Inventors DIGEST

JULY 2015 Volume 31 Issue 07

Ideation
FOCUSED BRAINSTORMING GENERATES PRODUCT DEVELOPMENT

Eye On Washington
PHARMACEUTICAL AND SOFTWARE PATENTS UNDER PRESSURE

Three Inventors
TAKE GARDENING TO NEW HEIGHTS

King of Cool
WILLIS CARRIER BEAT THE HEAT

BIG CHILL
Brandon Adams' ArcticStick Journey

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That's Cool

If you don't think *Inventors Digest* is a cool magazine, think again. Brandon Adams, the subject of this month's cover story, is not just a cool guy, he has a cool idea—ArcticStick—although, after four years, he's still waiting to get the product in his hands. A natural promoter, Adams generated the level of publicity for his product every inventor dreams about, only to discover it doesn't do much good unless you have something to sell.

While still working out the kinks in his invention, Adams took advantage of the knowledge he gleaned throughout the invention process and the popularity he gained along the way. This past January, he launched a successful podcast and, more recently, a webinar to educate novice entrepreneurs on the inventing process. If you're interested in avoiding the mistakes Adams made, you'll want to read "Big Chill or Arctic Meltdown?"

Speaking of cool: *Inventors Digest* takes a historic look at the King of Cool: Willis Carrier. If you were born after 1965, you probably have no idea what's it like to suffer through the blazing days of July without air conditioning, but as climate change continues to impact the weather, you'll gain appreciation for the invention that had a chilling effect on the world.

If you've been quietly waiting for an idea to come to you, trouncing on every random thought, you'll welcome Jeremy Losaw's story on ideation. Losaw, senior engineer for product design firm Enventys, relates how he and his team prod ideas to come to them through a process of focused brainstorming. All you need are some Post-it Notes, a vivid imagination, knowledge of multiple fields of engineering and skilled designers. You're not a mechanical engineer? No industrial designers on hand? No worries. Just use the Post-its and your imagination.

Urban gardeners and agriculturalists will want to read the modern-day tale of "Jack and the Beanstalk"—"How Does Your Garden Grow?" In this story, the plants grow skyward, but there is no giant to send them crashing down to Earth. Rather, there are beautiful walls covered with lush plants and a bounty of fresh fruits and vegetables to harvest.

Inventors Marie Christine Steffanetti and Laurent Corradi devised a hydroponic growing system that allows them to create art with plants, filling both public and private spaces with their living canvases. Tim Blank took the technology he first learned as chief horticulturist and greenhouse manager at Epcot Center's The Land pavilion and devised plant-growing systems that use little water or space, realizing the future in the 21st century.

While the ongoing patent debates in Congress have zeroed in on the pharmaceutical and software industries, in honor of the founding of our nation this month, I Googled Benjamin Franklin. I came across a letter he wrote in which he laments that he was born too soon to witness inventions that were to come (page 11).

I also discovered that Franklin, one of the most prolific inventors of colonial times, was an open-source inventor and believed "that as we enjoy great advantages from the inventions of others, we should be glad of an opportunity to serve others by any invention of ours, and this we should do freely and generously." It seems everyone has an opinion on patents, although, I must add, Franklin didn't spend billions taking bifocals to market.

— Cama McNamara

DREAM SMALL

DISCOVER NOTHING

IMAGINE LESS

DO WHAT'S BEEN DONE

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

INSPIRE NO ONE

GIVE UP HOLD BACK

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

INVENT NO MORE

IGNORE YOUR HEART

SHOOT FOR AVERAGE

THINK NEGATIVE

REACH FOR THE GROUND

IF CONGRESS PASSES LEGISLATION WEAKENING PATENT PROTECTION, THE MESSAGE TO INVENTORS IS, "WHY BOTHER?" SO WHAT INVENTIONS WON'T BE INVENTED? WHICH START-UPS WILL GET KILLED BY FOREIGN COPIERS BEFORE THEY GET STARTED? WHOSE JOBS WILL GET SHIPPED OVERSEAS? VISIT SAVETHEINVENTOR.COM AND TAKE ACTION TO HELP PRESERVE U.S. INNOVATION AND ECONOMIC GROWTH.

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Brandom Adams, photographed by Ben Easter Photography

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YOU HAVE THE IDEAS

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Bright Ideas

DRINK UP

HidrateMe™ Water Bottle

hydrate.me

The HidrateMe water bottle makes staying hydrated easier by tracking water intake through a sensor that is paired with an accompanying app for a smartphone—Android or Apple—or iPad via Bluetooth. The app collects your physical stats and activity levels and then calculates your ideal water intake per day. It sends notifications if you forget to drink and displays your hydration history.

A graphic of a drop, shown on your phone, fills as you drink, telling you how much water you need to drink to reach your goal. The bottle glows if you haven't had anything to drink for an extended period of time or when you reach that goal. The device can be used in conjunction with a fitness tracker, such as Fitbit. HidrateMe is BPA-free, dishwasher safe, holds 24 ounces of water and has a battery life of more than a year with no charging. It is available in a variety of styles and color.

HidrateMe can be pre-ordered through Kickstarter for a pledge of $45. It is expected to ship this coming December. — *Carrie Boyd*

WAKE UP AND SMELL THE HAPPY

SensorWake

sensorwake.com

SensorWake, the world's first olfactory alarm clock, rouses you with the smell of whatever motivates you to get out of bed, whether its money, bacon, continental breakfast or Candy Rush, if you are so inclined. When the clock goes off, SensorWake diffuses your chosen scent into the air, which wakes you up within two minutes. Stuffy nose? No problem. If you're not awake within three minutes, an audio alarm sounds.

The aroma-diffusing alarm clock is preferable to the loud buzzing you're probably accustomed to, and you wake up more gradually, which helps you start your morning in a better mood. The fragrances come in recyclable capsules that last 60 uses, and cost $9 each. They adhere to air quality standards and are environmentally friendly.

SensorWake was designed by 18-year-old French entrepreneur Guillame Roland and was named one of the Top 15 Inventions "that can change the world" at the 2014 Google Science Fair. SensorWake will be available in November for $128. Preorder now on Kickstarter. — *Cliff McNamara*

Solavore Sport

SOLAR COOK WITH EASE

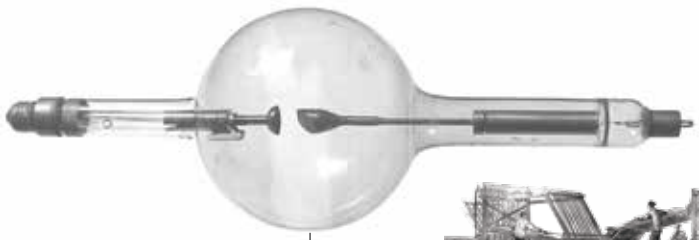
www.solavore.com

With the Solavore Sport you can cook a meal on your next camping trip without the use of fire or electricity. The rectangular solar cooker is made from a sturdy injection-molded resin reinforced with glass fibers and lined with powder-coated aluminum to soak up sunlight. The clear lid traps heat and allows you to cook anything that would normally go in a slow cooker: BBQ pork or jerk chicken, or something more exotic like Moroccan chickpea tagine. How about bananas Foster or carrot cake for dessert? The solar oven comes with two 9-inch covered graniteware pots, which can be used in the oven at the same time. The outside of the cooker is cool to the touch, while the inside typically cooks at 210° to 260° F and maxes out at 300° F, so it won't burn your dinner.

As a rule of thumb, the Sport takes twice as long to cook food as a traditional oven, and it requires 30 minutes to preheat. As you might expect, since it relies on the sun's heat, the Sport doesn't work well on cloudy days or at night. While the Sport's size and weight make it conducive to outdoor recreational activities, the company was founded by women "to promote clean-cooking technology around the world."

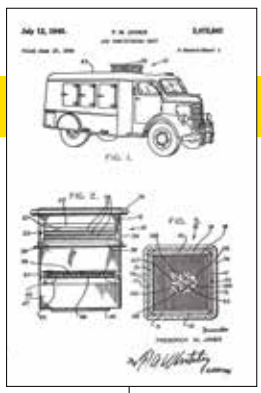
The Solavore Sport is available for $229.50. — *Cliff McNamara*

INVENTOR ARCHIVES: July

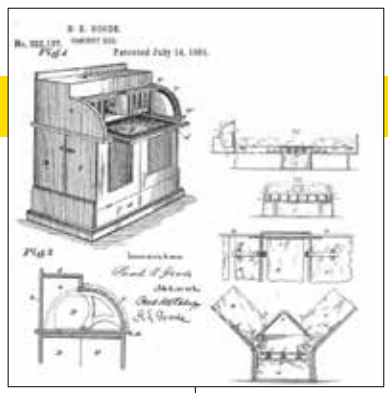


July 4, 1933: U.S. Patent No. 1,917,099 was granted to William Coolidge for the X-ray tube, popularly called the Coolidge tube, which is still used in X-ray machines today. He was also recognized for development of "ductile tungsten," which is an important element in the incandescent light bulb.

July 10, 1847: U.S. Patent No. 5,199 was granted to Ernst Richard Hoe for the rotary printing press, the basis for modern-day offset printing.



July 12, 1940: Frederick McKinley Jones was granted U.S. Patent No. 2,475,841 for his portable air-cooling unit for long-haul trucks, which eliminated the risk of food spoilage during long-distance shipping trips. His portable cooling units were especially important during World War II for preserving blood, medicine and food.

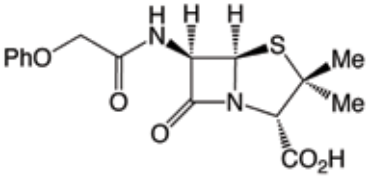


July 14, 1885: Sarah Goode became the first African-American woman to receive a patent when she was granted U.S. Patent No. 322,177 for a folding cabinet bed that could be made into a desk.

ReVault Smartwatch

WRIST WATCH + DATA STORAGE

The ReVault is a wristwatch and portable data storage unit that connects with phones, tablets and computers via Wi-Fi or Bluetooth. It functions similarly to storing your files in the cloud, except your cloud is strapped to your wrist. ReVault has 32 GB or 128GB of file space for your important documents, which can be synched to different computers and retrieved wirelessly. Data on the device is encrypted, and can be accessed through single- or two-factor authentication. Like other smartwatches, ReVault also displays the date and time, with different options for the face of the clock. The ReVault is available for preorder on IndieGogo and will be released in January. *— Cliff McNamara*



Penicillin V (1)

July 22, 1873: U.S. Patent No. 141,072 was granted to Louis Pasteur for improvements in the manufacture and preservation of beer and in the treatment of yeast. He later developed the process of pasteurization and created the first vaccines for rabies and anthrax.

July 24, 1956: U.S. Patent No. 2,756,226 was granted to Ernst Brandl and Hans Margreiter for acid-stable penicillin, Penicillin V, which allowed penicillin to be administered orally.

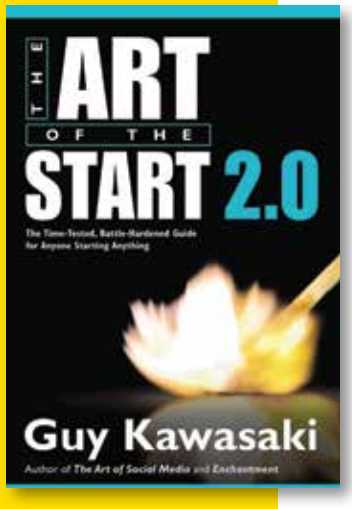
INVENTOR READS

THE ART OF THE START 2.0

The Time-Tested, Battle-Hardened Guide for Anyone Starting Anything

(Portfolio, 2015)

By Guy Kawasaki

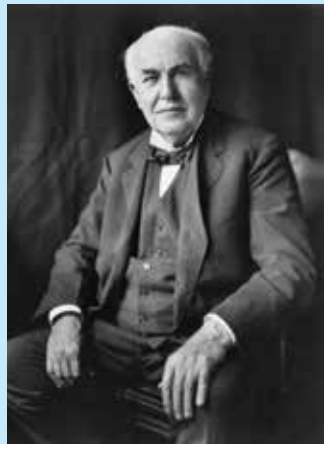


Guy Kawaski has started three businesses, invested in 10 and advised companies as large as Google and as small as a two-person show. He has worked for Apple, is head of startup Canva and has been pitched by hundreds of entrepreneurs, so he knows a thing or two about how to get ideas off the ground.

Since Kawasaki brings years of practical experience to his subject matter, he is able to shed meaningful insight on pertinent topics such as conceptualizing, launching, pitching and investing. Rather than simply discussing the 10 biggest mistakes entrepreneurs make, he gives specific advice on how to fix them. Using an example from his past, he explains the steps in writing and editing a pitch. Kawasaki's matter-of-fact approach to all things related to startups will help you get your idea to market, avoiding common pitfalls along the way. *— Cama McNamara*

AN AFFAIR TO REMEMBER

Although Edison had deep loves in his life, Morse code was his favorite—perhaps because he was virtually deaf and it was a language he could easily understand. He even proposed to his second wife, Mina, using Morse code. She tapped back "yes." The couple also nicknamed their first two children Dot and Dash.



The love affair went even further, as Edison had what most people believe to be Morse code tattooed on his left forearm: a quincrux, five dots, resembling those on a die. What's more, Edison invented the foundation for what became the modern tattoo gun.

THE BIKE CRAZE

Get In Gear, Lock Up and Steer

SEGWAY THE NEW WAY

Kolelinia Halfbike II

Halfbikes.com

Looking for a new way to pedal around town? You're in luck. Sofia, Bulgaria-based transportation design company Kolelinia is introducing the second model in its innovative pedal powered Segway hybrid series, the Halfbike II. The bike has three wheels—one large and two small—(like a tricycle) and no seat. Riders hold a vertical handle, stand while peddling and shift their bodyweight left or right to change direction. The bike moves in a serpentine pattern.

The Halfbike II is not meant to replace a standard bicycle, since the experience on each is different. The Halfbike II requires significant balance and reflexes, and works best on flat surfaces. The company says riding the Halfbike II is something between skiing, biking and skateboarding. The learning curve, supposedly, is not too steep, and the means of turning by shifting body weight is relatively intuitive. If a rider loses balance, it's easy to jump off and start running.

The main advantage of the design is its portability. The Halfbike II, which weighs less than 18 pounds, is perfect for long commutes, because the handle folds down, making it easy to pull the device onto a train or subway. It can also easily be stored under a desk or in a car trunk.

The Halfbike II can be pre-ordered for $599. Anticipated delivery date is December 2015.

RIDE THE WAVE

Wave eBike

www.indiegogo.com/projects/wave-electric-28-mph-bike

Based on the design of a beach cruiser, the Wave eBike is revolutionizing the electric bike market. Cruise for more than 52 miles over sand, grass, dirt or pavement with pedal power and one battery charge. The bike can go 26 miles in fully charged electric mode without having to pedal at all.

The powerful 750-Watt motor gives the Wave ebike a top speed of 28 mph—30 mph when pedal assisted. It can be ridden in electric, pedal-powered or hybrid mode, which is the most efficient, creating a leisurely cruising speed of 20 mph. The bike is street legal in every state except New York, although it can be ridden in parks or on trails.

For a limited time, the Wave eBike can be ordered through indiegogo.com for a base price of $599. Upgrades include a removable basket, quick-release front wheel, extra battery charger, front disk brakes and a six-speed Shimano gear assembly. Estimated delivery date is August 2015.

BIKE SECURITY MADE EASIER

LINKA Smart Bike Lock

www.linkalock.com

Over one million bikes are stolen each year in the United States, so what cyclist couldn't use a hard-mounted bike lock that unlocks automatically? LINKA does both. The device attaches to your bike, and when you're ready to lock up, tap a button and a hardened square steel ring slides into place, securing the wheel and preventing the bike from being ridden off. With the help of your smartphone, LINKA detects your presence and automatically unlocks your bike as you approach for the ride home. The lock can also be accessed with a four-digit code. A LINKA chain can be added for fastening your bike to a rack or other structure.

An accelerometer incorporated into the lock can also detect if someone is tampering with the bike. It triggers a 100 dB siren to alert bystanders and also sends a message to your smartphone. A long-range Bluetooth with a distance of 400 feet helps to ensure you'll receive the alert.

LINKA can be pre-ordered on Kickstarter for a minimum pledge of $99.

BIG WHEEL FOR BIG KIDS

Verrado™ Electric Drift Trike

www.localmotors.com/drift-trike

Experience the thrill of power sliding across the pavement, just like when you were a kid. The Verrado Drift Trike is a bigger, better, motorized version of the Big Wheel. This adult trike is built for drifting—sliding sideways—on flat pavement, expanding on a downhill sport that was first introduced in New Zealand seven years ago.

The engineers at Local Motors designed an electric drift trike that combines a BMX fork with a 20-inch heavy duty front wheel, featuring aluminum casting around brushless hub motors, two rear karting wheels lined with PVC pipe and a powerful programmable electric motor. Regenerative disc brakes give the ability to stop quickly. The lithium cobalt manganese battery charges in three hours and, with a full charge, runs for one hour, creating an electrifying 12-mile ride.

The Verrado is legally considered an electric bicycle, so it can be ridden anywhere—from urban streets and parks to country and mountain roads—although smooth asphalt is the best surface. The trike accelerates to 20 mph on flat surfaces and much faster downhill. Helmets are recommended. Retails for $1,199.

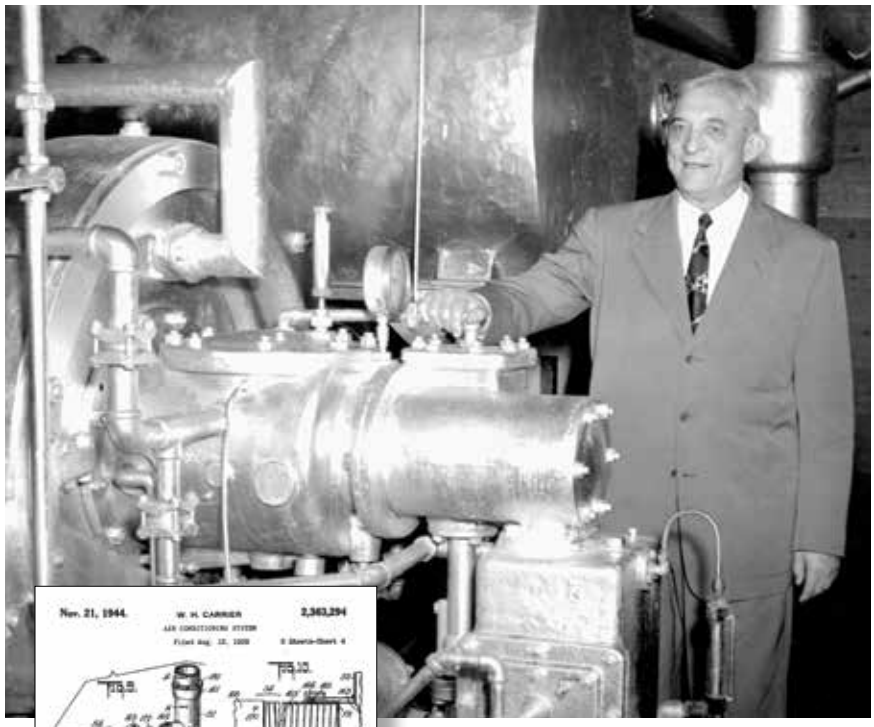
— Carrie Boyd

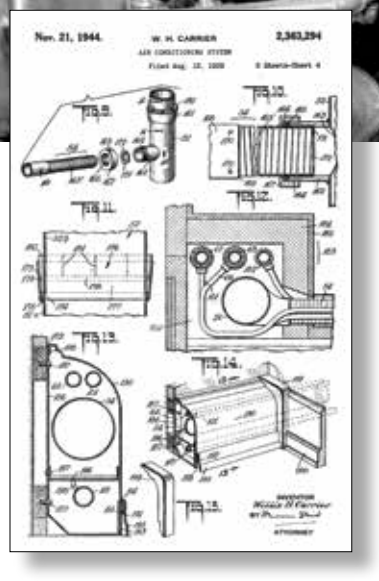
"I always rejoice to hear of your being still employed in experimental researches into nature, and of the success you meet with. The rapid progress true science now makes occasions my regretting sometimes that I was born so soon. It is impossible to imagine the height to which may be carried, in a thousand years, the power of man over matter. We may perhaps learn to deprive large masses of their gravity and give them absolute levity for the sake of easy transport. Agriculture may diminish its labour and double its produce; all diseases may by sure means be prevented or cured (not excepting even that of old age), and our lives lengthened at pleasure even beyond the antediluvian standard."

BENJAMIN FRANKLIN,
IN A LETTER TO DR. JOSEPH PRIESTLY, FEB. 8, 1780

KING OF COOL

Willis Carrier Beat the Heat





It's 99 degrees in the shade but a cool 72 degrees in your home thanks to Willis Haviland Carrier. It just so happens that in the month those of us living in the northern hemisphere need it most, the air conditioner was invented—July 17, 1902—to be exact. Imagine how different our lives would be without cool air.

Carrier didn't set out to cool the world. A graduate of Cornell University, with a master's degree in engineering, as an employee of the Buffalo Forge Company, Carrier was challenged to find a solution to the humidity problem a printing company in Brooklyn was experiencing. The dimensions of paper were fluctuating with changes in heat and humidity in the plant, and in the process, the registration of the four-color printing process was affected.

Carrier said he received his "flash of genius" on a foggy night as he stood on a train platform. *If I can saturate air and control its temperature at saturation, I can get air with any amount of moisture I want in it. I can do it, too, by drawing the air through a fine spray of water to create actual fog*, he recalled thinking.

A Chilling Discovery

Within a year, Carrier completed his invention, which became the building block for modern air conditioning. In the system Carrier devised, air was forced through the filter of a piston-driven compressor, where it was pumped over coils that were chilled using coolant. The cold air was then expelled into a closed space with a fan, cooling the room and stabilizing the humidity. The immediate result: one happy printer. The long-range result was far more reaching.

As word spread, manufacturing facilities clamored for Carrier's invention. He continued to make refinements and improvements, and in 1906, Carrier was granted U.S. Patent No. 808897 for the Apparatus for Treating Air.

Soon after, Carrier conceived the idea of adjusting humidity by heating the water spray and controlling the dew point temperature of the air leaving the conditioning machine. His law of constant dew-point depression, according to a company brochure, was "the greatest single factor in modern air conditioning." He based the design of an automatic control system on this discovery and, in 1914, was granted U.S. Patent No. 1,085,971.

In 1905, 29-year-old Carrier was made head of the engineering department at Buffalo Forge, directing research and supervising all design applications. Two years later, Carrier's invention was installed in a pharmaceutical plant in Detroit and a silk mill in Wayland, N.Y., with a guarantee of 65 percent relative humidity throughout the year.

But the biggest accomplishment that year was the first sale to an international company, Fuji Silk Spinning, in Yokohama, Japan. Carrier's company continued to make inroads in Japan, installing the country's first air-conditioned building in 1933, and four years later, in the world's first air-conditioned ship—the 8,000-ton *Koan Maru*.

By 1907, management at Buffalo Forge recognized the opportunity air conditioning held for the company and created a subsidiary, Carrier Air Conditioning Company of America. Carrier immediately landed a contract with the Celluloid Company, which made film for the motion picture industry. Next came Gillette, where air conditioning reduced rust on razors. The list grew with dozens of installations in hospitals, meatpacking houses, confectioners, bakeries, breweries and food processors.

Company Challenges

Although barely a decade old, the industry was on solid ground. However, the start of WWI in 1914 brought increased

The term "air conditioning" actually originated with textile engineer Stuart H. Cramer, who, in 1906, filed a patent for a device that added water vapor to the air in textile plants—to condition the yarn.

economic uncertainty and management at Buffalo Forge made the decision to confine operations solely to manufacturing. Carrier Air Conditioning was immediately dissolved. In response, Carrier and six other engineers pooled their savings of $32,600 and formed the Carrier Engineering Corporation, which opened for business in July 1915. Three weeks later the company had its first contract—with American Ammunition Company in Paulsboro, N.J.—the first of many with ammunition companies that were critical to the Allied war effort. These installations saved lives by eliminating explosions and allowing operations to continue 24 hours a day. When the war ended, the company was recognized by the Department of War for distinguished service.

In 1920, the company prepared for peacetime by renting a plant in Newark, N.J. Tired of relying on shoddy construction during installations, a second company was launched—Carrier Construction Company, Inc., "dedicated to the single object of producing sheet metal par excellence."

It's hard to believe the Cornell University engineering graduate was anything less than a math wiz all his life, but as a child, Carrier had trouble with fractions. His mother used apples cut into various sizes to help him visualize the concept. Carrier later said this was one of the most valuable lessons he ever had: It taught him intelligent problem solving.

The "Chiller" Changes Lives

By May 1922, Carrier was ready to unveil what is considered his single most influential innovation: the centrifugal refrigeration machine, or "chiller." While modern air conditioning made its mark on the way people worked, the centrifugal chiller would change the way they lived. Supported by 20 new patents, the chiller ensured human comfort in theaters, stores, offices and homes. The first sale was made to W.F. Schrafft and Sons Candy in Boston although the initial installation was at Stephen F. Whitman & Son's candy manufacturing facility in Philadelphia.

The 1924 installation of three centrifugal chillers in the J.L. Hudson Department store in Detroit, Mich., made for cool retail sales, but installations in movie theaters put centrifugal chillers on the map. First came Sid Grauman's Metropolitan Theatre in Los Angeles, where improved installation of bypass circulation and downdraft distribution, producing a gentle flow of air through registers, improved the moviegoing experience. The big test for Carrier, however, was at the Rivoli Theatre in New York City, where the movie, as well as his chiller, received rave reviews.

Skyscrapers were next to benefit from centrifugal refrigeration. In 1926, the T.W. Patterson Building in Fresno, Calif., became the first multi-storied building to receive air conditioning. Among Carrier's early customers were the U.S. Congress, the White House and Madison Square Garden. But the public demanded a home version, which Carrier gave them in 1928, when he unveiled the Weathermaker.

Despite the company's success, the industry was changing rapidly and there was much competition. Those factors, combined with the stock market crash of 1929, forced Carrier Engineering Corporation to merge with the Brunswick-Kroeschell Company, which manufactured small commercial refrigerators and comfort air-conditioning systems, and York Heating & Ventilating Corporation, which made heaters. The new company, Carrier Corporation, adopted the slogan "Weathermakers to the World."

The Paradox

Drawn to the railroad market, in 1929, Carrier began working on a steam ejector refrigerating system that used water as a refrigerant. By 1931, Carrier had devised a system to cool with steam. In 1903, he had realized that water could be used to dry air, nearly 30 years later he recognized that steam could be used to cool water.

Remarkably, in a decade of hard times, Carrier Corporation's international reach continued to grow throughout the Middle East and Asia. At the same time, Margaret Ingels, the company's first female engineer, was promoting Manufactured Weather for the home. By May 1931, 600 Weathermakers had been installed, but 22 years later, the U.S. residential market had jumped to more than one million units.

While, today, we may take air conditioning for granted, its impact on industry, culture and commerce can't be overestimated. Thanks to Willis Carrier, we can beat the heat.

— Cama McNamara

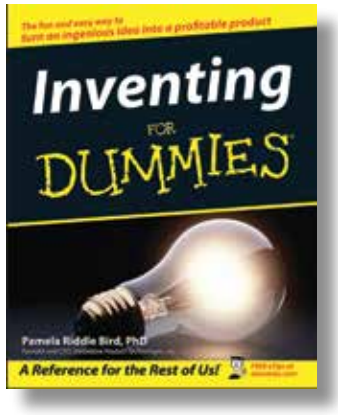
YOU'VE GOT A GREAT PRODUCT

How Do You Let People Know About It? BY JOHN G. RAU

> "YOU CAN CREATE THE GREATEST INVENTION IN THE WORLD, BUT UNLESS THE WORLD KNOWS ABOUT IT, WHAT DIFFERENCE DOES IT MAKE?" — PAMELA RIDDLE BIRD

Assuming you have either filed for a patent or a provisional patent application—granting patent-pending protection on your new invention—how can you advertise to the world that your new product is available? As Pamela Riddle Bird writes in *Inventing For Dummies*, "You can create the greatest invention in the world, but unless the world knows about it, what difference does it make? The way to make a difference is through creative marketing and advertising efforts."

The first marketing of your invention may come from an unlikely source—the United States Patent and Trademark Office—which publishes your invention 18 months after the earliest filing date or priority date claimed by a patent application. Many first-time inventors aren't aware of this, but publication of most plant and utility patent applications is required by the American Inventors Protection Act of 1999.



An applicant may request that the application not be published, but only if the invention has not been and will not be the subject of an application filed in a foreign country that requires publication 18 months after filing (or earlier claimed priority date) under the Patent Cooperation Treaty. Following publication, the application for patent is no longer held in confidence by the USPTO and any member of the public may request access to the entire file history of the application.

In fact, the USPTO recently released the Patent Application Alert Service, a system that provides customized email alerts to the public for free when a patent application is published. Thus, potential competitors and other interested parties can be alerted to published patent applications of potential interest by creating an account for this service with the USPTO.

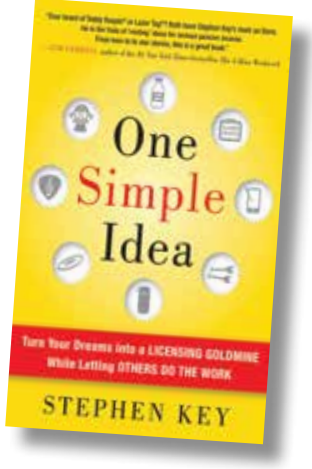
Formulating a Strategy

How do you formulate an advertising or promotion strategy to gain interest from potential licensors, investors or buyers? Here are some choices to consider, but their applicability to your situation depends on where you are in the patenting process:

- Contact companies that are seeking new products.
- List your patent information on Internet-based trade platforms.
- Contact potential investors.
- Contact new product and invention agents.
- List your patent information in trade publications associated with your product's market.
- Build a website to create product awareness and conduct ecommerce.
- Design a social media campaign.

Following are a few sources for getting your invention into the hands of companies seeking new products.

- **The National Inventor Fraud Center**, www.inventorfraud.com/companies.htm, has a list of companies seeking new products in 14 different categories.
- **Market Launchers, Inc.**, www.marketlaunchers.com/companieslookingfornewproducts.html, maintained by the Houston Inventors Association site, www.inventors.org/productscouts.html, has a database of hundreds of patented new inventions for sale or license.
- **Stephen Key**, author of *One Simple Idea* and cofounder of inventRight.com, along with Andrew Krauss, have an extensive directory of more than 1,400 companies listed at www.inventright.com.



Use caution in responding to TV/radio solicitations and classified ads in magazines from invention promoters/promotion firms seeking new ideas. Many of these types of firms do not deliver on services exactly as they

DON'T WAIT THE TWO TO THREE YEARS IT MAY TAKE TO GET YOUR PATENT ISSUED, AS THERE ARE STEPS THAT CAN BE TAKEN IN THE INTERIM.

claim, often at the expense of inventors. There are reputable firms with proven track records, but before pursuing these types of companies, consult with the Better Business Bureau or the Federal Trade Commission about complaints.

You may have heard of StubHub, the Internet-based platform for sports, concert and theater ticket exchange or sales. Similar sites exist for inventors, through which inventions can be sold or licensed. A few sites include:

- **Idea Trade Network**, a division of Minnesota-based Global Commerce & Communication, Inc., through which an inventor can establish an account with a one-time processing fee of $99.95, and then post his/her invention. There is no fee or commission on the invention sale. ITN claims to be an award-winning, one-stop global forum that allows companies and individuals to license, and buy and sell ideas, inventions and other intellectual properties. Go to www.newideatrade.com.
- **Market Launchers, Inc**. offers inventors the opportunity to list inventions in its database, which companies can then peruse. In addition, Market Launchers will build a website for each listed invention, which is included in the basic package, beginning at $295 for one year. Go to www.marketlaunchers.com.
- **Idea Buyer LLC** is the world's largest marketplace to buy, sell or license a product. More than 3,000 patent buyers and licensees use the site www.ideabuyer.com.

Finding Investors

Although potential investors often include the "three Fs"— friends, family and fools—you may want to talk to someone outside your inner circle. Angel investors, individuals who provide funding to get new products launched and businesses started, may be a good place to start. The Angel Capital Association, www.angelcapitalassociation.org, can help identify potential angel groups in your area.

To find potential venture capitalists, contact the National Venture Capital Association, the trade association that represents the venture capital industry in the U.S. The NVCA can provide a list of venture capital companies in your area and provide information on the types of investments these groups are interested in. Visit http://nvca.org.

Contacting new product and invention agents, sometimes referred to as intermediaries, is another way to spread the word about your invention. Some industries only deal with agents, so you may need one. The National Fraud Center, mentioned above, provides a list of potential contacts to get you going.

Print, Web and Social Media

Once your patent is issued, you may want to consider advertising in trade journals and related marketing publications that your target market reads. You can also write informative press releases about your product and send them to the media that cater to your market. If you are interested in selling or licensing your newly patented invention, for a one-time fee of $25 for each published item, you can place an advertisement in the *Official Gazette*, the journal of the USPTO. It is electronically published each Tuesday. Go to www.uspto.gov/learning-and-resources/official-gazette.

If you want to take immediate control of the marketing of your product, consider a website and various forms of social media, such as Facebook and Twitter. These are inexpensive, although time consuming, but great ways to generate interest in your invention.

Regardless of the avenue you take to advertise and promote your product, the timing and application of these activities depend on where you are in product development. Don't wait the two to three years it may take to get your patent issued, as there are steps that can be taken in the interim. See the chart below for recommendations of what makes sense at each stage of the process.

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 ultraresch@cs.com.

STAGE/PHASE OF ACTIVITY	APPLICABLE ADVERTISING/PROMOTION
After initial filing and waiting for response:	• Do nothing.
After the first office action with enough follow-up activity to indicate that the patent will issue:	• Make initial company contacts. • Contact new product invention agents, if applicable. If you're in need of funding, contact the "three Fs."
After issuance:	• Follow up with prior company and agent contacts. • Contact angel investors and venture capitalists to solicit interest. • Place patent information on one or more trade platforms. • Create a website and get involved in various forms of social media. • Advertise your patent in trade publications.

INSPIRE 2015 Innovation Expo

Annual Event Supports and Educates Aspiring Inventors BY EDITH G. TOLCHIN

Workshops, product pitches, inventor education, industry experts and networking, oh my! INSPIRE™ 2015 Innovation Expo is the new name for the annual invention show sponsored by the Minnesota Inventors Congress, which began in 1958 and is the oldest annual inventors convention in the world. The show was held this year April 30 and May 1, and offered novice inventors, seasoned professionals, kid-inventors and everyone in between plenty to see and do.

Inventors Digest contributor Edith Tolchin talked to Deb Hess, executive director of the Minnesota Inventors Congress, to discuss her connection to the Expo and its mission. She also interviewed three exhibitors, who were eager to share their new products with our readers.

Deb Hess, executive director of the Minnesota Inventors Congress, addresses participants at this year's INSPIRE Expo.

***Inventors Digest*: What is the Minnesota Inventors Congress?**
Deb Hess: The Minnesota Inventors Congress is a 501I(3) non-profit organization that was organized on March 12, 1958. The organization is dedicated to stimulating economic development by supporting innovation and inventors at all phases of the invention development process. Our founder, Bob Starr, brought together farmers and businessmen to create an event that would help manufacturers in the area find new products to manufacture that would, in turn, provide jobs for young adults in the area. In 1985 we opened the Inventors Resource Center, where we provide year-round access to knowledgeable staff that educate inventors about the process of developing marketable products and direct them to reliable resources.

One of the main objectives of the event is for inventors to network with industry experts and gain input from potential customers. Another is to provide education for the aspiring and experienced inventors to learn how to take their product to market. We offer Inventing Success Workshops for inventors and entrepreneurs to learn from industry experts about developing a marketable product or business venture at an affordable price.

ID: What does your job as executive director of the Minnesota Inventors Congress entail? What is your connection to the United Inventors Association?
DH: I first joined the organization as a member of the board of directors and volunteered for 21 years. From the very beginning I helped coordinate the Expo with our staff, focusing on education events. I worked with our advisors and staff as we developed the Inventors Resource Center. In 2005, I threw my hat in the ring to be the "chief cook and bottle washer." This year I celebrated being part of my 31st event.

I bring the perspective of aspiring and emerging inventors from my position as a member of the board of directors of the United Inventors Association. As treasurer, I bring the knowledge of complying with the requirements of operating a 501I(3) non-profit organization. Helping inventors make better business decisions is at the heart of both organizations.

ID: Why was the name changed to INSPIRE Innovation Expo?
DH: The board of directors (of the MIC) and I discussed the importance of branding our two major programs: INSPIRE and the Inventors Resource Center. We knew that to reach a broader audience we wanted a contemporary look. It is not an easy decision to rebrand. We are so proud of our heritage and wouldn't be where we are without all the people and businesses that have supported us over the years. At the same time, we wanted to connect with more people to educate them about the process of developing marketable products and to inspire them to be more creative and innovative. The official name of the organization is still the Minnesota Inventors Congress.

ID: What about children's participation in the Expo?
DH: We have supported the Minnesota Student Inventors Congress event for 28 years. Each year students in some Minnesota school districts are offered a class on inventing. They identify a problem and create a solution. Through regional events, they are selected to showcase their ideas on the Expo show floor. We also bring in educational events that are meant 2Inspyr™ youth. It is one of the highlights of the show.

EDITOR'S NOTE: INTERVIEWS HAVE BEEN EDITED FOR CLARITY.

THREE NEW PRODUCTS EXHIBITED AT INSPIRE

Hanging Secrets™

www.hangingsecrets.com

Frances Prado says that with her son in Afghanistan, her daughter studying in Mexico and her husband working a 10-hour shift, she experienced empty nest syndrome. Prado coped by cleaning and organizing her home, beginning in the bedroom. Straightening her lingerie drawer provided the inspiration to find a better way to store elegant undies.

Prado partnered with Melinda Silva, MD, to create Hanging Secrets™. The patented storage system neatly organizes and protects underwear from damage. It features clear, molded plastic windows conformed to the shape of a bra, with corresponding pockets into which panties can be inserted for storage of lingerie by style and color.

Hanging Secrets can be hung inside the closet on a standard rod or from a closet door. It can accommodate up to three bras per holder and four panties per pocket. The Hanging Secrets Bra Organizer will be available September 1, 2015.

AUDICAP™

www.whitefieldcompany.com/audicap

William Crutcher, sole proprietor of the Whitefield Company, is a serial inventor of "innovative and creative patented products that will make your life easier," according to his website. This year Crutcher featured AUDICAP™, a cap that contains built-in ear buds and a retractable stereo jack for listening to an MP3 player or connecting to a Bluetooth-compatible device.

With AUDICAP, up to two devices can be paired wirelessly. For example, you can listen to a book on an iPod Touch and then be interrupted by a cell phone call. The AUDICAP is versatile, as it handles both low tech (MP3) and high tech (Bluetooth) users, and makes it easy to listen to your favorite music or book while enjoying your favorite activities.

The Pistol Grip Snow Shovel™

pistolgripsnowshovel@gmail.com

Frank Castillo owns a snow-removal business that, during winter months, requires the use of snow shovels to clear 75 to 100 driveways and sidewalks on a regular basis. The tough job strained his back, so he came up with a unique idea to reduce the stress: a pistol-grip handle on a shovel, which creates leverage on the upper arm, and allows him to remove snow while staying in an upright position. This also reduces tension on his back; hence, the product and the name—Pistol Grip Snow Shovel™.

The patented pistol-grip design also allows Castillo and his workers to use two shovels, one in each hand, to clear and discard the snow, although this technique is not recommended for the average homeowner. With an auxiliary handle at the top, the back-friendly shovel enables the user to move heavier snow that does require the use of both hands.

During the design process, Castillo realized that disabled veterans or those who had the use of only one arm could shovel snow with ease. He considered others with limited abilities, including heart disease, and designed an optional "flip-off" shovel head. When a trigger is pulled, the head of the shovel tilts and snow is discarded without having to turn over the head. The patented handle can also be used on multiple hand tools that generally require the use of two hands, such as rakes or brooms.

IMPROVING YOUR LICENSING PROSPECTS

Why Build A Better Mousetrap? BY JACK LANDER

Most of us invent "on accident," as opposed to inventing on purpose. By that I mean we stumble upon an annoyance, an inconvenience or a need—in short, an invention opportunity—and we invent a solution. The other way we invent—"on purpose"—is that of intentionally searching for opportunities. That's the way Thomas Edison approached inventing.

No doubt many excellent inventions have been stumbled upon, discovered, developed and commercialized, but there is a downside to inventing by this method. Most often the opportunities are common—and abundant—and our way of living is largely determined by the mass-produced items we consume and by our typical actions as we consume them.

The Mousetrap Dilemma

Consider the mousetrap. The most popular and inexpensive type, made by Victor® and others, is a spring-loaded bar that flips when tripped and kills the mouse. These traps are tricky to set and place in position without being triggered. They often arouse negative emotions: If the traps work properly, we must remove the mouse and dispose of it. Thus, annoyance and inconvenience have created a need—an invention opportunity since 1890 when Victor began producing its trap.

Regardless of who said, "Build a better mouse trap and the world will beat a path to your door," a quote often attributed to Ralph Waldo Emerson, the idea, no doubt, inspired a large number of the more than 4,400 patents issued for mousetraps as of March 2011. And they're still being issued. Judging by the limited variety of mousetraps presently available, however, we inventors must disavow the theory of invention-opportunity marketing.

My example may be overkill, but you see my point. Mass use of a product and the passage of time produce high-volume inventing that narrows our chances of success, often to almost zero.

Patent Searches

The simple first test of opportunity is a patent search. Go to google.com/patents, carefully phrase and type in your entry, and count. Obviously, 4,400 patents are way too many to compete with, but don't expect to find only one or two, either. Even with our best efforts to narrow down a field, we are almost always surprised at how many inventors have preceded us with solutions to the opportunity we have defined—some of which are exactly like ours.

The ideal number of patents we discover depends on how popular the product appears to be and how long the annoyance, inconvenience or need has been around. I do at least a couple of searches each week for my own inventions. Even though I sometimes find 25 patents for my "novel" invention, I'm not always discouraged. Cultural and technological changes can produce opportunities in a well-established field.

The obvious general rule is that the more patents we encounter, the more difficult it is to create a novel solution. The less obvious general rule is that although novelty may qualify our invention for a patent, novelty does not necessarily equate with commercial value. That's mainly why 4,390 of the 4,400 mousetrap patents were not successful. Novel features must create improved utility in the form of an item being easier to use, less expensive to produce, generate improved results and save money or resources.

Another downside to finding many competing patents is the subtle effect of the less-obvious rule. In addition to comparing your invention directly with an invention in each existing patent, the Patent Examiner is allowed to combine features from two or more patents to define the very invention that you claimed as novel in your patent application. Your invention must not be obvious to a person having an ordinary skill in the technology employed in the invention. This implies that such person could have researched the existing patents, and, without extraordinary skill, could have discovered and combined the features from two or more patents he/she discovered.

We may disagree and resent that our claims are rejected on the basis of such combination, but the solution is to be more critical in assessment of our novelty before filing a patent. And that assessment means studying the potentially competing patents.

Don't Invent the Market

Now, suppose we find no prior art—no issued patents or published patent applications. Don't buy that bottle of Champagne yet. Chances are that you are inventing ahead of the time when the market will be receptive to your invention. This pioneering approach may be tempting, but be cautioned that you will have to invent the market as well as the product. Either alone is a formidable challenge. But the two together can beat the most courageous and well funded among us to our knees. It is always safer and more comforting to find a number of patents that prove the opportunity isn't imaginary. And the time may be just right for an improved version of the product.

Alexander Graham Bell's telephone, at first, appears to be an example of a product ahead of its time. However, the telegraph had paved the way. The technogeeks of the day had reasoned that sending relatively slow vibrations (dots and dashes) long distances over wires would also allow them to send more rapid vibrations, sound. And the world was ready for voice via wire without the need for heroic marketing. But Bell's microphone consisted of a needle that vibrated in a conductive liquid, thereby varying the electrical resistance of the circuit. Edison, who became aware of Bell's patent, the only U. S. patent on the telephone at that time, radically improved the telephone and made it practical over long distances by inventing the carbon microphone.

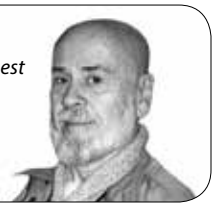
In a word, we are seeking a niche within a niche—a niche product in a limited field that has not yet peaked. The good news is that when we find it, if we aim to produce and market, we may find that the money we had allocated for our patent, typically around $10,000, can be used to better advantage for launching the product and beating others to a market. Niche products don't always attract competition. The bad news is that if we aim to license our patent, we won't find a licensee because the market isn't big enough to interest a going company.

So, to improve your chances of licensing the great product you invented while sipping your morning coffee, you need to realistically assess the obstacles that you may encounter:

- How many patents have already issued that solve the opportunity? Somewhere between zero and a hundred lies a number that is likely practical to compete with.
- Is the field technologically within your skill level? (Stay away from cell phones, robotics, etc., unless you are a trained expert in the field.)
- Are cultural changes providing opportunities in fields that were stable for a relatively long time? Is our growing recognition of the intelligent altruistic nature of mice and rats, for example, increasing our preference for humane means of ridding ourselves of them when they become pests?
- Does our solution to the defined opportunity offer benefits beyond those that are already patented or is our solution merely a novel and self-satisfying "me, too?"
- Do we have the resources—mainly money—to follow through with development and marketing after filing our patent application?

Inventing is a business, and as such, we have to understand and overcome its challenges. Nobody should have told you it would be easy. Stay with it. Persistence is essential.

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



ideation

Focused Brainstorming Generates Product Ideas, Functionality and Design Development

BY JEREMY LOSAW

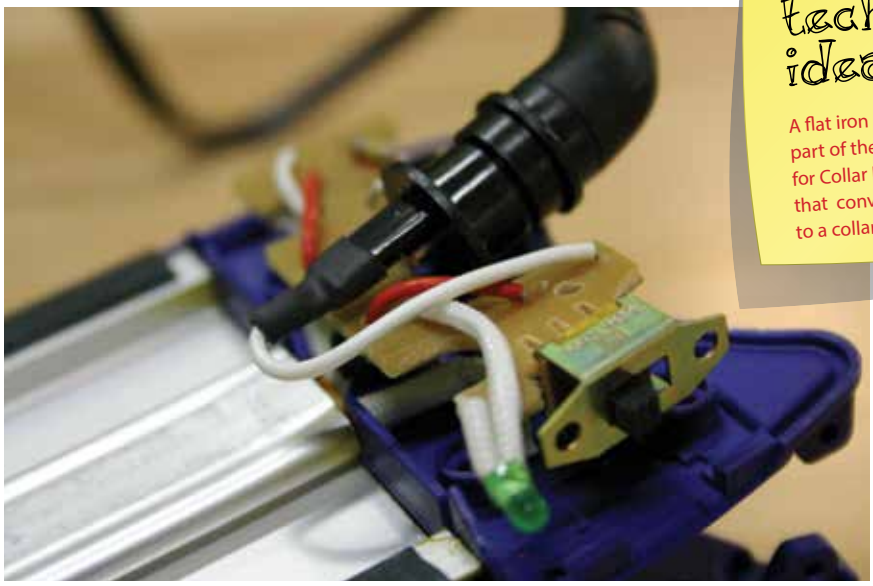
Editors Note: *Enventys, owner of* Inventors Digest *is a product design firm.*

You cannot bring a product to market without first having an idea. While many products originate in a "lightning bolt" moment, with no prior consideration, sometimes the process needs to be planned and moved forward quickly. Although there are many ways to formulate new product ideas, the Enventys design team likes to get ideas in an exercise called ideation. Ideation is focused brainstorming that generates a multitude of ideas and helps steer product features. Ideations can be used to find the core functionality of a product, the mechanisms that make it work or the styling elements involved. There are four main types of ideations used at Enventys and each one is important to bringing a product to life.

Blue Sky Ideation

The first type of ideation is "blue sky ideation." This typically occurs in the early stages of product development when there are few boundaries on what the product might be. This stage is when we try to define the product's core functionality, or feature set, and hypothesize what technologies can be used to achieve it. There are rarely any specific design details, as this is not the time to worry about the layout of components or the surface texture.

The best way that we have found to conduct blue sky ideation is to get a small group together with markers and Post-it Notes. We start with a warm-up session, because just like the muscles in your arms and legs, the idea muscle works better with a warm up. In this session we try to answer a question to a completely different problem, such as, "What could



technical ideation

A flat iron is disassembled as part of the technical ideation for Collar Perfect, a travel iron that converts from a flat iron to a collar iron.

THE RESULT OF THE BETA IDEATION IS A DESIGN FOR A PRODUCT THAT IS ICONIC, STYLISH, FUNCTIONAL AND INEXPENSIVE TO MANUFACTURE.

you do if you had a car with a working engine but no wheels?" or "What could you do with 100 golf balls other than play golf?"

The members of the team write or sketch ideas rapid-fire style on their Post-its and attach them to a wall. After a few minutes, we go into the proper ideation. Sometimes we try to solve a very broad question, like, "How can we improve on a can opener?" and other times there is a specific set of functional tasks that need answers, such as, "How can the can opener grip the can?" In either case, the result is a board full of ideas. In most cases we see clear trends emerge and this helps us choose promising directions to more efficiently design and prototype.

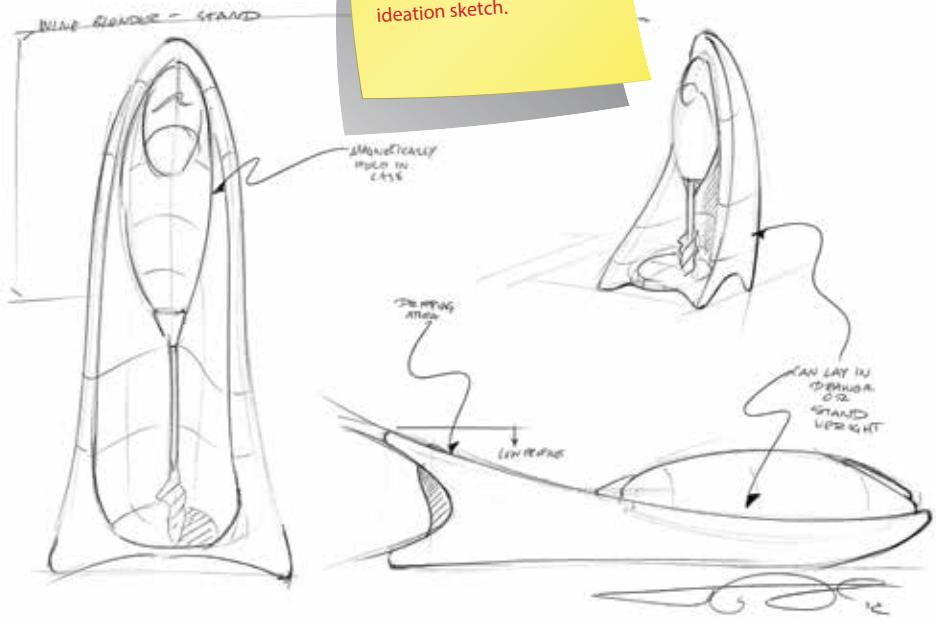
Technical Ideation

Technical ideation is when we start to figure out appropriate technologies to achieve the goal of the product. This is the phase in which ideas mature and get grounded in reality. The first step of technical ideation is to go out into the world and look for existing products that have similar technology to what we are trying to design. These do not have to be in the same product category, they just need to have elements that could be transferred to the current project. We scour online and brick-and-mortar retailers for inspiration, and once this is done, we order a cross section of the products that seem promising.

Once we get the products back to the shop, the real fun begins. We do functional testing on each item to see how it performs. Industrial designers usually join in the process to study the aesthetics and analyze how the user interacts with the product and design of the touch points. Once we have all of the data from the performance and aesthetics, we disassemble each of the products. This allows us to see all the internals so we can understand the mechanisms, materials and electronics necessary to achieve functionality. This offers ideas on how to adapt mechanisms and electronics for the current project and provides a healthy box of parts to make prototypes.

styling ideation

Wine Shark styling ideation sketch.



Beta ideation

Renderings of the Steam Sponge, from *Everyday Edisons* season four, showing subtle design changes as the product was scaled down and made sleeker through beta ideation.

Styling Ideation

Once we have an idea about which technologies and components will go into the product, it is the industrial designer's task to take these elements and make them beautiful and iconic. The engineering team helps provide the main components and approximate how big they should be. This gives a rough estimate of the size of the product.

Then the engineering team goes out into the world to do more ideation. We look at other products in the same category and for design trends to isolate shapes and colors. We also examine trends in divergent product categories to see if any design elements can be used to make a better design. For example, we may look at automotive body styles when designing a household cleaning product.

Sometimes a product needs to be designed to fit a specific brand for a licensing partnership. In this case, we study the current product line, as well as the design elements of the logo, and figure out how to make a product that is harmonious and representative of the brand.

Sketching follows the research phase of the styling ideation. Each of the designers has a Wacom Cintiq tablet to sketch directly into Adobe Photoshop. The result is a large body of sketches that conveys the style elements of the product that will fit the technology the product needs.

Beta Ideation

Beta ideation is not really a formal phase, but a moniker for the ideation work that happens periodically as the product steps through prototyping and toward the final design. After the styling ideation, a design sketch gets handed off to an engineer to do the mechanical design in CAD. During the CAD process, the designers are brought in to look at the CAD models to assess how well we re-created the surfaces that were imagined in the sketches and to critique placement and size of touch points, like buttons. The designers may also suggest changes to the locations of screw holes or battery slots to make the product look better. They will also take the CAD files and create photorealistic renderings to make sure that the colors and textures are harmonious. The result of the beta ideation is a design for a product that is iconic, stylish, functional and inexpensive to manufacture.

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

Edison NATION ASOTV

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Big Chill or Arctic Meltdown?

Brandon Adams Confronts the Challenges of PR Before Product

BY CAMA MCNAMARA

Brandon Adams may be the most enthusiastic and well-known inventor in America—without a product. Although he came up with the idea for ArcticStick the summer of 2011 and has since won several business competitions, garnered local and national media attention, started a successful podcast and made a casting call on *Shark Tank*, to date, ArcticStick is a name without a face.

The anticipated product is a plastic, bullet-shaped tube that, when filled with water and frozen, can be dropped into a plastic beverage bottle to keep liquid cold. Or, it can disperse liquid, such as flavoring, a shot of energy drink or alcohol, into the bottle.

Adams' saga began simply enough: On a hot day in July, he was making deliveries for his family's ice distribution business and got thirsty, so he bought a bottled drink. Ten minutes later it was warm, which not only frustrated him, it got him thinking. "I wanted a product that could fit inside any regular bottled beverage to keep it colder longer while on the go and also give the option to flavor my drinks," he says.

Adams didn't give the idea serious consideration until the next January, when he discovered that an economics/agricultural entrepreneurship course offered at Iowa State University, where he was a student, required a business plan for the development of a product. It was then he decided to pursue the idea that had lingered for months.

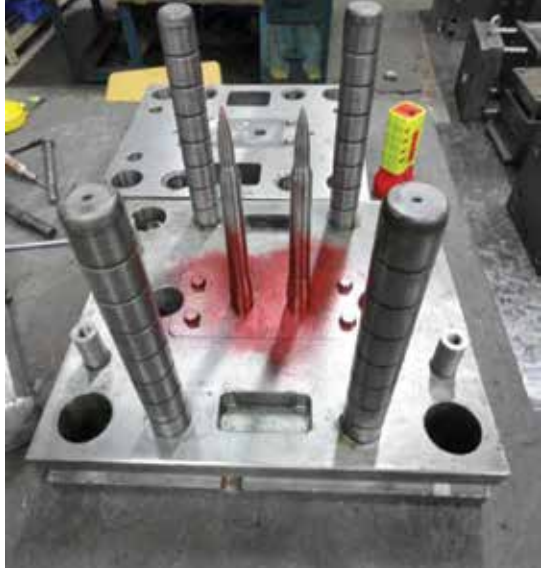
"I was obsessed," says Adams. "I spent at least 30 hours a week doing research and contacting people. My family's connection to the ice industry gave me credibility when I made calls.

"I really wanted a prototype for the project, but I knew nothing about prototyping," he continues. "I thought I could get one for around $400, but the quote came in at $12 grand. I realized at that moment that I had no idea what product development consisted of."

Funding ArcticStick

To date, Adams has invested $75,000 trying to get the product to market. He has spent another $15,000 on intellectual property. With the exception of the crowdfunding campaign, he has funded the entire project with money he has made modeling, selling real estate and distributing ice—after purchasing the family ice distribution business.


ArcticStick
ICE ICE...
ArcticStick.com



Tooling for ArcticStick has been a difficult process.

Brandon Adams makes his 10-second pitch on *Shark Tank*.

ArcticStick prototypes.

Adams pitches the judges on the pilot of *America's Got Money*.

At the end of the semester, among 70 entries, Adams won the class competition—and $500—and decided to "move forward with ArcticStick until it hit the market."

Breaking the Ice

Adams first asked his family for funding, and came away with $10,000 he has since repaid, with interest. With the aid of a patent attorney, who let Adams make payments for his services, he filed a provisional patent. The novice innovator also sought industry expert Cactus Jack Barringer for advice. "He showed me the ropes," says Adams, "but I was 22 and didn't always listen."

Adams did listen, however, when Barringer got him a spot on the pilot of a show called *America's Got Money*, a cross between *Shark Tank* and *The Voice*. "What you did was pitch your product to judges, and if they liked it, you got to pitch your product on live TV, asking for pledges. If you reached your pledge, you would move to the next round," he explains.

Adams found out about the show one week before filming and was forced to give a five-minute pitch to his friends and family, even the local bank manager, for practice. Still without a prototype, he spent two hundred dollars on cigar tubes and painted them to look like the product he envisioned. His pitch was perfect, so to speak, and although the show failed to air, Adams realized he was good on camera, which led, not only to further publicity, but modeling jobs, as well.

> "I realized that just because you have success and are on cloud nine that you can't build a multi-million dollar company overnight."
>
> — BRANDON ADAMS

Through his research Adams located a product development company in Lawrenceville, Ga., willing to take ArcticStick to market for a percentage of sales. The company produced the CAD and six prototypes, and connected with a manufacturing facility in Asia. Adams also filed a utility patent and continued to promote his product on college campuses.

Winning Ways

Even without a physical product, winning business competitions proved easy for Adams, who is a natural promoter. Adams applied another $5,000 prize to product development, and, gaining popularity, in 2014 launched a crowdfunding campaign in Des Moines—31 grueling days of non-stop promotion.

He accessed social media, talked to numerous news outlets and received feedback, good and bad, which is one of the most important aspects of crowdfunding, he says. By the time the campaign was over, Adams had backers in 25 states and 10 countries, and had raised more than $26,000. He was also a local celebrity. "I was on TV, in commercials, in the paper," he says. "Everyone in Des Moines knew me."

Not one to pass up an opportunity, a short time later, he pitched the 200 participants standing in line with him for a *Shark Tank* casting call, although the Sharks weren't quite as impressed as his fellow contestants when he made his 10-second pitch to them. The stunt, however, landed him on the cover of *The Des Moines Register* and a spot on *USA Today.com*. Renewed publicity boosted Adams' following. "The only problem," he says, "was that I received too much publicity before having my product."

The Meltdown

This is the chapter of Adams' saga he refers to as the "failure story. This is the one everyone should know," he says. "I loved everything I did about developing ArcticStick. It was exhilarating to see it come alive. I liked people seeing me standing up for what I believed in. It was like a movement, and I thought, *you know what, I want to help people like me.*"

Adams set about doing just that. He put together a business plan to buy an existing product development company and

Exclusive Inventors Digest Reader Offer

Brandon Adams is offering a discount to *Inventors Digest* readers for the Lightbulb to Launch course. Visit www.brandontadams.com/inventorsdigest for information.

moved to Des Moines, where he secured office space and rented an apartment. At the last moment, he had a change of heart.

"I knew it wasn't going to work," he says. "It wasn't the right time. I realized that just because you have success and are on cloud nine that you can't build a multi-million dollar company overnight." Adams dropped the project and refocused on ArcticStick. "It was hard, but I learned from it," he says.

Adams directed the crowdfunding proceeds to tooling and thought that by October he would have ArcticStick in his hands. But the Asian prototype didn't seal properly. "I knew it wasn't going to make my customers 100 percent satisfied," he says, "and I didn't want to put it on the market. Although adjustments were made, I came to the conclusion that we were going to have to make a complete change. So we went from four holes in the center to one in the bottom, with a twist mechanism to dispose liquid. The only problem: price. The new design cost $1 per unit, and Adams knew he couldn't sell the product and make money.

New Year, New Idea

Adams' determination didn't waiver. His 2015 New Year's resolution was to ensure ArcticStick made it to market. He also made a conscious decision to become "the most knowledgeable person of my time in product development and crowdfunding."

This past winter, Adams began traveling to factories and learning everything he could about product development. Already well known among young innovators, the more knowledgeable he became, the more his advice was sought. "People were always calling and asking me questions," he says.

That's when the idea for Adams' latest venture, the University of Young Entrepreneurs, was born. The podcast, which launched this past February, aims to educate people who have great ideas and little knowledge of the invention process or funding.

At first, Adams traveled the country interviewing successful inventors, patent attorneys, crowdfunders, product developers and manufacturers, to name a few. The podcast has become so successful that people now come to him. Each Tuesday Adams discusses ArcticStick and his struggle to bring it to market; Thursdays he interviews experts on various subjects. "A couple of Sharks have even been on the show," he says.

Adams made a lot of mistakes over the years, but he says his two biggest were lack of knowledge and lack of funds. In an effort to prevent others from making the same mistakes, he recently added Lightbulb to Launch to his portfolio. During the four-week, interactive webinar, students are presented with the knowledge to get a product to market, as well as strategies to initiate and maximize crowdfunding.

Despite his success in other areas, Adams is still looking for success where ArcticIce is concerned. "I'm having the tooling done in Bentonville, Ark., now," he says. The packaging is complete, and focus groups are being conducted to determine the best way to sell the product. "It's a great novelty giveaway," he says, "for companies looking for promotional items, and it's a great consumer product, too."

Adams just can't help himself. Hopefully this fall he will have a product to go with his pitch.

Brandon Adams' Thoughts On Current Patent Legislation

As a proud Iowa inventor, I have experienced firsthand how integral the patent process is to starting a business. While I appreciate the problems true patent trolls cause, the 18 percent reduction in patent litigation last year cannot be ignored.

The PATENT Act has been introduced in Congress to address patent trolls, and Sen. Charles Grassley is heavily involved. This bill is an improved approach, but it isn't the solution innovators need. Instead of tackling abusive activity with targeted action, this bill seeks to upend the entire patent system. The following is clear:

- Strong patent rights are essential for an innovative environment and growing our economy. They set us apart from global competitors and contribute trillions to our domestic GDP.
- A strong, enforceable patent can make or break a small business. Without it, larger companies could easily ignore small business rights and copy ideas for free without consequence.
- Without a strong patent, the high-risk factor would make it nearly impossible to attract investors.

The PATENT Act has been written without Iowa innovators in mind. I urge Grassley to reevaluate this bill's potential consequences.

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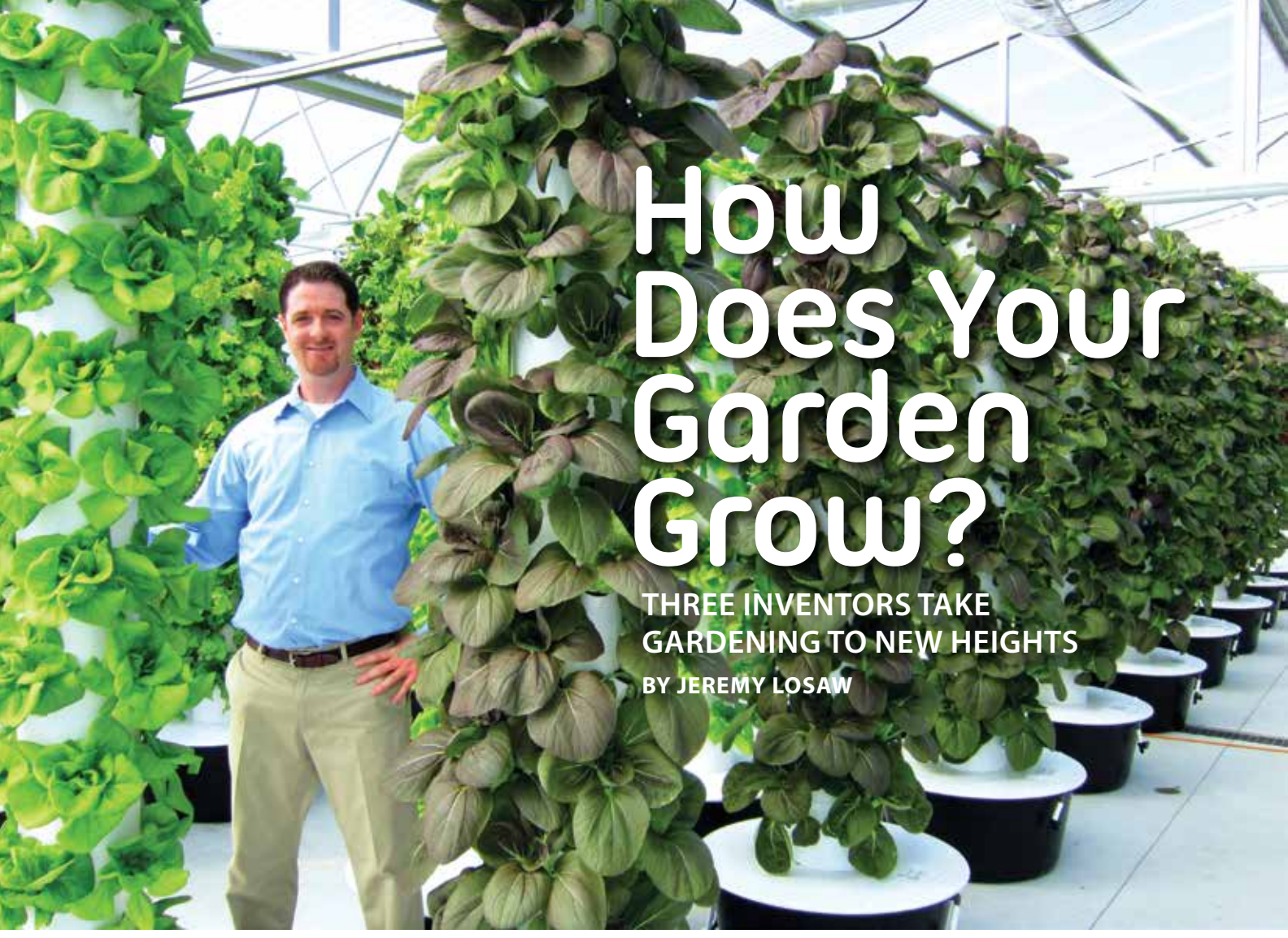


How Does Your Garden Grow?

THREE INVENTORS TAKE GARDENING TO NEW HEIGHTS

BY JEREMY LOSAW

Tim Blank Transforms the Future of Agriculture with Aeroponics

The quest to bring a great product idea to market can compel people to do crazy things. Some people go into debt; others leave their spouse. Still, others quit a dream job—which is what Tim Blank did.

The inventor of the Tower Garden, Blank had built a solid career in horticulture management at Disney World's Epcot Center when he decided to leave his job at the happiest place on Earth and take his gardening system idea to market. His efforts paid off, as he now has an innovative product that is changing the way the world grows food.

Love of Plants Takes Root

Blank grew up in a rural farming community in western North Dakota, where his love for plants and agriculture developed at an early age. Even as a young boy, Blank noticed that small farms were slowly going out of business, negatively affecting farming families and damaging the local economy.

A trip to Disney World as a teenager changed his perspective on farming at the same time it changed his life. While most visitors to Disney World remember the thrill of Space Mountain, it was the slow ride through the Epcot greenhouse, where he was exposed to hydroponics, that burned deep into Blank's memory. "Epcot was all about the future," he says. "In this one-hour tour I found the solution for a lot of the challenges that humanity faces with its relationship to agriculture."

From that moment on, Blank devoted himself to learning everything he could about plant biology, horticulture and nutrition. He earned a degree in horticulture and greenhouse management from Valencia College in Orlando in 1992, paying for his education with money earned from a landscaping business. After graduation he was awarded an internship at Epcot's The Land pavilion, which explores how innovative technologies permit more efficient food growth while preserving the environment. Blank's first job was taking visitors on a boat ride through rain forests, deserts and plains that culminated in a futuristic world of plants growing without soil. "The Living with the Land boat tour and I were a perfect match," Blank says.

After six months as an intern, Blank spent the next six years conducting research on "every horticultural discipline imaginable," including biotechnology and entomology, all within the controlled agricultural environment of The Land. "It was like a kid visiting NASA and then becoming an astronaut. What are the odds?"

asks Blank, who also served as a research liaison for the Department of Energy and NASA, both of which had partnerships with Walt Disney World.

In 2000, Blank was promoted to chief horticulturist and greenhouse manager of the The Land, where he was responsible for four hydroponic bio-domes over a two-acre area, consisting of tropical, temperate, productive and innovative greenhouses. Although he was devoted to his work, he was ready to do more with his knowledge, so in 2005, after nearly 12 years at The Land, Blank set out to bring the futuristic world of Epcot to present-day farmers.

to aid in the design process. Even with help, there were major challenges in creating a vertical hydroponic system.

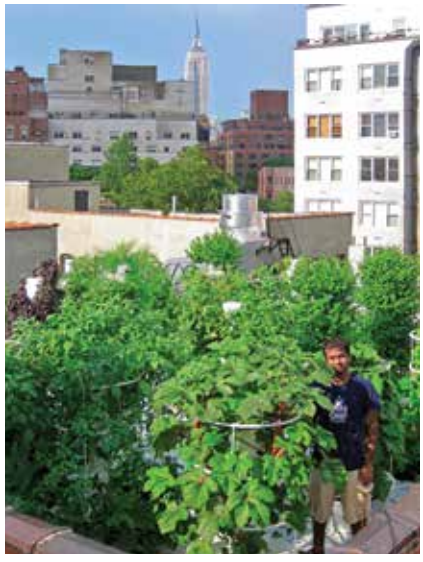
The towers were prone to tip over, and it was hard to get adequate nutrient coverage to the roots of all the plants in the tower. Prototype iterations were not cheap. "We didn't have access to 3D printers back then, so iterations were very expensive. It would cost $10 to $20,000 to make a mold change," says Blank.

Eventually a working prototype was developed: a tower with a water reservoir on the bottom to keep it stable, modular tubes to hold the plants and a central tube

growers, with tens of thousands of units sold. Because it has a vertical aeroponic growing system that takes advantage of mist and air, with no soil or aggregate, the Tower Garden is appealing to urban dwellers, who can grow healthy food on rooftops, patios and terraces.

Blank felt the product was not well suited to big box or other retail environments. "People don't go into Home Depot and decide they are going to get into hydroponics," says Blank. In 2010, he formed a partnership with Juice Plus, which markets the product. Commercial installations, however, are handled

Future Growing, LLC co-founder Jessica Blank with Troy Albright, co-founder of True Garden, a vertical aeroponic food farm designed in conjunction with Future Growing. The solar-powered greenhouse, located in the Southwest, is intended to reduce agricultural water consumption and grow a variety of fruits and vegetables in all seasons.



A rooftop garden meets the Manhattan skyline.

The Future Rises

It was Blank's passion to change the way people grew fresh, healthy food that drew him to hydroponics the very first time he saw the greenhouses at Epcot Center. Although he was impressed with the technology, he was aware it had limitations. At the time, state-of-the art-systems were set up horizontally, which did nothing to maximize growing space. The other problem was that commercial hydroponic systems were designed and tuned for only one crop, which was too limiting for widespread adoption.

While growing plants came easy to Blank, product development proved to be a challenge. Since he had no experience in design or manufacturing, he teamed up with a contract manufacturer to carry the water to the top of the unit and out through a nozzle inside the unit to bathe roots in a nutrient solution.

Another Dream Job

In 2006, Blank filed for a patent and started selling the gardens through his company, Future Growing LLC. He continued to refine the product and went through three generations before settling on the design specification. The current product is made from FDA-approved, food-grade plastic that is designed to be rugged enough to last for decades. The system recycles 100 percent of the nutrient solution and uses very little water compared to traditional farming.

The Tower Garden has been a hit with both individuals and professional

by Future Growing LLC, Blank's original company.

Many of those commercial installations have shown up in unique places. In 2011, a Tower Garden was installed in Chicago O'Hare International Airport to create the first organic airport farm. The farm helps supply the airport's 67 restaurants. The gardens have also been installed inside the AT&T Park, home of the San Francisco Giants, to provide food for the restaurants in the stadium. You'll also find Tower Gardens in 1,000-plus unit commercial farms and in urban areas where the ground is too polluted to grow plants. "I wake up each morning looking forward to another installation," Blank says. How many people get to trade one dream job for another?

French Expats Perfect the Art of Gardening

Marie Christine Steffanetti and Laurent Corradi brought vertical gardening to the United States.

Vertical gardens add interest and serenity to two homes and the Cafe Devocion in Brooklyn.

French customs and culture have had a profound influence on life in America. We wear French fashions, spritz ourselves with fragrances from Givenchy and toast the new year with a glass of Champagne. So it is of little surprise that it took a pair of expat French inventors to get America hooked on the idea of vertical gardening.

Life partners Marie Christine Steffanetti and Laurent Corradi founded their company, Plant Wall Design, in New York City and have since helped create French-inspired vertical garden installations in public and private spaces around the City and the globe. Both had witnessed the vertical gardening trend in France and abroad, and were heavily influenced by the work of French botanist Patrick Blanc, who popularized the living walls. With Corradi's technical expertise and Steffanetti's sense of beauty, the couple took the idea of gardening and turned it on its head.

Steffanetti, a former graphic designer, was staying at a luxury hotel in French Polynesia when she met Corradi, a hydraulic systems engineer. Eventually they took root in New York City, where most of the horizontal space is occupied. If you want to build you have to build up, and this applies to gardening, too. The couple also realized that there was a void in the marketplace, as vertical gardens were virtually nonexistent in the United States. "In France they have been doing vertical gardens for 30 years. ... There were no vertical gardens in America at the time," says Steffanetti. The conditions were ripe for innovation to spring forth, and the two set to work designing the technology to bring vertical gardens to the States.

Growing A Business

Success came rapidly. The couple began creating prototypes in 2007 and hit on a hydroponic system that would allow them to grow plants on a vertical wall using layers of felt stretched around a frame. They applied for a patent for the hydroponic wall with automatic irrigation system in 2007 (U.S Patent No. 7832144). What made the design unique, according to Steffanetti, is that the plants grow between two layers of moisture-absorbing felt sandwiched between two irrigation systems, and the frame is only one-half inch thick. Once the patent was pending, the couple approached companies in New York City for garden installations. "The patent gave us credibility," notes Steffanetti.

The couple got their big break when they were commissioned to install two vertical gardens in the atrium of Lincoln Center in 2008. The architectural firm renovating the David Rubenstein Atrium had sketched a vertical garden into the plans and sought the expertise of Plant Wall Design for the installation. The result was two breathtaking 1,100 square-foot "canvases" filled with over 8,000 plants. The living walls became the focal points of the sleek, contemporary atrium. The installation was so well received that it was not long before other companies and private citizens wanted one.

The couple has since created more than 25 gardens, including installations in Illinois, California, Canada, Turkey and France. The largest one, in the Alfieri Metropark Atrium in Edison, N.J., is a mammoth 10,000 square feet of lush hues of green. The price: $200,000.

Lush hues of green create a sense of serenity in Lincoln Center's David Rubenstein Atrium.

> "In France they have been doing vertical gardens for 30 years. ... There were no vertical gardens in America at the time"
>
> — MARIE CHRISTINE STEFFANETTI

Installation and Maintenance

Installing a custom garden is a big undertaking. Corradi does the design for the frame and the layout for the hydraulics. Depending on the size of the installation, the couple hires contract builders to prepare the space, help create the framework and run the plumbing. Once the structure is built, substrate and plants are added.

Since lighting is different in each space, artificial light is often added, and an array of plants is used. Typically, tropical plants that grow naturally in low light, such as ficus pumila (creeping fig) and a variety of bromiliads adorn the walls. However, pothos, philodendrons, schefflera and, occasionally, orchids are planted to brighten the space. Steffanetti says she and Corradi learned about plants as they created the gardens.

While the units are self-contained, they do need routine maintenance. Big installations, such as those at Lincoln Center, require weekly visits, while smaller home-based gardens get attention every month. Since Steffanetti and Corradi are the only employees, installations outside of New York City require the maintenance of local gardeners. However, the couple still visit each one of their gardens every couple of months to monitor progress. The plants take well to the system; the installation at Lincoln Center contains over 75 percent of the original plants seven years later. "At Lincoln Center, we have trees now," says Steffanetti.

Although big vertical gardens were getting Steffanetti and Corradi attention from the press, as well as new clients, interest from would-be clients for smaller gardens was increasing, too. To meet this demand, in 2013, a new company, Live Vertical Garden, was established to offer prefabricated gardens.

These small, custom gardens are made in the United States and use the same basic technology that was developed for the larger gardens, but they are small enough to fit on the wall of a home or in an office space. The gardens range in size from 30- to 220-plant systems and are available in various accent colors to complement the decor of the space. A series of patterns is available so that customers can create the same artistic plant designs used for larger installations. "This is a luxury market," says Steffanetti, noting that prices can range from $1,600 to $4,840.

Steffanetti says she and Corradi enjoy every facet of their business—from interacting with clients to figuring out the technical aspects of an installation. "Each of the gardens is different," she notes. "Each one is a piece of art."

Senators Mistaken

IPRS DO NOT FRUSTRATE HATCH-WAXMAN

BY GENE QUINN

On June 4, 2015, the Senate Judiciary Committee held an Executive Business Meeting at which the PATENT Act was discussed and marked up. During this three-hour meeting, the PATENT Act was voted out of Committee by a 16 to 4 vote, with only Sens. Chris Coons (D-Del.), Dick Durbin (D-Ill.), David Vitter (R-La.) and Ted Cruz (R-Texas) voting against the bill. Sen.Thom Tillis (R-N.C.) did say that he was voting to move the bill forward, but that without fixes to the bill, he would not vote for it when it comes in the full Senate.

During the meeting, senators repeatedly brought up the Hatch-Waxman legislation. One after another, senators discussed how inter partes review of pharmaceutical patents at the United States Patent and Trademark Office has, in an unanticipated way, upset the delicate balance reached in Hatch-Waxman to ensure that generic drugs would come to market quickly.

Those familiar with IPR and Hatch-Waxman will undoubtedly recognize that this concern is entirely misplaced. Hatch-Waxman has been so thoroughly gamed over the years that it has long since ceased ensuring that generics quickly enter the market. On the other hand, a successful IPR would result in the immediate death of patent claims, which would inure to the benefit of all generics, which would, in fact, result in generics entering the market quickly.

Let's start at the beginning.

Senator Grassley

During his prepared statement, Sen. Chuck Grassley (R-Iowa), who is the chair of the Judiciary Committee, explained this morning that any proposals to amend the patent laws that relate to challenges to drug patents will need the input of the Senate's Health, Education, Labor and Pension Committee. According to Grassley, the HELP Committee has jurisdiction over Hatch-Waxman issues concerning challenges to a drug. Sen. Lamar Alexandar (R-Tenn.) is chair of the HELP Committee.

Grassley explained:

[T]here is a proposal by the life sciences community concerning the applicability of the PTO's post grant proceedings to patents that are subject to the Hatch-Waxman Act and Biologics Price Competition and Innovation Act processes. The Hatch-Waxman process has been instrumental in facilitating the entry of low-cost generic drugs in the market. Consumers want access to cheaper drugs as soon as possible, so I've been a big supporter of this law. I'm also supportive of incentivizing biosimilar market entry. When the America Invents Act was considered, it's my understanding that there was no debate over whether or how IPR would impact these important processes.

It's imperative for us to hear from all sides, get additional information and data, and consult with the HELP Committee, which is the committee of jurisdiction over the Hatch-Waxman Act and Biologics Price Competition and Innovation Act laws. This is a complex issue that needs to be seriously and responsibly considered, including further review, discussion and vetting. My colleagues and I have already started getting views on this matter, and we continue to review and conduct outreach.

I agree that we need to preserve incentives for generics to come to market, and I'm committed to working on this issue as we move towards the floor.

In addition to recognizing that the PATENT Act will require input from a separate Senate committee, Grassley suggests that IPRs somehow disrupt the incentive structure for generic manufacturers to take generic drugs to market. Other senators echoed this concern.

According to Sen. Chuck Schumer (D-N.Y.), the language relating to proposed reforms to the IPR process needs further work but must be looked at carefully because "no one anticipated that [IPR proceedings] would be a run-around for Hatch/Waxman." Sen. John Cornyn

(R-Texas) echoed these views: "No one anticipated that IPR would affect Hatch/Waxman the way that it has." The views of both these senators is particularly important given their standing within their respective parties. Cornyn is the second ranking Republican in the Senate. Schumer is Democratic leader in waiting, thanks to the retirement announcement earlier this year by Sen. Harry Reid (D-Nev.).

The Problem

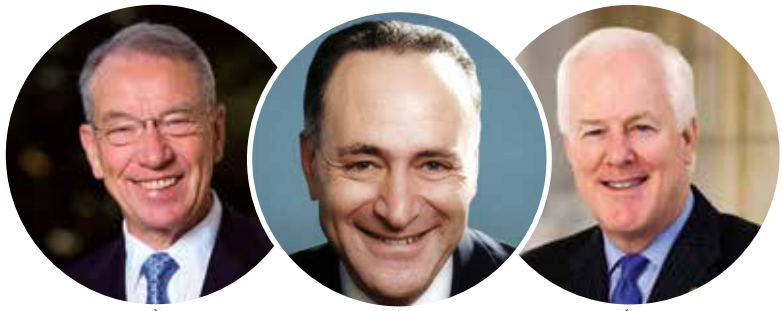
Grassley, Schumer, Cornyn and others who share their concern have a problem. IPR does *not* make it at all difficult for a generic manufacturer to take a generic drug to market. In truth, a successful IPR on a pharmaceutical patent would pave the way for generics to immediately enter the market, or as immediately as the FDA process will allow. In fact, a successful IPR would invalidate the patent claims that are being used by the brand name drug owner to prevent generic competition. Indeed, one would be hard-pressed to define a process more likely to result in the quick entry of generics to the market.

A successful IPR would guarantee that any generic manufacturer interested in selling a generic could do so. What IPR does do is nullify the byzantine process established by Hatch-Waxman. It also makes it impossible for generic manufacturers to sue in federal district court to invalidate a patent claim. The fact that generic manufacturers would not be able to sue in federal district court is why they are complaining to Congress about the IPR process.

It is difficult to understand why Republicans, who are always complaining about wanting to reduce litigation, would want to embrace a broken and dysfunctional Hatch-Waxman process that requires federal court litigation rather than a quicker, cheaper administrative process provided by IPRs at the USPTO.

Hatch-Waxman Gaming

Anyone familiar with the 1984 Hatch-Waxman Amendments knows that gaming the system is something that can be accomplished with extraordinary ease. As a result of a healthy dose of extremely specific and narrowly tailored provisions, creative lawyering and a ridiculously byzantine process, the Congressional purpose of attempting to speed up the approval of generic drugs repeatedly has been foiled. Over the years Hatch-Waxman has become so thoroughly misused and abused that any relevance it once had is long since gone.



SENS. GRASSLEY, SCHUMER, CORNYN AND OTHERS WHO SHARE THEIR CONCERN HAVE A PROBLEM.

*IPR DOES **NOT** MAKE IT AT ALL DIFFICULT FOR A GENERIC MANUFACTURER TO TAKE A GENERIC DRUG TO MARKET.*

At the time Hatch-Waxman was enacted, it was the intent of Congress to strike a balance between two competing policy interests: (1) inducing pioneering research and development of new drugs; and (2) enabling competitors to bring low-cost, generic copies of those drugs to market. In reality, what Congress enacted was a full employment act for lawyers, and underground funding of generic drug manufacturers that have an incentive to challenge patented drugs.

In the United States, in order for a new drug to receive market approval, a New Drug Application, known as an NDA, must be submitted to the Food and Drug Administration. To lessen the burden on generics, Hatch-Waxman allows generic manufacturers to submit Abbreviated New Drug Applications, known as ANDAs. In the event that the generic manufacturer can establish that the drug mentioned in the ANDA is the bioequivalent of a drug approved in a NDA, the generic manufacturer can sail through the approval process by relying on the costly, time-consuming studies previously submitted as a part of the NDA. Thus, the whole purpose of Hatch-Waxman was to make it easier for a generic drug manufacturer to piggyback on the studies previously submitted by the original creator of a new drug.

The wrinkle with respect to Hatch-Waxman, at least in patent terms, comes with respect to certain statements that must be made by the generic manufacturer in the ANDA. An ANDA applicant must make one of four certifications regarding each patent that applies to the drug for which approval is being sought: (I) no such patent information has been submitted to the FDA; (II) the patent has expired; (III) the patent is set to expire on a certain date; or (IV) the patent is invalid or will not be infringed by the drug covered in the ANDA. It is the paragraph IV certifications that

(Continued on page 44)

Rights Are Critical

TO IMPROVING PUBLIC HEALTH

BY KRISTINA LYBECKER, PH.D.

To listen to the critics, one would believe that the Trans-Pacific Partnership Trade Agreement marks the end of the world for global health, especially for the poor. They are, in a word, wrong. Admittedly, the TPP Agreement is extremely contentious. Moreover, the implications for global public health are significant, but for the better—if we do this right.

The TPP Agreement contains important provisions regarding intellectual property rights, especially the standards of protection for pharmaceuticals. Given that the TPP negotiations include a dozen nations[1] and these nations represent close to 40 percent of global GDP, the agreement presents a tremendous opportunity to improve global health. Moreover, through the TPP, the United States has a chance to both encourage trade, stimulate economic growth and foster greater innovation. Medical progress is rooted in innovation, especially advances in pharmaceutical therapies and cures. History has taught us what works, and the TPP provisions will ensure that the standards that encourage innovation are protected.

Critics of the TPP Agreement claim that its IP standards will result in higher drug prices and create barriers to access for the world's most vulnerable populations. The amfAR website claims that the TPP "threatens the future availability of affordable generic medicines and could undermine the global HIV response in developing countries," while Doctors without Borders writes "the TPP agreement is on track to become the most harmful trade pact ever for access to medicines in developing countries." IP detractors are conflating two issues: intellectual property protection for pharmaceutical innovation and drug prices. They are separable. Moreover, if the global community is to truly benefit from the promise of medical progress, we must stop the attack on the IP protections that incentivize innovation and turn our attention to the issues that genuinely inhibit access to medicines.

The Path to Better Health

For the most vulnerable among us, better health is inextricably linked to two things: poverty and incentivizing the development of treatments for diseases of the poor. Again, these issues are separable and must be addressed independently. Intellectual property protection addresses the second, and has done so to great success. Moreover, creative applications of IP rights have resulted in the development of medicines for previously ignored conditions. As reported by the *New England Journal of Medicine*, "In 2013, the Food and Drug Administration approved 27 new drugs for marketing. Eight of these drugs are for orphan diseases, including six rare cancers. In fact, more than half of the 139 drugs approved by the FDA since 2009 are for orphan diseases and cancers."[2]

Consider, too, the FDA's Priority Review Voucher, which became law in 2007. In this case, upon the development of a treatment for a neglected or rare pediatric disease (one of 16 specified conditions), the innovator receives a voucher for priority review from the FDA to be used with a product of its choice, sold or transferred. The priority review reduces the amount of time needed to receive an FDA review decision, allowing blockbuster drugs to reach the market more quickly.[3] As a result, innovation is rewarded and neglected diseases receive research attention. To date, six vouchers have been awarded.

Moreover, if the global community is to truly benefit from the promise of medical progress, we must stop the attack on the IP protections that incentivize innovation and turn our attention to the issues that genuinely inhibit access to medicines.

Drivers of Healthcare Costs

Pharmaceutical innovation and intellectual property rights are even more important as we consider the growing burden of non-communicable diseases, the most prominent drivers of healthcare costs. The costs in terms of both human health and economic prosperity are significant; Asia will be the hardest hit. A recent World Economic Forum report on NCDs reports the following: Claiming 63 percent of all deaths, these diseases are currently the world's main killer. Eighty percent of these deaths now occur in low- and middle-income countries. Half of those who die of chronic non-communicable diseases are in the prime of their productive years, and thus, the disability imposed and the lives lost are also endangering industry competitiveness across borders. …Over the next 20 years, NCDs will cost more than U.S. $30 trillion, representing 48 percent of global GDP in 2010, and pushing millions of people below the poverty line.[4]

To truly address global health issues and the future threats to our wellbeing, we should incentivize more—not less—pharmaceutical research and development. The IP standards contained within the TPP Agreement are a step in the right direction and should be embraced. Specifically, according to the Office of the U.S. Trade Representative, the TPP Agreement seeks "pharmaceutical IP provisions that promote innovation and the development of new, lifesaving medicines, create opportunities for robust generic drug competition, and ensure affordable access to medicines, taking into account levels of development among the TPP countries and their existing laws and international commitments." [5]

Recalling Churchill's famous words, "Democracy is the worst form of government, except for all those other forms that have been tried from time to time,"[6] intellectual property rights may be the worst form of incentivizing innovation, except for all those other forms that have been tried. Until a better system is devised, we should be extremely wary of those who suggest we abandon what works.

Kristina Lybecker, Ph.D. is an associate professor of economics at Colorado College in Colorado Springs, Colo.

1. *The United States and 11 other nations (Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam) are involved in the TPP negotiations.*
2. *Kocher, Robert and Bryan Roberts. "The Calculus of Cures," The New England Journal of Medicine, online edition, February 26, 2014.*
3. *Under a priority review, the FDA attempts to render a decision in six months. In contrast, a standard review is completed in about 10 months, but sometimes takes much longer. The median difference is approximately seven months (Grabowski, Henry G., David B. Ridley and Jeff Moe, "Priority Review Vouchers to Encourage Innovation for Neglected Diseases," Prescribing Cultures and Pharmaceutical Policy in the Asia-Pacific, K. Eggleston Brookings Institution Press, 2009.)*
4. *Bloom, D.E., Cafiero, E.T., Jané-Llopis, E., Abrahams-Gessel, S., Bloom, L.R., Fathima, S., Feigl, A.B., Gaziano, T., Mowafi, M., Pandya, A., Prettner, K., Rosenberg, L., Seligman, B., Stein, A.Z., & Weinstein, C. The Global Economic Burden of Noncommunicable Diseases. Geneva: World Economic Forum, 2011.*
5. *United States Trade Representative. "Trans-Pacific Partnership: Summary of U.S. Objectives," web posting.*
6. *From a House of Commons speech, Nov. 11, 1947.*

PATENT Act Passes

SENATE JUDICIARY COMMITTEE

BY GENE QUINN AND STEVE BRACHMANN

At the end of a three-hour meeting on Thursday, June 4, 2015, the Senate Judiciary Committee voted 16-4 to approve the S. 1137, better known as the PATENT Act. Proponents of the bill lauded the bipartisan support, which brought the bill overwhelming committee approval. A small but vocal bipartisan minority has developed, several who have pledged to continue to debate aspects of this legislation, which they fear will pose a threat to American innovation. The fight now moves to the Senate floor, where supporters sound a bit worried given the inevitable amendments that will be presented.

The protracted discussions during this long Executive Business Meeting were somewhat ironic given the opening statements by Sen. Chuck Grassley (R-Iowa), chair of the Committee, who urged his colleagues to cooperate by keeping their comments concise and moving to a vote on the bill in short order.

The role of patent trolls and abusive demand letter behaviors were foremost on the minds of each member of the Judiciary Committee. Sen. Dianne Feinstein (D-Calif.) took particular issue to the fact that demand letters specify an amount of money to settle a dispute, equating it to extortion that borders on criminal blackmail because of the implied threat of legal issues. Sen. Chuck Schumer (D-N.Y.) proffered harsh words on the economic impact of patent trolls. "We cannot keep these tapeworms on the body politic," he said.

A manager's amendment prepared by the six co-sponsors of the proposed patent reform *du jour* was unanimously approved at the start of the hearing. The amendment addresses a number of issues exposed by the recent debates on Capitol Hill. Fee-shifting provisions that would be enacted by the PATENT Act were amended so that economic hardship could be a special circumstance considered by a judge when deciding an award for attorneys fees. The amendment also seeks to address some of the alleged abuses of the inter partes review and post grant review proceedings created by the 2011 America Invents Act. Notably, the amendment requires the IPR and PGR decisions of the Patent Trial and Appeals Board to be made publicly available and searchable online. It also directs PTAB to apply the Phillips district court claim construction standard during review proceedings.

Opposition to Approval of PATENT Act

The first member of the Judiciary Committee to raise any serious opposition to Committee approval of the PATENT Act was Sen. Dick Durbin (D-Ill.). He pointed out that, prior to the 2011 passage of the AIA, the last major reforms to the patent system were enacted in 1952. "We've returned to this issue of patent reform very quickly after first effort," he said. Durbin pointed out a lot of the hyperbole involved in this debate, including Schumer's characterization of patent trolls as tapeworms, which became a rhetorical target for a couple of senators opposing the bill. "If [patent trolls] are really the target group, why does this current bill have the oppositions of the inventors, investors, universities and small businesses?" Durbin asked. In no uncertain terms, Durbin stated to the rest of the Judiciary Committee that the PATENT Act would end up hurting honest innovators all in the name of ending the problem of patent trolls.

Durbin's words did not fall on deaf ears. Sen.Ted Cruz (R-Texas) indicated that he found Durbin's comments to be quite persuasive. "We have in our economy a particular obligation to protect innovators, the little guy inventing the next great invention that will change the world," Cruz said. He also said that he would vote against the legislation in Committee but may be able to support it on the Senate floor, depending upon whether any amendments were allowed to alter the bill's language.

Sen. Sheldon Whitehouse (D-R.I.) added his voice to the few who urged caution at the passage of the PATENT Act and the one who was able to most explicitly state an issue regarding all of the recent patent reform bills being proposed and debated in Congress. "Over the years, I've come to recognize a certain pattern," Whitehouse said. "We start with a really important issue like getting rid of abusive demand letters… but

" If [patent trolls] are really the target group, why does this current bill have the oppositions of the inventors, investors, universities and small businesses?" — SEN. DICK DURBIN

"We have in our economy a particular obligation to protect innovators, the little guy inventing the next great invention that will change the world."

— SEN. TED CRUZ

as soon as we address that problem, really big interests start to come to the door and say, 'By the way, as long as you're looking at patents, here's what we want.' " Whitehouse would go on to offer the Benjamin Franklin proverb about the importance of doubting a little bit in our own infallibility, despite the bipartisan support behind the bill. Sen. Richard Blumenthal (D-Conn.) also observed that Congress should be very careful before placing hurdles in the way of litigants pursuing a legitimate claim of patent infringement.

Conservative Viewpoint

Another major dissenting voice calling out for caution in approving the PATENT Act was Sen. David Vitter (R-La.). Despite the fact that major Republican figures like Sens. John Cornyn (R-Texas) and Orrin Hatch (R-Utah) are sponsors of the PATENT Act, Vitter felt that the legislation was not appropriate from a conservative's standpoint. Not only do aspects of the PATENT Act weaken patents in a way that make it difficult to enforce a property right that has been recognized by our country since the passage of the U.S. Constitution, Vitter also found the comprehensive nature of the bill to be less desirable than smaller, targeted approaches. He proposed that an amendment should be made to the bill that would create a small business exemption so that Congress could see how provisions of the PATENT Act would play out between larger corporate entities first.

The most valiant defense of a patent holder's right to legitimately enforce his/her intellectual properties against an infringing party was mounted by Sen. Chris Coons (D-De.). Coons cited letters from numerous stakeholder groups such as the Medical Device Manufacturers Association, the National Venture Capital Association and the Alliance of U.S. Startups and Inventors for Jobs, all of which opposed passage of the PATENT Act as currently worded. "My core concern is that much of the negotiations have happened between interests that are dominant in many sectors," Coons said. "Every inventor in the eyes of this bill who needs to defend their legitimate invention is also considered a troll." Coons also spoke to the difficulties that this bill would pose in helping startups and small inventors obtain funding from venture capitalists who are worried that weakened patent rights would pose a threat to their investment activities.

Proposed Amendments

Two amendments proposed by Judiciary Committee members were approved at the hearing. An amendment submitted by Cornyn alters the definition of micro entities under U.S. patent code. Feinstein also introduced a measure that prohibits the inclusion of specific monetary amounts within a demand letter. Under the Feinstein amendment it is not clear how a patent owner would be able to meaningfully communicate with potential licensors. Indeed, any patent holder who has successfully negotiated for licensing rights on a case of legitimate patent infringement would likely be able to tell you how problematic this measure is when negotiating in good faith.

Durbin submitted seven amendments to the PATENT Act, several of which were related to attorneys fees. While the relative merits of legislatively enacting a fee-shifting provision can be debated, the Durbin Amendment would have made the fee-shifting provision much more evenhanded, requiring the district courts to consider the conduct of both the non-prevailing and the prevailing party. The proposed amendment read in total: "In determining the amount of attorney fees that is reasonable to award to the prevailing party, the court shall take into consideration the position and conduct of both the non-prevailing party and the prevailing party."

A separate Durbin amendment would have directed the district courts to assess the reasonableness of the positions of the non-prevailing party at the time those positions were taken, rather than allowing for a hindsight inquiry. The amendment read: "It is further the sense of Congress that the reasonableness of the position or conduct of the non-prevailing party should be assessed based on information that was known or should have been known by the non-prevailing party at the time the position was taken or the conduct occurred."

Another Durbin amendment would have explained that Congress does not want district courts to award attorneys fees based on conduct that is "not material to the consideration or outcome of the litigation." The proposed amendment read: "In keeping with the intent to strike a balance and to avoid vexatious or frivolous

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Patent Act Still Ominous

FOR STARTUPS AND SMALL INVENTORS BY BRIAN POMPER

PHOTO BY NICHOLAS A.TONELLI

Although the latest version of the PATENT Act (S.1137) represents an improvement over previous versions of the legislation, it would still make all U.S. patents less enforceable and cast an ominous cloud over startups and small inventors.

Without strong enforceable patents, larger companies can ignore the rights of smaller companies and imitate their ideas without paying for them. We see this phenomenon in countries like China, where patent rights are not enforced and therefore not effective to prevent copying. For young, quickly growing startups—the primary job creators in our country—unduly burdening the ability to protect inventions from infringers would be devastating or fatal. Aside from having to compete against infringing products, venture capitalists and other investors will not take the risk of investing in companies whose value is based on technology that is difficult to protect under U.S. patent law.

The latest version of the PATENT Act notably fails to address the critical overbreadth problems of the customer stay, heightened pleadings and discovery provisions. Together these provisions place an undue burden on the enforcement rights of legitimate patent owners.

Customer Stay, Pleadings and Discovery

The customer stay provision, as drafted, is so broad that it invites further abuse. The Senate Judiciary Committee's section-by-section analysis of the customer stay provision states that "the customer stay is available only to those at the end of the supply chain." The Committee's short summary further states that "[t]he bill protect [sic] customers who are targeted for patent infringement based on a product they simply purchased from a manufacturer or off the shelf." The legislative text, on the other hand, makes a stay of litigation widely available to many more entities than innocent end user mom-and-pop stores and retailers, including companies in the Fortune 10 and beyond. The bill fails to close this large-company loophole and makes no changes whatsoever to narrow the protections to small businesses. Instead, a stay would remain available to shield large companies that profit most from patent infringement. The provision's effect would be to allow these large company infringers to delay litigation proceedings, for years in some cases, running out the clock on small patent holders, waiting for them to exhaust their resources or go out of business.

The pleadings and discovery sections, similarly, create threshold barriers to the ability of all U.S. patent owners to enter the courthouse door and gain access to critical information needed to defend their patent rights.

For young, quickly growing startups—the primary job creators in our country—unduly burdening the ability to protect inventions from infringers would be devastating or fatal.

Under the current pleadings language, for example, a patent owner asserting his patent rights would be required to identify with particularity each claim and each accused product—down to the product model. This would be extremely burdensome. Imagine if there were 20 product models alleged to infringe five patents,

each with 10 claims. A patent holder would have to do heightened pleading on 1,000 categories of information (20 products x 50 claims), and patent complaints could easily run over 100 pages.

These pleadings requirements would massively increase up-front costs, expense and delay, which would be particularly worrisome for small businesses, including startups and venture capital-backed portfolio companies with limited resources. Patent cases will become mired in months-long delays over the sufficiency of pleadings, with endless cycles of defendants filing successive motions to dismiss complaints and amended complaints.

In her April 15 testimony before the House Judiciary Committee, USPTO Director Michelle Lee expressed concern about this provision and advocated for a fix. She stated, "A concern we have is that requiring the pleading of additional claims with greater specificity at the beginning of the litigation might unduly burden a patent owner, might encourage needless and early procedural motions in the form of motions to dismiss, and not materially advance the case, when all that is required is an appropriately pled single claim in order for the case to move forward." The bill's authors have not adopted her suggestion.

Inter Partes Review

The PATENT Act also fails to correct the well-documented unfairness and imbalance in the inter partes review procedure at the USPTO that is allowing abuse of the IPR system, an unintended consequence of the America Invents Act. Since the IPR program was implemented in September 2012, more than 2,700 requests for IPRs have been made at USPTO, and 78 percent have been decided against the patent holder.

Although the latest version of the bill makes some changes to the IPR process, it does not go far enough in reining in the potential for abuse of the IPR system. Changes to the IPR system that aim to end abuse should impose a standing requirement for filing IPR petitions, ensure that patent owners have the right to amend their patent claims to preserve patentability and grant patent owners a true presumption of validity in IPR proceedings by requiring petitioners to prove their case by clear and convincing evidence. Model language for these reforms can be found in the bipartisan STRONG Patents Act, cosponsored by Sens. Durbin, Coons, Hirono, Vitter and Cotton.

The overbroad changes in the PATENT Act and its House counterpart, the Innovation Act, would stack the deck against our nation's most innovative enterprises. As Congress considers measures to target abuse, it should tread carefully to ensure that it is keeping our patent system strong and continuing to incentivize innovation and job creation across the economy for generations to come.

Brian Pomper is executive director of the Innovation Alliance, a group that represents a range of research organizations on policy issues.

Naked Emperors:

A SUPREME COURT PATENT TALE

BY GENE QUINN

The United States Supreme Court is the final arbiter on the meaning of laws in the United States. Unfortunately, the Supreme Court is also cloistered and insular. There are only Ivy League graduates on the Supreme Court, which guarantees very little diversity of thought. Sure, there is great divergence between the conservative justices and the liberal justices, but in terms of everyday experiences, they ate at the same places, drank the same drinks and were taught by the same people. As justices, they have lived the same lives for the vast majority of their professional careers.

Tucked far away from reality, the Supreme Court acts as if it knows everything about everything, which is ridiculous. In a world becoming more complex and specialized by the day, it is utter fantasy to believe that a homogenous group of senior citizens from Ivy League schools, who have no scientific training, possesses the breadth and depth of knowledge to wisely pontificate on any and every subject, particularly those relating to cutting-edge technology.

The idea that the Supreme Court is at all capable of understanding—let alone deciding—issues of a technical nature is ridiculous. Yet the justices' individual and collective lack of knowledge hasn't prevented them from reaching misguided decisions in a variety of cases. Like an emperor without any clothes, the Supreme Court seems blissfully ignorant of its own ignorance. Indeed, you would have to go out of your way to find nine less qualified people to decide issues of a technological nature.

The Naturally Occurring Man-Made Molecule

Supreme Court misunderstandings of science and technology are legendary, but the one that captures the fullest extent of the justices' collective lack of understanding is when all nine agreed in *AMP v. Myriad* that the patent claims at issue defined a man-made isolated gene, but still somehow were able to conclude that the claims were patent ineligible because, despite being made by man, a patent on the claims would have violated the law of nature doctrine. So, at the same time the claims cover a man-made molecule not found in nature, the entire Supreme Court simultaneously ruled that the claims were to something that is naturally occurring.

Justice Thomas wrote: "We hold that a naturally occurring DNA segment is a product of nature and not patent eligible merely because it has been isolated." Apparently not realizing the logical incongruity, Thomas would later explain that *Myriad* claims could not be saved "by the fact that isolating DNA from the human genome severs chemical bonds and thereby creates a non-naturally occurring molecule." Thus, the isolated DNA claims somehow simultaneously cover naturally occurring DNA even though isolating DNA "creates a non-naturally occurring molecule."

The critical question left unanswered by the Supreme Court was how something could be man made and naturally occurring at the same time. In fairness, how could such an absurd statement be explained?

Indeed, the Supreme Court's decision in *Myriad* is the legal equivalent of Schrödinger's cat, which is a thought experiment devised by Austrian physicist Erwin Schrödinger to explain a problem with the Copenhagen interpretation of quantum mechanics. Schrödinger posits that if you put a cat in a box, there is no way to know whether the cat is alive or dead without observing the cat, which seems obvious enough. Schrödinger then takes a leap, noting that since you cannot know whether the cat is alive or dead without observing the animal, the cat can be simultaneously thought of as both alive and dead. Schrödinger's cat was conceived to draw attention to the incongruous nature of the Copenhagen interpretation of quantum mechanics, since a cat obviously cannot

both be simultaneously dead and alive. If Schrödinger were alive today, perhaps his thought experiment would have been conceived in response to the Supreme Court's decision in *Myriad*, given the logical and scientific impossibility that something is simultaneously both non-naturally occurring and naturally occurring.

I wonder if the Supreme Court is even familiar with Schrödinger? I wonder if the justices would understand how the *Myriad* decision could be likened to the Copenhagen interpretation of quantum mechanics? I wonder if they even care?

I Know It When I See It

I have also long wondered about the propriety of refusing to define obscenity. Justice Potter Stewart famously refused to define obscenity explaining: "I shall not today attempt further to define the kinds of material I understand to be embraced within that shorthand description. … But I know it when I see it." See *Jacobellis v. Ohio* (Stewart concurring opinion). This "I know it when I see it" standard has been a part of Supreme Court lore ever since it was uttered in 1964. It has also been the best working definition of obscenity.

Ultimately, what is obscene is in the eye of the beholder, as evidenced by the fact that obscenity laws vary greatly from state to state. But possession of obscene material is a crime. It is troubling that there could be so many subjective definitions of obscenity and one widely cited yet vague definition that at best provides an indefinite and ambiguous understanding. We laugh about the carelessness displayed by the Supreme Court when it comes to defining obscenity, but those who make, possess, sell or import obscene materials are not the most sympathetic of crowds. The lack of a sympathetic character means we tolerate what should be a constitutionally infirm generalized concept that could lead to the deprivation of liberty.

What does obscenity have to do with patents? A lot. There are some who believe that the "I know it when I see it" standard is really the subjective test for obviousness. Indeed, the more ubiquitous an innovation the more likely it will be declared obvious, regardless of how revolutionary, unique and important the innovation. More recently, however, the "I know it when we see it" approach has been expanded to patent eligibility.

The Supreme Court continually expands judicially created exceptions to patentability under the guise of the abstract idea doctrine. Let's leave for today the fact that the statute the Supreme Court is interpreting, 35 U.S.C. 101, does not provide any authority for the creation of a class of judicially created exceptions to patent eligibility. That should matter, but it seems the Supreme Court's thirst for power, authority and relevance is not tethered to any particular statutory language.

The very justification for the patent system is the dissemination of information so society benefits and future innovators can stand on the shoulders of those who have come before. Ironically, software enables this fundamental benefit of any patent system by facilitating the widespread, immediate dissemination of information, yet in the mind of many jurists, software itself is not patent eligible. Still, software is an enormous part of the American economic engine and at the foundation of American competitiveness. Google, IBM, Microsoft, Apple, Qualcomm and many other giant U.S. corporations are leading the software economy, yet the Supreme Court seems perfectly comfortable with throwing the very foundation of the industry into turmoil. The inability to own the rights to software innovations will mean that the research, development and investment of these and other companies are worth less, if not worthless.

Given that we live in an age of software innovation, where 50 percent or more of all innovation is in one way, shape or form related to software, why are many Article III and administrative judges declaring that software is not patent eligible? Perhaps the more important question is why is Congress letting the justices get away with what they are doing? There is no legislative support for the existence of any so-called judicial exceptions to patent eligibility, yet Article III and administrative judges are striking down patent after patent in this economically vital area.

The biggest piece of the problem in the ongoing debate about the patent eligibility of software is that the Supreme Court has never defined the term "abstract idea." Nevertheless, despite a failure to define this critical term, the court has found that certain patent claims violate the undefined "abstract idea doctrine." How there can be a doctrine without a definition is particularly curious. The term "doctrine" is defined as "(1) a particular principle, position, or policy taught or advocated… (2) something that is taught; teachings collectively… (3) a body or system of teachings relating to a particular subject… ." Call me crazy, but it seems impossible from a definitional standpoint to have a doctrine without a definition.

The biggest piece of the problem in the ongoing debate about the patent eligibility of software is that the Supreme Court has never defined the term "abstract idea."

It defies logic to hold people accountable based on a standard that even those who judge cannot, or will not, define. Unfortunately, it seems that a lack of logic is no impediment to achieving a myopic decision. The Supreme Court won't tell you why something is patent ineligible in a way that would stand up to even modest logical scrutiny, but the justices sure seem to know it when they see it.

Is There a Future for Software Patents

IN AN AGE OF SOFTWARE INNOVATION? BY GENE QUINN

One year ago, the United States Supreme Court issued its decision in *Alice v. CLS Bank*, setting off a whirlwind reaction. In a unanimous decision authored by Justice Thomas, the Supreme Court held that the patent claims were drawn to a patent-ineligible abstract idea, thus they were not eligible for a patent under Section 101. Despite the fact that the claims involved were directed to software (i.e., software patent claims) the Supreme Court did not use the word "software" in the opinion. Nevertheless, the future for software patents has been dramatically altered.

Since the decision by the Supreme Court, *Alice* has been used to reject software patent claims as being patent ineligible by the Federal Circuit, numerous district courts, the Patent Trial and Appeal Board and patent examiners at the United States Patent and Trademark Office. Indeed, the *Alice* decision has infused a great deal of uncertainty into the law of patent eligibility. The level of uncertainty can perhaps best be exemplified by the fact that the Federal Circuit issued what appears to be diametrically opposed opinions in Ultramercial and DDR Holdings.

Numerous patents have been lost with claims invalidated as being patent ineligible in the wake of *Alice*. This has negatively affected patent valuation, which has led some commentators to lament the toxicity of the patent asset and question whether the United States Patent and Trademark Office has the bandwidth to cope with the increased time demands placed on patent examiners as they navigate the patent eligibility issue in as many as 50 percent of all pending patent applications.

In December 2014, the USPTO described a two-step analysis that is required when patent examiners are confronted with

software patent claims.

The USPTO further attempted to mitigate the *Alice* disaster by publishing hypothetical examples of when software patent claims should be deemed to be patent eligible. Unfortunately, it seems to many practitioners, that at least some examiners are simply not doing what they are told.

Reports suggest that some patent examiners are going through both parts of the Mayo analysis even when Step 2A of the analysis clearly requires a finding that the claim is patent eligible. While I do sympathize greatly with the examiners given the tumultuous past few years, with no fewer than 19 substantive changes to patent law according to an inspector general from the Commerce Department, there is no excuse for continuing on to Step 2B of the inquiry if the patent claims are eligible under Step 2A. Unfortunately it seems that many patent examiners and judges alike are channeling the Supreme Court and attempting to determine how they may view a particular patent claim, rather than independently applying the test. This has led to great uncertainty, which has, in turn, led many to question the future for software patents.

I feel for the Patent Office and patent examiners because I don't know how they can really rationalize the Federal Circuit's rulings in Ultramercial and DDR, at least not the way that patent decisions have historically been rationalized. While there are ways that you could distinguish Ultramercial from DDR, I don't think you can honestly rationalize these two decisions by looking at the patent claims. The patent claims are structured in a similar way. There was a thicker technical disclosure in the patents that were an issue in the DDR case, but a thicker specification should be properly treated under 35 U.S.C. 112, not as a patent eligibility issue under 35 U.S.C. 101. The future for software patents, although tied to patent eligibility under 101, seems more directly linked in an analytical way to sufficiency of disclosure under 112 and obviousness under 103.

To suggest that interoperability and compatibility somehow make the software routine is exceptionally naïve. It shows such a lack of familiarity with the fundamental underpinnings of software that anyone who has such view should really be deemed unfit and not competent to decide issues involving this important technology.

Innovation Not Usually Rejected

Normally, when there is a rejection the innovation itself has not been rejected, but rather the particular way in which it has been claimed is found to be unacceptable. The insidious nature of patent eligibility rejections is that the innovation itself is rejected without regard to whether the innovation is useful, new, non-obvious and described well enough. A finality in the decision-making process is reached even before any substantive inquiry is made about the nature and quality of the innovation. Such cursory decisions at the front end, without any factual inquiry into the merits of the invention, can render an entire category of innovation dead on conception, which is why patent eligibility has always been historically viewed as a low threshold inquiry, not the insurmountable mountain that it has become.

There never should be difficult decisions under 101. If there isn't an easy, obvious decision that would render the innovation patent ineligible, then patent examiners and judges shouldn't seek to use 101 to immediately render the entire innovation patent ineligible. In many regards this type of approach is reminiscent of the "Earth is flat" crowd, who couldn't be bothered with considering new information and instead clung to irrational notions in the face of evidence to the contrary. What scientific research and technological pursuits will be stopped by a patent eligibility requirement on steroids? We have already significantly deterred R&D into genes, medical diagnostics and software. Amazing really, but this Supreme Court will go down as one of the most science-phobic courts of all time.

Using 35 U.S.C. 101 to render an innovation patent ineligible is not only myopic in the extreme, but it is also akin to using an elephant gun to kill a mosquito. The proper analysis has historically allowed the other sections of the statute do the work for which they were intended. If there is anything in the disclosure that satisfies 35 U.S.C. 112, then look at the claims through those eyes as you determine whether the claims are novel under 35 U.S.C 102 and non-obvious under 35 U.S.C 103. Patent eligibility should only be used as an impediment in the most extreme, egregious cases. It is simply inappropriate and rather stupid to allow innovations to be weeded out before anyone actually considers whether there was a disclosure that adequately teaches a new and non-obvious innovation.

Gatekeeping Inhibits Innovation

Historically, the USPTO preferred to issue a patent when in doubt rather than bury the innovation that otherwise could

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Senators Mistaken *(cont. from page 33)*

are the most interesting from the patent perspective. Although making a paragraph IV certification is not an active act of infringement, thanks to specific provisions within the legislation, when a paragraph IV certification has been made the patent owner of the drug covered by the NDA may immediately institute infringement proceedings.

Despite the fact that the filing of an ANDA with a paragraph IV certification will, many times, result in an immediate patent infringement litigation, generic manufacturers have great incentive to file ANDAs. The statute provides a 180-day exclusivity period to the first ANDA applicant to file a paragraph IV certification. Under this 180-day exclusivity period only the patent owner and that single generic company would be able to market the drug. Thus, Hatch-Waxman Congress provides an incentive, in the form of a promised 180-day oligopoly, for generic manufacturers to challenge the scope and validity of drug patents.

The key to understanding Hatch-Waxman abuse and misuse, which has been the subject of a recent Supreme Court decision, is to appreciate that only the first generic drug manufacturer who files the ANDA and challenges the patent is entitled to a 180-day exclusivity period. This gives generic manufacturers incentive to quickly file an ANDA with a paragraph IV certification, but it also means that no other subsequent manufacturer can ever be entitled to the 180-day exclusivity period. This has led patent owners to settle with the generic manufacturer who was the first to file. Such settlements frequently have the patent owner paying the generic manufacturer a large sum of money, which is known as a reverse payment. The generic manufacturer also agrees not to enter the marketplace, thereby allowing the brand name drug patent owner to continue to exercise a monopoly within the market. No other generics go through the exercise of filing an ANDA with a paragraph IV certification because, even if they prevail, the best possible outcome would be to kill the patent, which would immediately open the market for all generics. No one wants to pay for the patent litigation when the results will wind up benefitting many free riders that did not fund the litigation.

Once you understand the gaming of Hatch-Waxman and the fact that through reverse payments generics are paid off not to enter the market, you realize that Hatch-Waxman has been a failure. If the goal is to ensure generics make it to the market quickly Hatch-Waxman is simply not the answer. On the contrary, an IPR must be completed within 12 to 18 months. Thus, a successful IPR is undeniably far more effective at achieving the stated goal of Hatch-Waxman.

The Kyle Bass Problem

If you have not figured it out, all of this IPR talk is about the so-called Kyle Bass problem. Bass is reportedly shorting pharmaceutical stocks and then filing IPRs. This process is either characterized as evil or genius, depending on your point of view. Regardless of what you think, it seems clear that the laws allow for anyone to file an IPR to challenge a patent for any reason. The fact that Bass is doing so to take out patents and make money has rubbed many the wrong way. Admittedly, this use of IPR is not what the legislative history suggests Congress envisioned, but the statute does specifically allow for it to occur.

As willing as some may be to tar and feather Kyle Bass one thing is clear. If he takes out pharmaceutical patents through IPR he will achieve what no generic would achieve with Hatch-Waxman. Reverse payments have so thoroughly contaminated the Hatch-Waxman process that the legislation is not capable of carrying out its stated purpose. If you are concerned with generic drugs getting to market quickly the last thing you want to see happen is an IPR fix. That would only ensure more litigation in federal courts and line the pockets of generic manufacturers without any benefit to the general public.

PATENT Act Passes *(cont. from page 37)*

motions for attorney fees by prevailing parties, it is further the sense of Congress that attorney fees should not be awarded based on allegedly unreasonable litigation positions or actions of non-prevailing parties that are *de minimis* or are not material to the consideration or outcome of the litigation."

Vitter submitted three amendments. His first proposed amendment would hold those who file fraudulent or harassing IPRs liable to patent owners. The Vitter IPR amendment, as well as several other IPR amendments submitted by other Senators, did not receive a vote by the Committee. Vitter's second proposed amendment was submitted on his behalf and with the support of Coons and Durbin. This second Vitter proposed amendment would exempt universities, independent inventors and non-profit organizations from needing to meet the heightened pleading requirements of the PATENT Act in order to bring a patent infringement action.

Sen. Thom Tillis submitted an amendment that would extend the sunset date on Covered Business Method review. Currently, as a result of the AIA, CBM will sunset eight years after it became effective, which would be September 16, 2020. Under the Tillis Amendment, CBM would not sunset for an additional eight years, or until September 16, 2028.

Proposed Amendment Affects Biotech and Pharma

While the Tillis amendment relating to CBM will likely be viewed very skeptically by many within the industry, the biotechnology and pharmaceutical industries were undoubtedly extremely pleased with his second proposed amendment, which would make it impossible for an IPR to be filed against pharmaceutical patents or patents that cover biological products that have been approved by the FDA. The proposed amendment read: "An inter partes review shall not be instituted or maintained for a patent that claims a drug or biological product, method of use, or method of manufacturing a drug or biological product approved under section 505 of the Federal Food, Drug, and

Cosmetic Act (21 U.S.C. 355) or section 351 of the Public Health Service Act (42 U.S.C. 262), including any patent listed in the Food and Drug Administration publication Approved Drug Products with Therapeutic Equivalence Evaluations or identified by the patent owner in a certification in its response to the petition."

Coons submitted 12 amendments to the PATENT Act, which largely seem to be attempts to amend the PATENT Act to incorporate the language of the STRONG Patents Act, which he submitted along with Sens. Durbin and Maize Hirono (D-Hawaii).

One of Coons' 12 amendments was particularly important because it would raise the burden to clear and convincing evidence to invalidate a patent claim in inter partes review. This would change the standard to match the burden required to invalidate patent claims in federal district court. Another of Coons' proposed amendments would have allowed the United States Patent and Trademark Office to keep the fees it collects and use those funds for ongoing business operations. While the America Invents Act did create a revolving fund for the USPTO to tap into, the USPTO budget remains under the control of Congressional Appropriations. This and another similar attempt in the House of Representatives would take the USPTO out from under Congressional Appropriations and allow the agency to use 100 percent of the fees collected. This would have put an end to the controversial practice of fee diversion.

The most vocal and consistent opposition to the string of amendments proposed by Coons came from Cornyn, who urged the entire Committee to vote against each Coons measure. The crux of the debate between those two statesmen was Coons efforts to create targeted reforms, while Cornyn insisted that any amendments protecting certain groups undermined the delicate balance wrought by the negotiations involving this legislation. Both of these gentlemen presumed to be speaking on behalf of the rights of small inventors.

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have led to things that we could never have known. Stopping an innovation at the gate prevents investment, which places a stranglehold on the technology and kills further research and development. Unfortunately, somewhere along the way we got away from that understanding. Perhaps it was under the Bush Administration with so-called "second pair of eyes" review, and if you recall that was largely a response to the *New York Times*, NPR and other media outlets making fun of certain patents that had issued, for example the patent on the swing that went sideways. So the response was that the Patent Office was never going to let anything that shouldn't have issued ever issue again. Well, silly patents don't issue as often as they once did, but by having the filter so high, you wind up catching a lot more than you should.

This leads us to the real reason that 101 is such a hot topic—by forcing patent eligibility to perform a stringent gatekeeping function district court judges can get rid of many patent cases on a motion to dismiss without any discovery. The Supreme Court seems exceptionally interested in the patent troll that's not really in front of them in the cases they are deciding, and they are trying to deal with abusive litigation despite that not being an issue. Yes, there are bad actors in the industry, but making the patent eligibility inquiry the ultimate test is not a productive way to do anything other than weed out innovation at its earliest stages before it has ever been evaluated for novelty or obviousness, and in many cases before it has had an opportunity to show its value in the marketplace.

Software Interoperability and Compatibility

As odd as all the machinations over software patents have been, the one thing that strikes me as most bizarre is how the courts continue to cling to the ridiculous, nonsensical distinction between a general-purpose computer and a specific-purpose machine. This isn't a distinction without a difference, but rather it is a distinction for those without a clue. The real value in software is that it operates across platforms. If you want to fire up an Apple computer you're going to be able to use compatible software; if you're going to fire up a PC you're going to be able to use the same compatible software, regardless of the other software you might be using. Yet, interoperability and compatibility seem to literally make software less likely to be patent eligible because it works on any type of machine.

That fact that software works on any machine, at any time, in any environment is where the value resides. To suggest that interoperability and compatibility somehow make the software routine is exceptionally naïve. It shows such a lack of familiarity with the fundamental underpinnings of software that anyone who has such a view should really be deemed unfit and not competent to decide issues involving this important technology.

As we approach the first anniversary of the *Alice* decision, the future of software hangs in the balance. Ultimately, I have no doubt that software will be declared to be patent eligible, either by Congress or the Supreme Court, but it took the Supreme Court nine years to retreat from its first misguided software patent decision in *Gottschalk v. Benson*. Today, Congress seems wholly incapable of doing anything that would remotely be in the best interest of the patent system. Thus, the immediate future for software patents seems murky. Certainly there are ways forward, but the way forward is not cheap, it is not easy, and it will likely be long and arduous.

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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