States if the deck is stacked against the industry?

Would it surprise you to learn that China has but a 3.5 percent cost advantage for manufacturing compared with the United States? Regulations, taxes and an environment that makes it practically impossible to start a new business creates the overwhelming bulk of the U.S. disadvantage. Thoughtful policies to revitalize American manufacturing would produce dividends, lead to a broader middle class, provide an economic boon to the entire country and lead to greater national security because we wouldn't be relying on foreign producers for everything, as we are today.

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We need the 'grunt work'

In "Great Again: Revitalizing America's Entrepreneurial Leadership," a central and often repeated theme is that America's decision to give up on manufacturing has not only caused the obvious problems associated with the loss of high-paying, blue-collar jobs, it has and is causing an enormous loss of intellectual property assets. The author, Hank Nothhaft, who was an extremely successful start-up CEO in Silicon Valley with many years of experience, quotes what Harvard Business School Professors Willy Shih and Gary Pisano told him: "Decades of outsourcing manufacturing has left U.S. industry without the means to invent the next generation of high-tech products that are key to rebuilding its economy."

Nothhaft explained it in a January 2011 speech in Washington, D.C., at an Innovation Alliance Conference: "For 30 years now, we have all been fed the carefully cultivated myth that so long as America did the creative work, the inventing, then we can let other nations like China do the so called grunt work, the manufacturing. Simply, we would think; they would sweat. So we let manufacturing go and in so doing we lost the greatest economic force multiplier in history. For manufacturing not only supplies middle-class incomes to the three-quarters of all Americans without a college degree, it also creates up to 15 additional jobs outside of manufacturing for every position on the factory floor."

Donald Trump's plan must be a dedicated and concerted effort to bring manufacturing jobs back to America.

Worse, every engineer in the world knows that innovations don't always (if ever) ramp up from the micro level to the macro level, as one might predict. So when we outsource manufacturing, we are handing over the follow-on innovation that will take place on the factory floor. By outsourcing manufacturing to the lowest bidder abroad, not only have we destroyed the working middle class in America, we are also increasingly turning over our last economic advantage: our intellectual property.

Perhaps right now the U.S. remains in the lead with respect to first-generation innovation, and perhaps second and subsequent generations of innovation made on the factory floor are not a current threat to the U.S. innovation economy. But how much longer will that be the case? How much longer before the countries doing the manufacturing become more sophisticated in terms of first-generation innovation? 🐕

Gene Quinn is a patent attorney, founder of IPWatchdog.com and a principal lecturer in the top patent bar review course in the nation. Strategic patent consulting, patent application drafting and patent prosecution are his specialties. Quinn also works with independent inventors and start-up businesses in the technology field.



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Pence, Conservative Views on Patents Likely to Influence Trump

BLACKWELL HAS ALSO URGED STRONG PATENT RIGHTS

BY PETER HARTER AND GENE QUINN

Many in the patent community are expressing an almost moral indignation that Donald Trump has taken no public position on patents. This ignores the reality that the Republican platform—which was approved by a committee overwhelmingly stacked with Trump loyalists—inserted a plank that stated patents are property rights, and theft of intellectual property assets is a national security concern.

So it is not entirely accurate to say that President-elect Trump has taken no public position on patents (although it is fair to say that patents are not one of his priority issues). This should, however, be a welcome turn of events for those besieged in the patent owner community. Your new federal government does not seem to have more patent reform as a top agenda item, which is newsworthy and heartening. There is no desire to ramrod patent reform down innovators' throats.

That lack of a position on patent reform is dismaying to many because Hillary Clinton specified that she would act on venue reform, among other issues already heavily lobbied on for decades. In 2008, then-Sen. Barack Obama and Sen. John McCain shared the view that we needed some form of post-grant review to make it easier to challenge issued patents. Post-grant challenges ultimately came into being as the result of lobbying by Professor Mark Lemley on the left and Ed Reines on the right, as well as years of Congressional debate and expert studies by the National Academies and others.

Perhaps Trump's team has reviewed current patent reforms and think that they are examples of what is wrong with Washington: driven by lobbyists, big companies, elites and campaign contributions. Not wanting to allow these elements to dictate his agenda fits perfectly with Trump's agenda and promises.

Advisers hold key roles

Because Trump has not been previously elected to public office and thus has not introduced, supported or voted on patent bills, his advisers could play an even more important role.

Ken Blackwell was appointed to lead Trump's transition team for domestic issues. But this would not include the Commerce Department, which has been carved out for Dallas investor Ray Washburne.

Blackwell has written about the virtues of strong patent rights and pleaded with Republicans not to rush forward a flawed



patent reform agenda. He also did an interview on these issues for publication on IP-Watchdog.com in February 2015. If Blackwell influences Trump's thinking on patent issues, that would be very good for innovators and very bad for the "infringer lobby." His high profile on the Trump transition team is certainly noteworthy.

Aside from Blackwell—who may or may not be called upon for advice in the area of patents and innovation policy—we can look to the record of Trump's running mate, Mike Pence. Pence served in the U.S. House of Representatives from 2001 until 2013, when he became the governor of Indiana. He served on the Judiciary Committee for 10 of his 12 years in Congress. This is significant because the Judiciary Committee is the one

that deals with patents in the House.

Pence worked mostly on patent reform bills via the Republican Study Committee, a well-known group of House Republicans focused on inserting conservative views into public policy that include respect for the Constitution and private property rights. Although Pence did not always vote with patent owners (i.e., he voted for the America Invents Act), he was often skeptical of patent reforms that helped a few big companies and perversely increased litigation and uncertainty by introducing new tools for lawyers and infringers to abuse. For example, Pence fought to do away with the best mode requirement, which he said would "lessen the burden put on patent holders in defending their patents in post-grant review proceedings, and it will prevent the expenditure of millions of dollars in needless lawsuit abuse."

Concerned with litigation abuses that cost patent owners needlessly, Pence would likely be persuadable on the issue of "efficient infringement" and the "patent holdout" problem, which are rapidly turning into a plague on the U.S. patent system and driving patent activity to Germany and China. A Constitutional conservative such as Pence should understand the property rights issue and find commonality with the positions expressed by Blackwell, former Sen. Rick Santorum and others on that point.

Pence has also served as governor in a state driven by many innovators and patent owners in the areas of manufacturing, pharmaceuticals and university research. In fact, Purdue University has in recent years highlighted its growth in patenting and licensing, increasing its national ranking and with a focus



If Ken Blackwell—appointed to lead the transition team for domestic issues—influences Trump’s thinking on patent issues, that would be very good for innovators and very bad for the “infringer lobby.”

on using patents to fuel startups and economic growth. During Pence’s time as governor, Purdue soared to record numbers of new patents, record numbers of technology licenses and record numbers of start-ups based on its innovations.

In July, Governor Pence signed an Executive Order establishing the Indiana Economic Development Corp. as the entity that will coordinate all efforts on behalf of the State of Indiana to accelerate innovation and entrepreneurship. Perhaps most interesting, the order specifically acknowledges that increased innovation helps make communities more vibrant and spurs economic growth, higher wages and job creation.

In short, Pence seems to appreciate the realities and benefits of commercializing patented technology and the benefit that brings in terms of economic development and better, higher-paying jobs. Hopefully, he will see that what was in the best interests of Indiana will also benefit the country.

Substantially different input

Vice presidents often have a substantial influence on policy and

personnel. Pence appears poised to be heavily involved in helping Trump make choices for key White House positions; political insiders already see his fingerprints on several key Cabinet nominations. Before we know who may be on the short list to become the next director of the United States Patent and Trademark Office or how a President Trump would come down on another patent litigation abuse reform bill produced by the infringer lobby, it will be important to examine the positions held by Pence and others such as Blackwell.

Early indications suggest that Trump, who is not being advised by the same Silicon Valley elites who advised President Obama, may be getting advice from Constitutional conservatives who understand that patents are property rights and appreciate the important role they play in commercializing innovations and invigorating the economy. 📌

As the founder of The Farrington Group, **Peter Harter** advises public and private companies, investors, startups and nonprofits on risks from legislation, regulation, court cases, standards, politics, and more. He lobbied on patent reform for Intellectual Ventures.



What Thiel’s Patent Views May Mean Under Trump

SIGNS ARE MIXED, THOUGH HE DOESN’T LIKE BULLY TACTICS

BY GENE QUINN AND STEVE BRACHMANN

Since the morning of last Nov. 9, people from virtually every industry have been asking questions, seeking insights and wondering what a Trump Administration will mean not only for the country, but for their specific interests.

The tech industry as a whole was not big on the idea of a Trump presidency. But he had one very vocal supporter from the tech community: German-American entrepreneur, billionaire venture capitalist and PayPal co-founder Peter Thiel. About a week before the presidential election, Thiel made a speech to the National Press Club in which he defended his support for Trump as a presidential candidate: “It’s not a lack of judgment that leads Americans to vote for Trump; we’re voting for Trump because we judge the leadership of our country to have failed.”

Thiel had also made a speech supporting Trump at the Republican National Convention. His position within the administration has further solidified with the Nov. 11 announcement that



The use of the word “monopoly” to describe patents, or copyrights, is unfortunate. A patent does not and never will confer a monopoly right.

Thiel will be joining the Trump transition team. Being perhaps the only Silicon Valley voice within the Trump camp, Thiel’s views could well affect how Trump considers matters of innovation policy—including patent reform, which has simmered on Capitol Hill for much of the last decade.

Printed record is murky

There is little in the printed record that allows us to parse Thiel’s views on patents. In September 2014, The Wall Street Journal published an excerpt from “Zero to One,” Thiel’s book on business startups, which makes one mention of patents. It seems fair to conclude that, while Thiel doesn’t seem to be vocal about patents themselves, he could be open to listening to arguments for respecting the rights of patent owners.

“Creative monopolies aren’t just good for the rest of society; they’re powerful engines for making it better,” according to Thiel. Although he notes that it’s fair to question whether someone should receive a monopoly “simply for having been the first to think of something,” in the next breath he acknowledges that the type of monopoly afforded by a patent is not anathema to innovation: “Apple’s monopoly profits from designing, producing and marketing the iPhone were clearly the reward for creating greater abundance, not scarcity: Customers were happy to finally have the choice of paying high prices to get a smartphone that actually works.” The dynamic nature of Apple’s new monopoly on mobile devices was able to topple the old monopoly of desktop computing that was the rich province of Microsoft, IBM and others.

The use of the word “monopoly” to describe patents, or copyrights, is unfortunate. Although the Supreme Court has historically used the word “monopoly” or the term “limited monopoly,” and those who oppose the patent system have long sought to tie patents to monopolies, a patent does not and never will confer a monopoly right.

Unfortunately for patent owners, the ability to enforce patents has continually eroded over the past decade as it has become easier to challenge patents in administrative proceedings, the Supreme Court has continued to render more and more patents ineligible, damages have evaporated and an open hostility toward patent owners and innovators has taken root and has been destroying the patent system. At best, a patent provides the potential to collect monopoly profits. But that rarely happens because of market entrants, market leaders failing to continue to innovate, and paradigm shifting innovation that can instantly make current technologies outdated.

Just ask Kodak, which invented the digital camera and now owns virtually none of the market share. Kodak is not unique. Neither are disruptive technologies.

Hogan case was personal for him

So Thiel’s description of a patent as monopoly is a gross oversimplification and shows a fundamental misunderstanding about patents. What is interesting, however, is that in his Wall Street Journal essay, “Competition is for Losers,” he seems to suggest that it is perfectly appropriate, if not desirable or even necessary, for companies to identify a space where they can obtain a competitive advantage and exploit that advantage to the greatest extent possible. Thus, to the extent that he considers patents a monopoly this may not be troubling in the same way that so many others who have used the pejorative term have meant it to be in the past.

There might be other conclusions to draw on how Thiel could be persuaded to view patent-related issues based on his legal activities, specifically his bankrolling of Hulk Hogan’s lawsuit against the online news site Gawker. The case was a deeply personal cause for Thiel, who had personal information revealed by Gawker against his wishes. Much like in his support of President-elect Trump, Thiel took a highly principled stand, regardless of how those principles were viewed. In a New York Times Deal-Book article published in May, Thiel indicated that he was taking a moral stand on Gawker’s activities and was not simply looking for revenge. He acknowledged that others, not just Hulk Hogan and himself, had been victimized by Gawker’s successful model of “getting attention by bullying people even when there was no connection with the public interest.”

Although Thiel’s grievance with Gawker is personal and deals with privacy, it is hard not to notice in his comments the sounds of someone who is tired of bully tactics. Whether that would trickle down to innovators who are vilified and mocked as “patent trolls” remains to be seen. Lumping all patent owners into one group and calling everyone a “patent troll” is simply not helpful, a conclusion recently reached by the Federal Trade Commission. Thiel could very likely be dubious of the “patent troll” debate, but exactly where will he stand on it? How nuanced will his view of patents be?

As Trump’s top insider from the tech world, Thiel makes for a somewhat encouraging, albeit enigmatic figure for small players in the patent universe. By and large, the jury is still out on how he’ll affect the Trump Administration’s stance on patents. But it seems reasonable to assume that Thiel’s views, while potentially favorable to some patent owners, could be quite unfavorable to others. 🐕

Steve Brachmann is a freelance writer located in Buffalo, N.Y., and is a consistent contributor to the intellectual property law blog IPWatchdog. He has also covered local government in the Western New York region for The Buffalo News and The Hamburg Sun.





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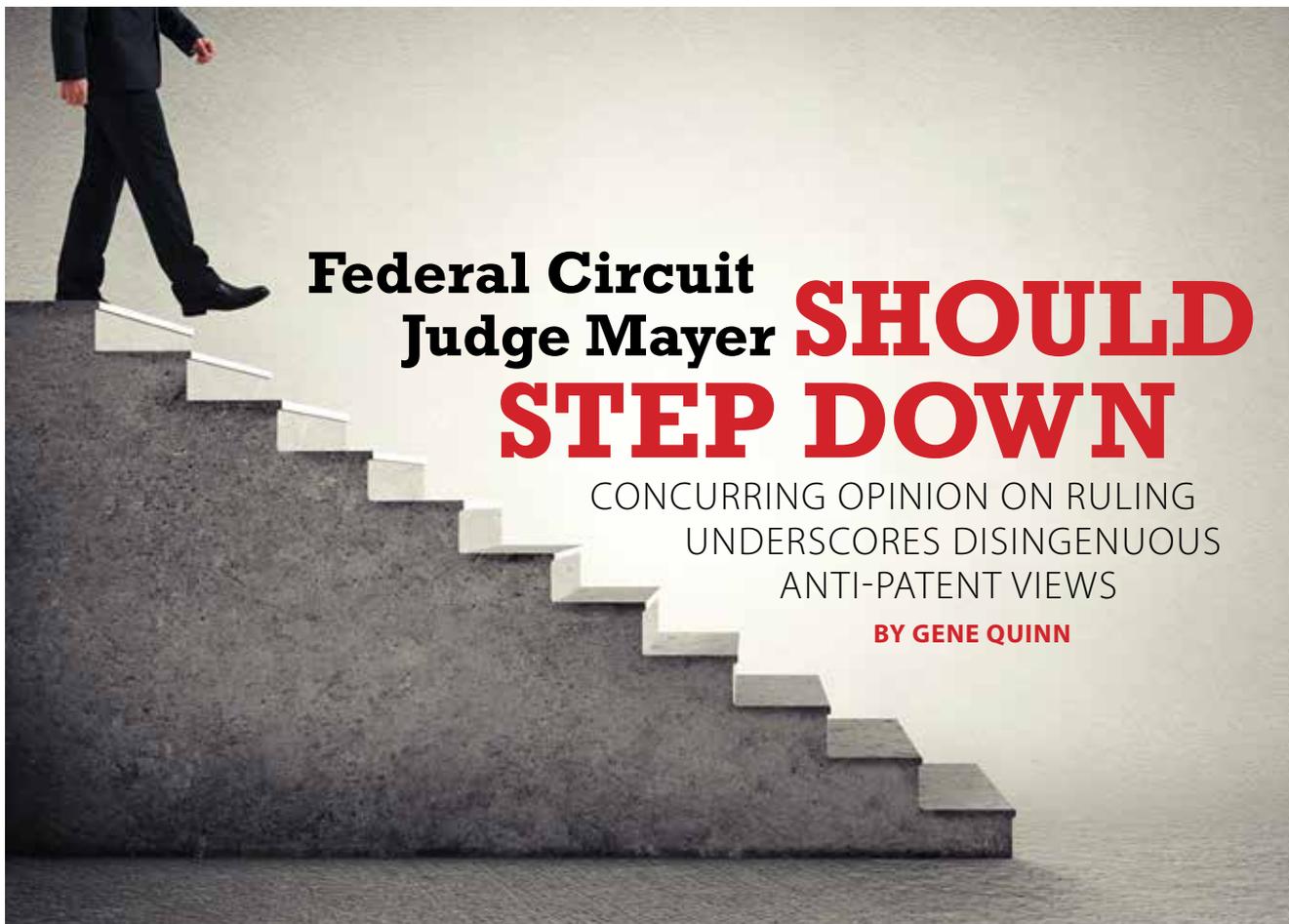


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Federal Circuit Judge Mayer **SHOULD STEP DOWN**

CONCURRING OPINION ON RULING UNDERSCORES DISINGENUOUS ANTI-PATENT VIEWS

BY GENE QUINN

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It has been obvious for some time, but recent events indicate it is time for someone to say it openly. Judge Haldane Robert Mayer, senior United States circuit judge of the U.S. Court of Appeals for the Federal Circuit, should step down and move quietly into retirement.

For years, Judge Mayer has had his own, shall we say, “unique” view of patent law. He has made a habit of writing his rather eccentric anti-patent views into dissents and concurring opinions, later citing himself in those dissents and concurring opinions as if they were somehow authoritative. If an attorney were to do something like that, he or she would be sanctioned, as ultimately happened when the federal circuit rebuked attorney James Hicks for mischaracterizing prior holdings and rulings in a brief submitted to the court.

Recently, however, Judge Mayer took another step toward the absurd in a concurring opinion filed in *Intellectual Ventures I LLC v. Symantec Corp.* (Editor’s Note: In September, the federal circuit affirmed a lower court’s opinion that two patents held by IV were invalid, as directed to invalid subject matter. The panel also found a third patent to be invalid as abstract, reversing the lower court’s ruling and an \$8 million damage award to IV.)

In his concurring opinion, Mayer wrote: “Most of the First Amendment concerns associated with patent protection could

be avoided if this court were willing to acknowledge that *Alice* sounded the death knell for software patents. The claims at issue in *Alice* were directed to a computer-implemented system for mitigating settlement risk. ... Although the petitioners argued that their claims were patent eligible because they were tied to a computer and a computer is a tangible object, the Supreme Court unanimously and emphatically rejected this argument. ... The Court explained that the ‘mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.’ ...

“Software is a form of language—in essence, a set of instructions. See *Microsoft Corp. v. AT&T Corp.*, (explaining that software is ‘the set of instructions, known as code, that directs a computer to perform specified functions or operations’ (citations and internal quotation marks omitted); see also Title 17 of United States Code, Section 101 (defining a “computer program,’ for purposes of the Copyright Act, as ‘a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result’). It is inherently abstract because it is merely ‘an idea without physical embodiment.’ ... Given that an ‘idea’ is not patentable (Editor’s Note: *Gottschalk v. Benson*), and a generic computer is ‘beside the point’ in the eligibility analysis.”

Court didn't kill software patents

These two paragraphs may be the most disingenuous ever written by a judge of the federal circuit.

First, say what you will about the Supreme Court's 2014 decision in *Alice v. CLS Bank*, but the court did not kill software patents. Many patent examiners, administrative judges on the Patent Trial and Appeal Board, and Judge Mayer himself have done just about everything they can to misinterpret *Alice*, employ circular reasoning, and ignore truths in order to kill software patents.

Nowhere in *Alice*, *Mayo v. Prometheus* or the so-called *Alice/Mayo* framework does it say that software patent claims, or claims to computer-implemented processes, cannot be patented under any circumstances. The Supreme Court has always gone to great lengths to not adopt such a bright-line rule.

A ruling by any court or decision maker saying software is per se patent ineligible would be in direct opposition to the Supreme Court's ruling in *Bilski v. Kappos*. Although the Supreme Court did not give us any usable test in *Bilski*, the court clearly said at least some business methods are patent eligible and overruled any bright-line patent eligibility test. If Judge Mayer doesn't know he is wrong, there is a much bigger problem that needs to be addressed.

But wait, there is more!

Ignoring full context

Judge Mayer also wrote that software is inherently abstract because it is just an idea without physical embodiment. For support, he cited the Supreme Court in *Microsoft v. AT&T*. Once again, however, we see that Judge Mayer is not afraid to grossly exaggerate, if not expressly misrepresent, what the Supreme Court said.

So what did the Supreme Court really say? The court, per Justice Ruth Bader Ginsburg, wrote:

"Until it is expressed as a computer-readable 'copy,' e.g., on a CD-ROM, Windows software—indeed any software detached from an activating medium—remains uncombinable. It cannot be inserted into a CD-ROM drive or downloaded from the Internet; it cannot be installed or executed on a computer. Abstract software code is an idea without physical embodiment, and as such, it does not match Section 271(f)'s categorization: 'components' amenable to 'combination.'"

So that is the larger context. Judge Mayer left out that the Supreme Court was talking about software code. This is critically important because software code is not patentable now and has never been patentable. Software code is copyrightable.

Yet Judge Mayer twists what the Supreme Court says about software code not yet expressed as computer readable into being

somehow relevant when talking about patent eligibility of a computer-implemented invention.

But wait, there is even more!

Stretching a meaning

Judge Mayer said in his concurring opinion that the Supreme Court, in *Alice*, said the presence of a generic computer is "beside the point." But again, if you look at the full statement made by the Supreme Court, you realize Judge Mayer is exaggerating to the point of misrepresentation.

In *Alice*, Supreme Court Justice Clarence Thomas wrote: "The fact that a computer 'necessarily exist[s] in the physical, rather than purely conceptual, realm,' Brief for Petitioner 39, is beside the point. There is no dispute that a computer is a tangible

system ... or that many computer-implemented claims are formally addressed to patent-eligible subject matter. But if that were the end of the (Section) 101 inquiry, an applicant could claim any principle of the physical or social sciences by reciting a computer system configured to implement the relevant concept. Such a result would make the determination of patent eligibility 'depend simply on the draftsman's art.'"

Again, when you read the fuller quote and its context it does not mean what Judge Mayer attempts to stretch it to mean. Judge Mayer used the quote—"beside the point"—to support his preferred bright-line rule that "all software implemented on a standard computer should be deemed categorically outside the bounds of Section 101." But that is not what the Supreme

Court said, or even suggested. The Supreme Court merely said that the presence of a computer is not enough.

The Supreme Court did not say that software that runs on a computer is, per se, patent ineligible. The court has never said that software or computer-implemented innovations are patent ineligible; to the contrary, it has specifically recognized that these inventions can be patent eligible. This—together with everything we know about how the Supreme Court has complete disdain for bright-line rules mandated by the federal circuit—means we can say with great certainty that the Supreme Court would hold a very dim view of Mayer's blanket patent ineligibility approach.

Conclusion

The industry and the public deserve better than Judge Mayer. His anti-patent views so cloud his judgment that he twists, exaggerates and misrepresents in order to attempt to impose his radical views into law. If he chooses not to step down, it would seem appropriate for the court to do what it would with an attorney who grossly exaggerates and mischaracterizes cases and rulings to the point of misrepresentation. ☛

He has made a habit of writing his rather eccentric anti-patent views into dissents and concurring opinions, later citing himself in those dissents and concurring opinions as if they were somehow authoritative.



More Patent Litigants Prefer China as a Venue

U.S. LOSING FAVOR AS THE JURISDICTION OF CHOICE

BY STEVE BRACHMANN AND GENE QUINN

Canadian intellectual property licensing firm WiLAN filed a patent infringement suit against Tokyo-based electronics developer Sony Corp. in early November that reportedly alleges smartphones marketed by Sony infringed upon WiLAN's wireless communications technology. WiLAN brought its suit against Sony in China, a market that is foreign to both companies.

The fact that two foreign entities would fight out a patent dispute in Chinese courts points not only to the strength of the consumer market in that country but the reality that the United States is losing favor as the jurisdiction of choice for patent owners seeking to resolve matters of alleged infringement.

In November 2014, the Chinese government announced plans to open a series of intellectual property courts in response to accusations from foreign firms that the country was lax in protecting intellectual property rights. The message being received by patent owners around the world, including those with large U.S. patent portfolios, is that China is a reasonable place to resolve patent disputes.

Patent owners are increasingly becoming more comfortable choosing China as a venue, some saying off the record that they would have no reservations about bringing a patent infringement case in China so long as the infringer is not a Chinese corporation. In fact, given the long-standing hostility and distrust between the Chinese and Japanese, there may be significant strategic reasons for patent owners to specifically bring patent infringement lawsuits against Japanese corporations in Chinese courts.

Great luck in Beijing

Aside from any anecdotal evidence and cultural bias theories, it is also hard to ignore the reality playing out inside Chinese IP courts. Foreign patent holders have been having a great deal of luck in China's IP courts, at least at the courthouse in Beijing. Last July, Intellectual Asset Management reported that foreign plaintiffs won 100 percent of lawsuits at Beijing's IP court, claiming victory in a total of 65 cases. Although the Chinese government is often seen as protecting domestic interests, a 2016 report on patent litigation in China released by the Santa Clara University School of Law concluded that "our findings tend to suggest that, to the extent Chinese leaders hoped that stimulating the national patent system would result in widespread protectionism, their hopes were misplaced." The Santa Clara Law researchers found that foreign firms



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filed 10 percent of the patent litigation suits in China and won 70 percent of those actions.

Although foreign firms make up a relatively small percentage of the plaintiffs, patent infringement suits in China have been growing in the few years since the country established dedicated IP courts. In 2015, Chinese civil courts experienced a 22 percent increase in patent infringement filings, which grew past 13,000 such cases. This was a far faster rate of growth than Chinese courts had in 2014, when patent infringement filings increased by 5 percent up to 9,648 lawsuits.

China might also be a preferred venue for patent infringement litigation based in large part upon the speed with which verdicts are returned by its IP courts. An article published last April by China Daily reported that the average time from suit filing to verdict at Beijing's IP court was 125 days. By comparison, European suits take an average of 18 months for a patent lawsuit to be resolved. In the United States, the median time to trial in patent litigation cases is 2.4 years—a figure that has been increasing of late, according to a 2015 patent litigation study released by consulting firm PwC.

Concerns remain

Nonetheless, there continues to be great concern over the fairness of the Chinese market to those holding U.S. IP rights. The United States Patent and Trademark Office's report on patent enforcement activities in China identified a number of concerns voiced by U.S. patent owners, such as instances of Chinese firms obtaining utility patents covering technology already sold by U.S. rights holders to assert against U.S. companies. The report also identifies inefficiencies at China's food and drug agency affecting the ability to market pharmaceuticals, and Chinese law that prevents infringement suits from being filed against manufacturers who are producing for export. Chinese law requires proof of sales in China to bring a patent infringement suit.

One U.S. company experiencing this conflict between enforcing patent rights and dealing with Chinese protectionist activities is San Diego-based semiconductor developer Qualcomm. Qualcomm has actually been sued by the Chinese government over the company's patent licensing activities involving mobile handset technologies. In February 2015, Qualcomm was ordered to pay \$975 million in antitrust fines for violating the country's anti-monopoly law. Part of Qualcomm's settlement

with the Chinese government included a rectification plan that governs how Qualcomm can negotiate licenses with Chinese firms and how much it can obtain in royalties based on the net selling price of mobile devices. Recent news of Qualcomm filing patent infringement actions against Chinese smartphone maker Meizu with the U.S. International Trade Commission and a pair of European courts could be an indication that Qualcomm is pushing back against China's government-ordered licensing arrangement.

The number of patents being issued by China's patent office is rising, along with the amount of patent litigation in that country's courts. A report issued in December 2015 by the World Intellectual Property Organization indicated that an increase in global patent filings through 2014 was largely caused by increased filings in China, which received 928,177 patent application filings that year. In second place was the United States, where 578,802 patent applications were filed. China also had the second-fastest increase in patent application filings, a growth of 12.5 percent over 2013.

Patent filings in the United States have been increasing, but not nearly at the pace set in the Chinese market. Utility patent applications filed with the USPTO from both domestic and foreign entities grew from 578,802 in 2014 to 589,410 in 2015.

if China's patent application filings continue to increase by double digits and they're already seeing more than 900,000 such filings per year, the size of its market will continue to blow past the United States.

This marks a rise from 490,226 patent applications filed with the USPTO in 2010. In 2005, the USPTO had 390,733 utility patent applications filed, so over the past decade, U.S. patent applications have increased by about 100,000 per year every five years. Of course, if China's patent application filings continue to increase by double digits and they're already seeing more than 900,000 such filings per year, the size of its market will continue to blow past the United States.

In 2015, China passed the United States in terms of patents granted each year: 359,000 to 298,407. This made China the top nation in the world in terms of patents granted. While Capitol Hill continues to debate the merits of patent system reform, which would only increase the difficulties of enforcing patent rights, Beijing has pivoted toward a position of promoting IP rights and enforcement mechanisms.

If these patent granting and litigation trends continue, we could be left with a mind-numbing conclusion: that China, a country ruled by a communist government, has a more robust innovation protection regime than the United States, an ostensibly capitalist country that doesn't seem to see the virtue in protecting the rights of innovators. ☑

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INVENTORS NEED A 'FLASH OF GENIUS'

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"Flash of Genius" is written by Susan Gougian, inventor and business owner. In a recent interview, Gougian said that she wrote the book in response to the many questions about inventing that she was asked by family, friends, and acquaintances. The author went on to say that many people have great ideas, and that "Flash of Genius" is a book that readers will refer to over and over again as they develop their ideas into useful inventions.

Susan Gougian is a graduate of the University of Massachusetts, Boston, and the president of PortionMate Inc., a health and wellness company. The author is happy to answer questions about inventing and may be contacted at info@portionmate.com.

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INVENTIVENESS

They Sang

If necessity is the mother of invention,
Then I'd like to kill the guy who invented this
The numbers come together in some kind of a
third dimension

—“Math Suks,” Jimmy Buffett

Oh, I'm just a girl
Take a good look at me
Just your typical prototype

—“Just a Girl,” No Doubt

Tell you about the world that we'll invent
Wanton world without lament
Enterprise, expedition
Invitation and invention

—“We Could Be So Good Together,” The Doors



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What IS that?

The world is divided into two groups of homeowners: those who have cursed under their breaths while stepping on or tripping over shoes inside a doorway, and the other six homeowners who have not. This space-saving steps design, by Zugai Strudwick Architects in Wickham, Australia, has 130,000 saves and counting on houzz.com. Note the absence of drawer pulls—again, presumably to avoid that annoying tripping thing.



Wunderkids

A 13-year-old Oregon girl invented a bandage that can tell doctors when it must be changed, winning a \$15,000 scholarship in an international Google science contest in October. Large wounds should be kept moist to promote healing, but that requires changing bandages too often to check for that. **Anushka Naiknaware** designed and tested a bandage that's embedded with nanoparticles of graphene, via ink printed into fractal patterns. They sense moisture levels and allow medical workers to determine whether the dressing has dried out. According to The Oregonian, Anushka thanked a mathematical YouTuber for introducing her to “fractals and ultimately the elegance of math.”

1,400

The number of self-driving car patents by Toyota, per a report by Thompson Reuters' Intellectual Property and Science Division early last year. It said Toyota has twice the number of these patents as any other automaker or tech company. That includes Alphabet Inc.'s Google, despite Google's much-publicized work in this field. Reuters says Alphabet is 26th on the list of companies with such patents.

WHAT DO YOU KNOW?

- 1** Who said the following about risk-taking?
“You miss 100 percent of the shots you never take.”
- A) Wayne Gretzky
 - B) Allen Iverson
 - C) Jerry West
 - D) Gordie Howe

- 2** Which product was trademark registered first:
Campbell's soup, or Doublemint gum?

- 3** **True or false:** Amazon was awarded a patent to develop drones as bodyguards and find lost children.

- 4** Gail Borden announced his invention of evaporated milk in January of:
- A) 1706
 - B) 1790
 - C) 1851
 - D) 1913



- 5** **True or false:** Then-Los Angeles Lakers coach Pat Riley filed a patent for the term “three-peat” in 1988.

ANSWERS

1) A. 2) Campbell's was registered in January 1906, Doublemint in January 1915. 3) True. The unmanned aerial vehicle will have built-in software that will allow it to understand commands spoken by a user or controls from an app. 4) C. 5) True. And when the Chicago Bulls—not his Lakers—won three straight titles, Riley reportedly received \$300,000 in licensing fees.

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