

Inventors

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DIGEST

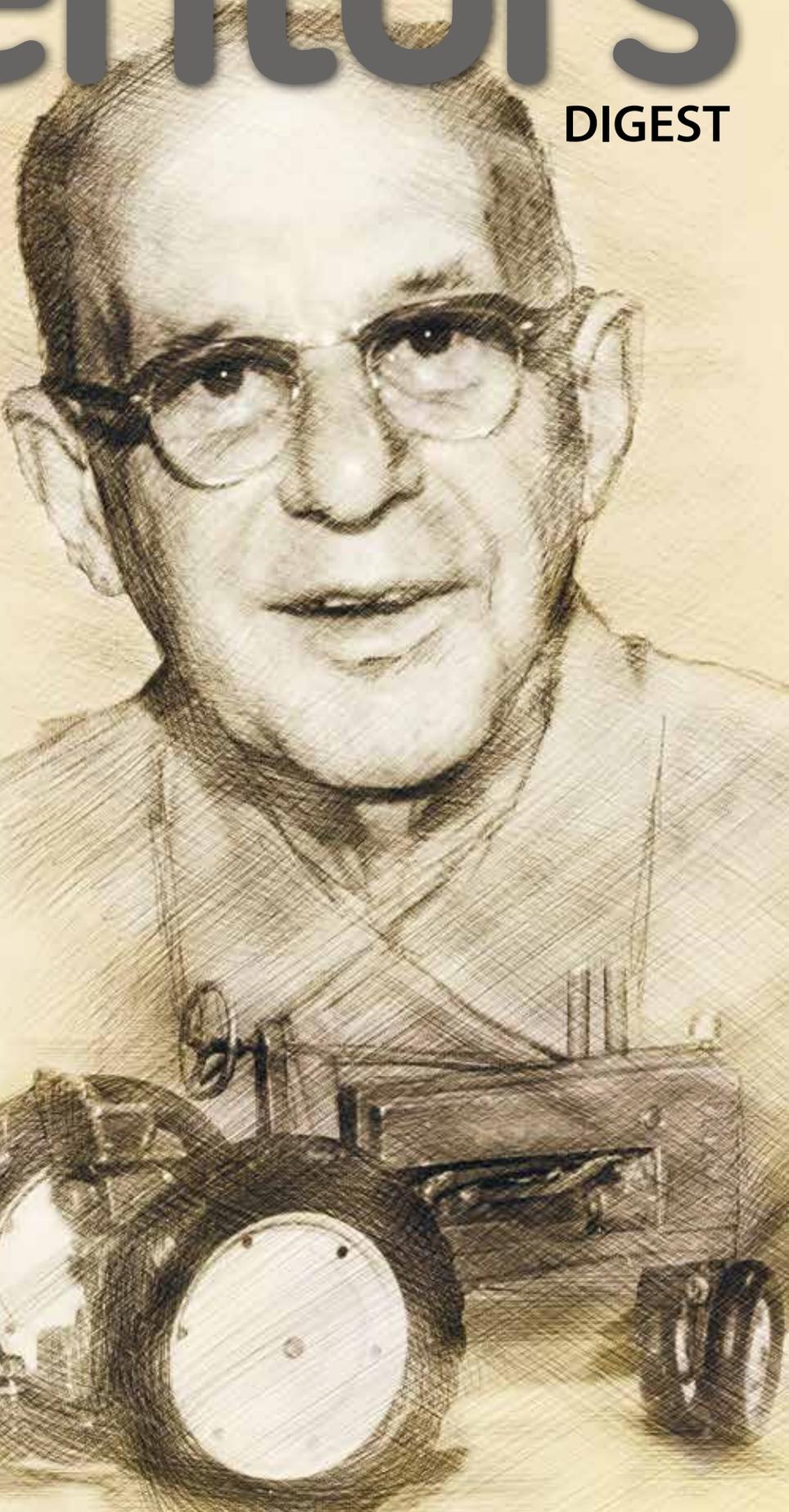
Claim to Fame

THE PROLIFIC, COLORFUL LEGACY OF INVENTOR LLOYD COPEMAN

\$250,000 Solution
10-YEAR-OLD WINS
NATIONWIDE CONTEST

Win for Patent Owners
SCOTUS ISSUES RULING
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A Typical Inventor Is Not of This World

How do you imagine the stereotypical inventor?

Would it be a mad-scientist persona, like Emmett (Doc) Brown from the "Back to the Future" movies? Or a bespectacled, formal, deliberate type like Mr. Peabody from the Rocky and Bullwinkle cartoons?

Of course, as with most stereotypes, the notion of the "typical" inventor is a myth. This has been underscored in the pages of *Inventors Digest* since it began in 1985. Inventors are replete with vastly diverse personalities and approaches to their work; come in all ages, nationalities and ethnic backgrounds; and have varying social and economic histories.

In his book "The Rise and Fall of American Technology" (2010), author Lynn G. Gref debunks the myth as it may have presented during the golden age of technology that began in the United States after World War I. "One might describe the stereotypical inventor of this era in the following manner: He worked alone or with an assistant or partner, was an amateur inventor, lived in poverty or near it, was a social outcast ... and had one big idea in his lifetime."

Gref hastens to add that "most (inventors) do not even come close to this caricature."

No kidding! For starters, Gref's exclusive use of the gender pronouns "he" and "him" to describe an inventor perhaps inadvertently adds fuel to his premise. Although female inventors were fairly rare during the early to middle part of the 1900s, they made significant contributions—from Katharine Blodgett to Hedy Lamarr.

As inventors go, Lloyd Copeman typified atypical. For much of his career, this month's cover subject worked with many others at companies he ran or where he had a prominent role. He certainly was no amateur inventor; his nearly 700 patents speak to that. His inventions and royalties made him a wealthy man for much of his life. He was hardly a social outcast—a man whose friends reportedly included Henry Ford and Thomas Edison, and who was beloved by the family to whom he was unfailingly loyal.

And just one big idea in his lifetime? C'mon.

It's hard to know for sure how Mr. Copeman would react to family members' growing push for him to be chosen for the National Inventors Hall of Fame. He was proud of his accomplishments but didn't go out of his way to court recognition. He was a devoted family man who did much for his loved ones, and they are responding in kind and in kindness.

Stereotypically, a good story has a happy ending. There is still time.

—Reid
(reid.creager@inventorsdigest.com)

INGENUITY IS AMERICA'S MOST VALUABLE RESOURCE.

DON'T TREAT IT LIKE A CHEAP COMMODITY.

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

**SAVE THE
AMERICAN
INVENTOR**

TAKE ACTION AT SAVETHEINVENTOR.COM

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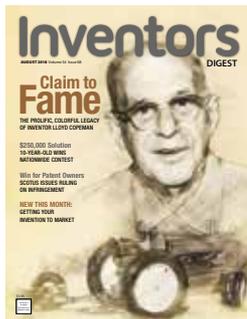
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ON THE COVER
Inventor Lloyd Copeman;
photo courtesy of
Kent Copeman



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BRIGHT IDEAS

Domio Pro

HELMET DEVICE
FOR SURROUND SOUND

domiosports.com

Domio Pro mounts to any helmet without wires, speaker inserts or earbuds to provide surround sound audio and a voice communication system. It comes on the heels of the company's music-only product, the Domio.

Unlike many other helmet devices, this one mounts to the outside of the helmet for comfort and convenience. Ears always stay unobstructed. The technology is engineered to transfer sound energy through the helmet shell via micro-vibration pulses. Users do not feel any vibration.

Domio Pro features The Air Mic, a noise-cancellation microphone. It's powered by Bluetooth and an all-day battery. Domio for music only retails for \$149; with voice communication, \$199. Shipping is to begin in the fall.



Chiller's Pack

BACKPACK COOLER HYBRID

chill.systems

Half backpack and half cooler, Chiller's Pack is a portable, lightweight means of keeping beverages chilled without ice when you're on the go.

Just put Chiller in your freezer for six-plus hours, fill it with drinks, and let the drinks chill for 30-60 minutes. The product can cool room-temperature canned or bottled beverages in as little as a half-hour. When used with The Chiller's Pack or Tote, Chiller can keep your drinks cold for up to 24 hours. Each Chiller's Pack fits three standard 12-oz. beer/soda cans, three standard 12-oz. beer bottles, or a variety of larger 750ml to 1-liter wine and spirit bottles.

Chiller will retail for \$69. A tote or pack that will include one Chiller will retail for \$169. Shipping is set for November pending a successful Kickstarter campaign, which was due to end August 15.

DUO

PORTABLE, DUAL-SCREEN LAPTOP MONITOR

mobilepixels.us

This laptop accessory attaches to the back of any laptop for those who work on the go.

DUO (1.5 lbs., 12.5 inches) provides a full 270-degree rotation with the option for a 180-degree presentation mode, so you can choose your optimum viewing angle for any situation. You can also slide DUO to either side of the laptop screen. It has a 1080p high-resolution display.

Attach the product by placing magnetic adhesives on the laptop, placing DUO on the adhesives, plugging in the USB and then sliding DUO's screen out.

DUO will retail for \$229. Shipping for crowdfunding backers begins in January.



“Learning and innovation go hand in hand. The arrogance of success is to think that what you did yesterday will be sufficient for tomorrow.”

—WILLIAM POLLARD



Geyser System

HOT, PORTABLE SHOWER

geysersystems.com

Using 1 gallon of water, Geyser System delivers up to 7 minutes of bathing time or 15 minutes for washing gear. It weighs only 11 lbs. with water and fits easily inside a trunk or backpack. The system easily connects to the 12V DC power supply in all vehicles or is compatible with one deep cycle battery; three options heat the water in as little as 5 minutes.

Three sensors (temperature, water level and lid) help ensure safety and efficiency. The system always monitors the water temperature; when it reaches 95 F, it turns off the heating element to stop drawing power. If water is added that is too hot for use, a sensor shuts off the pump mode until it cools.

The system will retail for \$345, with shipping for crowdfunding backers set for January.

Free Energy: Reality or Myth?

THE LAWS OF PHYSICS SAY IT'S IMPOSSIBLE, BUT... **BY JACK LANDER**

IN THE 22 YEARS that I've been working with inventors, I've come across at least five sincere fellow inventors who were convinced they had invented some form of perpetual motion or free energy. A more up-to-date term is "over-unity," meaning that we can get more power out than we have put in.

Whatever its designation, the laws of physics state that it can't happen. The law of thermodynamics known as "conservation of energy" states it like this: energy in = work out plus unused energy. Whether you measure in watts, calories, ergs, horsepower, or whatever, one still equals one, and not a flea's breath more.

Most often, these forms of over-unity have come to me as ways of converting electrical energy. The most elaborate was a centrifugal vibration device that generated watts that were fed back to the motor and kept the vibration going. One or two others had ways of dissociating hydrogen and oxygen from ordinary water (H₂O) and burning it to create power. On a large scale, this could drive a standard combustion engine—so you could literally power your automobile on water. The catch, of course, is that you have to use electricity to dissociate the hydrogen and oxygen. The input watts required to do this, matched against yielded horsepower (1 h.p. = 746 watts), would be more than the output watts due to various losses in the transformation process.

I carefully explained the conservation of energy law to each inventor and politely refused to work with him. (The hers apparently all knew better.)

Schemes and scams

The most popular scheme of perpetual motion is the unbalanced wheel, which dates to at least the 12th century when an Indian inventor, Bhāskara, sketched the device. A series of hinged arms flop over on one side of the rim, while the arms fold under on the other side. This gives the illusion of significantly more weight on the descending side than the rising side; therefore, the wheel turns. A variation of this scheme uses tubes of water. If it really worked, General Electric would have made giant generators that used weights weighing several tons, and my electric bills would be a fraction of the \$500 or more I pay in January and February. (Electric heat, you know.)

Less known is Leonardo da Vinci's scheme that used a water wheel and an Archimedes screw. Whether Leonardo was serious or simply toying with the idea is not known.

A brief study of the history of perpetual motion reveals many scams that have cost investors millions of dollars. Most of the investment was based on the promise of the development of a device that violates conservation of energy.

A few charlatans actually produced devices that they demonstrated. One fellow hollowed out the leg of a table, inserted tubing, and powered his device from a flask of compressed air in his basement.

Ah, but I'm not being fair here. There is another side to this saga, and there may be hope. For example, the universe, as far as we know, contains 4 percent identifiable matter, 23 percent dark matter and 73 percent dark energy. Thus, until science defines the 96 percent of which we know little or nothing, how can we say with certainty that there is no such thing as free energy?

Also, there have been a couple of recent schemes that involve legitimate science and credentialed scientists. In 1989, Martin Fleischmann and Stanley Pons announced that they had developed a safe, cold nuclear reaction that generated more output energy in the form of heat than the input energy. Fleischmann was one of the world's leading electrochemists, so he was taken seriously, and numerous experiments followed.

Most experiments failed to bear out the claims. The consensus of scientists was that Fleischmann and Pons had experienced experimental errors, and cold fusion went the way of the unbalanced wheel.

A second scheme is called zero-point energy. As far as I can understand it, it seems to be a way of harnessing a slight unbalance of energy at the quantum level. Those skeptical about it point to the "cosmological constant problem," stated as follows: "The cosmological constant problem, or vacuum catastrophe, is the disagreement between observed values of vacuum energy density and theoretical large value of zero-point energy suggested by quantum field theory." (Excuse me for a minute while I take a couple of acetaminophen.)



The United States Patent and Trademark Office has special rules to cover patent applications that involve perpetual motion.

Hybrid cars come close

So, I'm not counting on having a practical scheme any time soon. However, we do have legitimate mechanisms which, although they are not perpetual motion, capture a kind of free energy.

Take the hybrid automobile that combines a gas engine and an electric engine. The brilliant scheme here is that when coasting or braking to slow the vehicle, the potential energy of the mass of the car in motion is converted to electrical energy and stored in a battery. In other words, instead of wasting the energy that was required to get up to speed by turning it to heat through the friction of brake shoes against steel disks, the slowing is achieved by generating and storing electricity.

And, of course, wind power seems to be free. The return on investment of dollars required to build, install and maintain the wind turbine is not free, of course. But once the investment has been paid back, the costs are significantly lower than power generation from burning fossil fuel.

We might conclude that because perpetual motion, a.k.a. over-unity, is universally disavowed by scientists that the United States Patent and Trademark Office would refuse any such patent applications. Not quite. The patent office has special rules to cover such applications:

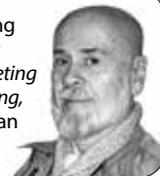
“With the exception of cases involving perpetual motion, a model is not ordinarily required by the Office to demonstrate the operability of a device. If operability of a device is questioned, the applicant must establish it to the satisfaction of the examiner. Rule number -35 USC 101.”

Several patents have been issued on schemes that offer improved efficiency. I haven't read any of these to ensure that they contain no claim of over-unity. But here are the numbers of a few relatively recent patents that you may want to review: 6,246,561; 6,362,718; 6,523,646; 6,526,925; 6,962,052; and 7,095,126. And for those who want more, there's the “Free-Energy Device Handbook” by David Hatcher Childress. Three bucks will buy you a used copy from Amazon.com.

I close with this reminder to my fellow inventors from playwright Thornton Wilder: “Ninety-nine percent of the people in the world are fools, and the rest of us are in great danger of contagion.”

Drawings from Leonardo da Vinci's Codex Atlanticus illustrate a perpetual motion scheme that used a water wheel and an Archimedes screw. A physical model of da Vinci's perpetual motion machine (above) generates its own energy when spun.

Jack Lander, a near legend in the inventing community, has been writing for *Inventors Digest* for 22 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.



5 Tips for Great Product Photos on Social Media

FEATURING YOUR INVENTION IN THE BEST WAY IS KEY TO MAXIMIZING CUSTOMERS

BY ELIZABETH BREEDLOVE

SOCIAL NETWORKS are designed for users to connect by sharing thoughts, links, photos, videos and more. For inventors trying to promote their product using social media, high-quality product photography is crucial.

Users will scroll right past your post if your photos aren't eye-catching. If the quality is poor, they'll question the quality of the product. If the branding is off, they may be confused about who is behind it. If they see repetitive photos, they'll overlook your post.

With 1 billion monthly active users on Instagram—arguably the most visually focused social network—and more than 2 billion on Facebook, it's becoming increasingly important to ensure that every photo you post on any social network highlights your invention in the best way. Five tips and tricks as you take photos and post them to your social network:

1 Hire a professional

Unless you're a professional photographer, you should hire someone to take photos of your invention. Don't rely on your iPhone or consumer-grade camera and take them yourself. Chances are high you'll end up with poor-quality photos that won't highlight your product in the way they should.

On a related note, it's important that all product photography is shot with great lighting. Not only does poor lighting fail to show off your product as well as it could, it also may reflect poorly on your brand in the eye of the viewer. If the photo isn't pleasing aesthetically, it could translate into negative feelings about your product, your brand and your mission.

2 Photos must fit your brand

Before you begin taking photos of your invention, make sure you have a solid understanding of your brand. Who is your ideal customer? How does your invention fill a need for that customer? What feelings and emotions resonate with that person? What personality should your brand take on to meet ideal customers where they are?

For example, if your product is geared toward minimalists, you may want to keep your photos simple with primarily black and white or neutral colors. If your product is for kids, you may consider using a variety of bright colors. Whatever aesthetic you choose, stick with it in all of your photos—even in different photo shoots. Your goal should be to ensure that when someone familiar with your brand sees your photo, he or she knows it belongs to you.

3 Add some variety

Although it's important to keep all product photography on your brand, that doesn't mean all of your photos should look the same. You don't want or need 100 photos of the same shot from several different angles. Mix up your images with different models, settings, backgrounds, props and more. Your goal with your images for social media should be to have your feed be varied but cohesive. Work with your photographer to come up with many different concepts that highlight your invention or product.

Additionally, make sure you are posting a variety of photos to your social channels. You may have two or three favorite photos of your invention, but don't post them over and over again; that will only bore your followers and may cause them to check



out mentally and stop paying attention to the content you produce—or worse, unfollow your brand altogether.

Furthermore, take several different types of photos. You'll need shots that solely focus on the product, usually with a solid colored background. These are especially helpful for an online store but also have a place on social media. You'll also need lifestyle photos that show your product in use, though, which brings me to our next point...

4 Highlight your invention's features, use cases and benefits

Your product photos are your chance to tell your social media followers why they need your invention. Don't waste this opportunity! As you and your photographer stage photos, look for opportunities to photograph features, demonstrate use cases and highlight benefits. Don't just make your product look beautiful; make your social followers see how your invention can enhance their lives. Make sure you show your product in context as well.

For example, if your invention is an outdoor product, have your photographer take photos of it being used while camping, while hiking, at a lake or river, and in other scenic outdoor settings. You don't want your ideal customer to have to work hard to picture using your invention; he or she should naturally be able to imagine using it.

If it's a kitchen product, take photos of it being used in a kitchen, create a spread of the invention along with food and other kitchen tools and take a photo of it from above, or show a chef using it. Regardless of the type of product, make sure you highlight where and how it will be used.

5 Keep a square ratio in mind

Each major social network has its own preferred image size and aspect ratio. Unfortunately, these tend to change often, and social networks redesign their feeds. If you don't have the budget to take new photos often, try to take a variety of landscape and portrait

Social media users want eye-catching pictures; high quality that reflects the product; a clear branding strategy; and no repeated photos.

photos that can be cropped into squares for Instagram but also look great when they aren't cropped.

Additionally, make sure you have a mixture of close-ups and photos that are further away. This should ensure that you have photos that you can use for all of your social networks and that you'll be able to use in multiple instances.

If you follow the tips outlined here, you'll be well on your way to a beautiful, cohesive social profile that highlights your invention in its best light and encourages your social media followers to engage with your account and purchase your product. 📷

Elizabeth Breedlove is content marketing manager at Enventys Partners, a product development, crowdfunding and inbound marketing agency. She has helped start-ups and small businesses launch new products and inventions via social media, blogging, email marketing and more.



A Better Habit: Helping Others

COUPLE'S DEVICE FIGHTS CONSTANT HAIR-PULLING AND OTHER UNCONSCIOUS BEHAVIORS **BY JEREMY LOSAW**



The Keen bracelet provides haptic feedback to the user when he or she is performing unwanted behaviors with his or her hands.

I T WAS JUST another morning for Aneela Idnani, and then it wasn't. For more than 20 years, she had struggled with a habit of pulling on her eyebrows to the point that she basically had none left—but was able to hide the fact by drawing in her eyebrows each morning with a makeup pencil.

On this day, she did not get her makeup on fast enough. Her husband, Sameer Kumar, saw that her eyebrows were completely bald. It was a tense moment but also a relief for her to be unburdened of her secret.

It was not enough for her to stop, though.

"We were one day sitting on the couch," Aneela recalled. "Sameer is noticing that I am pulling. I am still pretty much in a trance, and he just gently grabs my hand and I turn to him and say, 'I wish I had something that notified me that wasn't you.'"

In-the-moment help

Body-focused repetitive behaviors such as nail biting, skin picking, nose picking, hair pulling (trichotillomania) and others are at best embarrassing and unsavory in social settings, and at worst can be physically harmful. There is also a social stigma that goes with these behaviors that can be isolating. Although many life hacks and programs exist to help curb these habits, "in-the-moment" awareness of the negative behavior is one of the best approaches.

With her firsthand understanding of these issues, Aneela developed a wearable device called Keen to help herself and others curb their negative physical behaviors. The couple are cofounders of HabitAware, the parent company formed around Keen.

Keen is a bracelet that provides haptic feedback to the user when he or she is performing unwanted behaviors with his or her hands. Over time, a subtle alert provides awareness to the user and trains him or her to reduce or eliminate it.

The user first must train the device to record the behavior by doing the physical motion associated with the habit for a few minutes. After the training period, Keen senses the behavior and provides a gentle vibration to make the user aware of the action. There is an app for the device that is used primarily for training, and connectivity to the phone is not necessary for normal use.

The device, which can be trained for up to four different habit motions, is suitable for ages 8 and older.

Prototyping and beyond

After Aneela's husband became aware of her habit, the couple started work on a prototype for a device that would be a constant monitor and help solve her problem. They used developer electronics boards, such as the Bluetooth-enabled Light Blue Bean, as the basis for their first prototypes. The electronics were housed in 3D-printed shells and attached to a



For more than 20 years, Aneela Idnani pulled out her eyebrows and hid it from everyone.



slap bracelet. The early prototypes were not beautiful, but they allowed the duo to test the concept and gather important information about the device.

Eventually, they reached the limit of their technical ability and brought on two partners to help refine the product. Kirk Klobe took on the role of chief technology officer and led the firmware and software side; John Pritchard came on as the lead hardware designer. They addressed the biggest challenge of the device, which was making the software and hardware work together to accurately identify an unwanted behavior.

Sending the data from the device to the cloud for analysis was a potential solution, but this would require Keen to always be tethered to a phone to push and pull data. This would limit their user base to older teens and adults.

“The challenge was one, creating an algorithm that could identify subtle repetitive behaviors, but then two, also making so that it was a standalone device,” Sameer said. “We didn’t want to constrain who we can help by some technological constraint.”

They used relatively simple motion sensors such as accelerometers to track the motion, but identification of specific behaviors took a lot of computing horsepower and about four major software iterations to perfect. Aneela was the primary test subject, and once the algorithm was dialed in she was able to stop her eyebrow picking and regrow the hair she lost.

A turning point

The product’s development got a big breakthrough when HabitAware was chosen to participate in the HAX hardware accelerator program. Companies accepted to the HAX program give up a small equity stake in exchange for seed funding, mentoring and a multi-week stay in Shenzhen, China, to help with prototyping and finding a manufacturer.

The couple learned about HAX when a representative spoke at a makerspace event near their home in Minneapolis. After the event, the HAX representative encouraged them to apply and approximately six weeks later, they were accepted. The couple were elated,

but there was a significant logistical hurdle: their then-2-year-old child.

Technical leads Klobe and Pritchard went first for a few weeks while Aneela and Sameer finalized their plans. They were able to find a suitable Chinese day care near the HAX office and joined the rest of the team for the bulk of the program.

They already had a fairly refined prototype before HAX but were able to significantly accelerate their timeline to market with the additional help and expertise. The HAX mentors helped get them production-ready prototypes and connect them with appropriate factory partners for their product and production volume. When their time in China was up, they launched their e-commerce platform coinciding with the HAX graduate demo day and have been selling the product ever since.

The HabitAware team has done a great job of organically growing support for Keen. Leveraging the dramatic results that Aneela had with the device, much of their initial traction was gained by reaching out to the “bad habit” communities on Facebook, Reddit and other platforms that she used when struggling with her hair-pulling habit.

The product has proven to help many people break their physical habits, and the community has been outspoken about the benefits. The couple have also been exhibiting at various mental health conferences, as well as at the Consumer Electronics Show this past January. The team is working to continue to build brand awareness for Keen and building a library of user feedback for future developments. 📦

Details: habitaware.com

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/.



Sleeping Better With \$250,000

10-YEAR-OLD'S INVENTION WINS NATIONWIDE CONTEST

BY EDITH G. TOLCHIN

SOMETIMES when you're a smart kid, you come up with solutions for everyday problems. Imagine that you have a fear of lightning and thunder. What would you do? Put your pillow or blanket over your head and risk suffocating?

Frito-Lay's annual nationwide Dreamvention contest (dreamvention.com) was the perfect place for (now) 11-year-old Julia Luetje to enter her invention, The Storm Sleeper. Julia, from Leawood, Kansas, was one of two \$250,000 grand-prize winners. (The other was Andrew Young, who invented the "Toaster Shooter" that shoots toast directly onto a plate, avoiding burnt fingers.)

The Storm Sleeper is a creative, safe way to shelter a sleepy child from storms. We spoke with Susan Bernstein—Julia's mom—who is the daughter of another innovator, Bob Bernstein. He invented the McDonald's Happy Meal.

Edith G. Tolchin (EGT): Tell us about the Frito-Lay Dreamvention contest and what got Julia interested.

Susan Bernstein (SB): Julia learned about the Frito-Lay Dreamvention contest by watching "Ellen" on YouTube. She thought it would be cool to enter her Storm Sleeper invention in the contest. Having just turned 10 in the spring of 2017, she took her own initiative and entered the inaugural nationwide Dreamvention contest by submitting a detailed drawing and description of her Storm Sleeper using the software on the contest's website.

We received a phone call from Frito-Lay in June informing us that Julia's Storm Sleeper was in the running as a potential top five finalist in the Dreamvention contest, and that there were more interview questions for her to answer. It was an exciting time, and we knew there were probably hundreds of other entries that Frito-Lay was considering. We (Julia's parents) got the call in mid-July that Julia

was a top five finalist! We had to keep it a secret from everyone, including Julia. It was difficult to keep this secret! Over Labor Day weekend, Frito-Lay flew us and the other four finalists to Austin to film a surprise reveal to promote the contest. It felt like Willie Wonka! It was an incredible and surreal experience and day, complete with filming and interviews in a huge production shoot.

The contest itself was fun and challenging. We spent every waking minute of 35 days asking friends, family and our community to vote online for Julia's Storm Sleeper. Julia had TV, radio and newspaper interviews as well as some public speaking events. She was so poised and made them look effortless, especially for a 10-year-old. We found out there were 13,000 entries in the contest.

EGT: Was the Storm Sleeper something Julia had envisioned before she heard about the contest?

SB: Yes. Julia created the Storm Sleeper for her invention fair at school last year. Even though she was not chosen in the top 10 out of 32 at her school to advance in a local invention competition, she believed in her invention, persevered and submitted it to the nationwide Dreamvention contest. For her school project, we bought her big bulky pillows, and we didn't provide her with the supplies she truly needed to create her prototype of her Storm Sleeper.

Julia was scared of storms since she was very little. She used to put pillows around her head whenever there was a loud thunderstorm. She would also cover her head with her blanket to keep out the scary sights of the lightning. This is how she came up with the idea to invent the Storm Sleeper. She wanted to help others like her. She then realized the Storm Sleeper could help those who were sensitive to sensory issues, or just wanted a quiet place to relax, unwind or dream up other inventions.

Julia Luetje's Storm Sleeper was not chosen in the top 10 out of 32 at her school to advance in a local invention competition, but she believed in her invention.



EGT: How does the Storm Sleeper work?

SB: It is a pillow fort for your head with Bluetooth speakers and a blanket cover. It creates a safe space that blocks the sights and sounds of loud and scary noises such as thunderstorms, snoring and noisy siblings. It can also be used as a therapy aid for those who are sensitive to sensory issues. We anticipate that it can be used for pets, too.

EGT: What exactly is it made of? What are its special features?

SB: It is made of sound-reducing foam covered with soft fabric and a comfy blanket cover. It has Bluetooth speakers on the inside as well as a pocket for an iPad, phone or book, and a detachable reading light. It is light and portable. The blanket is customizable. The light and pocket enable the user to read and store books and magazines inside of the Storm Sleeper, all while blocking outside noises and light.

EGT: Who created the initial prototype?

SB: Julia created the initial prototype as a school project. It was comprised of big, bulky pillows that were hot-glued together. It also had K.C. Royals printed fabric on top (Julia's favorite baseball team), connected by hook-and-loop fasteners. A Bluetooth speaker was attached to a pillow with hook and loop. The international design firm "MAKO Design + Invent" made the next prototype in the Dreamvention contest based on Julia's drawings and description. This prototype really brought Julia's invention to life!

EGT: How was the prototype different before and after MAKO worked with it?

SB: MAKO was able to build the next prototype using Julia's design specs. They were able to incorporate her vision and bring it to life using the fabrics

and materials she had always envisioned. This prototype was sleeker, smaller and more aesthetically appealing than her original. It was closer to what she initially envisioned. In her school project, we bought her bulky pillows and cheap materials. MAKO used foam covered by fabric instead of the bulky pillows we provided for her school project. We learned a valuable lesson that it is important to take your kids' visions seriously, even if for a school project!

EGT: Has Julia ever invented anything before the Storm Sleeper?

SB: She invents lots of different types of slime! She has always been very much into arts and crafts. She has always been intrigued by how things work, and she continues to find solutions to everyday problems. She frequently tells us her problem-solving ideas for future inventions. We listen more carefully now!

EGT: Did Julia encounter any obstacles in developing the Storm Sleeper?

SB: Julia did not know how to sew, so she used a hot-glue gun on her initial prototype. I think the bulkiness of the original pillows we supplied to her was a hindrance to her conveying the utility of her invention in the original prototype.

EGT: Does Julia have any plans to create a business with the Storm Sleeper? Does she have any other product ideas?

Julia Luetje (center, with parents Chucker Luetje and Susan Bernstein at the Dreamvention finalists announcement) was motivated by her fear of storms since she was a child.

SB: Yes! We are currently in the process of developing a business plan. We have been meeting with manufacturers and hope to market the Storm Sleeper by the end of the year. Julia has filed a trademark application and has a patent pending. Julia is always finding solutions for everyday problems. After we go through the process of manufacturing and marketing the Storm Sleeper, we will look into developing her other product ideas.

EGT: What was Julia's and your family's reaction when you were notified that she was a grand-prize winner?

SB: Julia was very surprised! She was at school when we told her, and she immediately told us she had to get back to class to finish her schoolwork. When she came home later that day we had a little party at home, and she was very excited. I was emotional when we received the call; I cried upon hearing the news and couldn't speak. We then surprised Julia with a victory party at our local Dave & Buster's. They were so supportive and thrilled for Julia that they hosted it for us and for Julia's supporters.

EGT: What are Julia's plans for the \$250,000 grand prize?

SB: Julia plans to donate some of the money to her favorite charities that help kids and animals, and she intends to save the rest for college. As parents, we are very relieved to hear that she wants to help others and save the prize money for her college tuition!

EGT: Tell us about the family inventor legacy with the Happy Meal.

SB: Julia's grandfather, Bob Bernstein, invented the Happy Meal for McDonald's in 1977. He is the founder of Bernstein-Rein Advertising and Beauty Brands. He was asked by McDonald's to create something that would better families and kids' experiences at McDonald's. He invented the Happy Meal after noticing that his son (Julia's uncle) repeatedly read over the cereal box at the breakfast table every morning. He also invented and owns the patents for various premiums including the Sippy Dippy Straw and the Happy Cup. Invention is in her blood.

EGT: Any advice for other kid inventors?

SB: Julia says: "Just keep swimming!" This is her "Finding Nemo" reference for never giving up! We admire her confidence and belief in her invention to submit it as an entry in the Dreamvention contest, especially after she wasn't chosen in her school's invention fair. We also think it shows that it is possible to make a difference in the world and create something new and useful, even if you are only 10 years old. 🐬

Books by **Edie Tolchin** (egt@edietolchin.com) include "Fanny on Fire" (fannyonfire.com) and "Secrets of Successful Inventing." She has written for *Inventors Digest* since 2000. Edie has owned EGT Global Trading since 1997, assisting inventors with product safety issues and China manufacturing.



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The Art of the Cold Email

AUTHOR CLAIMS A 75 PERCENT RESPONSE RATE USING A SIMPLE FORM **BY HOWIE BUSCH**

Editor's Note: Last year, Howie Busch received nearly 300,000 views and 12,000 Likes after the following how-to appeared on LinkedIn. We are reprinting that piece for his first story as a regular Inventors Digest contributor.

WHAT'S A COLD EMAIL, YOU ASK?

It's a cold call, except using email. So what makes a perfect cold email? For our purposes, it's an email that gets a response.

That's right. Your only goal with the cold email is to start a dialogue.

So stop firing off those long missives. We all get emails that are too long. The sender feels the need to tell us everything in one fell swoop—for fear of never having the opportunity again.

If you're like me, those emails tend to wind up at the bottom of your to-do list and may never be answered. They just show up as too much work.

Imagine if someone walked up to you at a cocktail party and started spewing information at you. Of course you'd be polite, but you'd also want to get out of there as soon as possible. If you wouldn't do it at a cocktail party, don't do it on email.

Emailing and LinkedIn messaging have become the new cold call. But they're actually better than cold calling because you're not interrupting whatever it is they're doing at the moment. You give others the power to respond to you when it's convenient for them.

My five proven tips to increase your chances for getting a response:

- 1. Get to the point, quickly.** Don't ramble on about knowing they're busy and how impressive they are (unless you really know something about them worth mentioning, such as seeing that person speak, graduating from the same college, etc.). You don't even need to say your name; that will be on the bottom of the email. You're using

up valuable seconds. Remember, you only have a few to get their attention. These days, most people are reading their emails on their cell phone. So the shorter and sweeter, the better.

- 2. Be friendly and casual.** Don't be overly formal. This isn't a handwritten letter. Email and LinkedIn messages are meant to be more casual in nature. Use contractions. Words like "I'm" and "We're" are more casual and sound friendlier. And when you start, don't call the recipient Mr. or Ms. It's too formal for an email or message.

- 3. Use white space.** Avoid long, chunky paragraphs. It's such a turn-off, because they're more difficult to read and show up as work. People tend to not answer those emails.

- 4. Use the recipient's name—twice.** Everyone likes hearing his or her name. Don't you? Use it at the beginning in your salutation and again at the end. It comes across as friendly, so the recipient will want to answer you.

- 5. Intrigue without overselling.** Tell the person that you have a product or idea that fits in well with what he or she is already doing. Ask for permission to send more information. This is not only polite, it enables a simple response. Now you have a dialogue. Don't promise that you and your product are going to make the recipient millions. It's not believable, so you lose credibility. You just want to bring enough intrigue to get a response.

Short, sweet and informal

Now, for the simple cold email form that gets me a response rate of more than 75 percent:



SUBJECT: New Product

Hi, John, Nice to "meet" you.

I'm a product developer and I've developed a cool product that solves the problem of _____. I think it fits in really well with ABC's product line.

If you're open to learning more, I'm happy to send over a Sell Sheet. Looking forward to seeing if you agree it's a good fit for you guys.

Thanks John!

Best,
 Howie Busch
 (212) 728-6739 (not my real number)

We can't control whether someone ultimately wants to do business with us. But we can control how we approach that person, and increase our chances for a response.

That is the goal of the cold email.

Would you respond to the above email? Let me know, at howie@gettingtomarket.com. And if you have any other tricks that have worked for you, let me know that, too. ☑

Howie Busch is an inventor, entrepreneur and attorney who helps people get products to market through licensing, manufacturing or crowdfunding. Possibly the world's least handy inventor, he has licensed many products, run a successful Kickstarter campaign and appeared on "Shark Tank."



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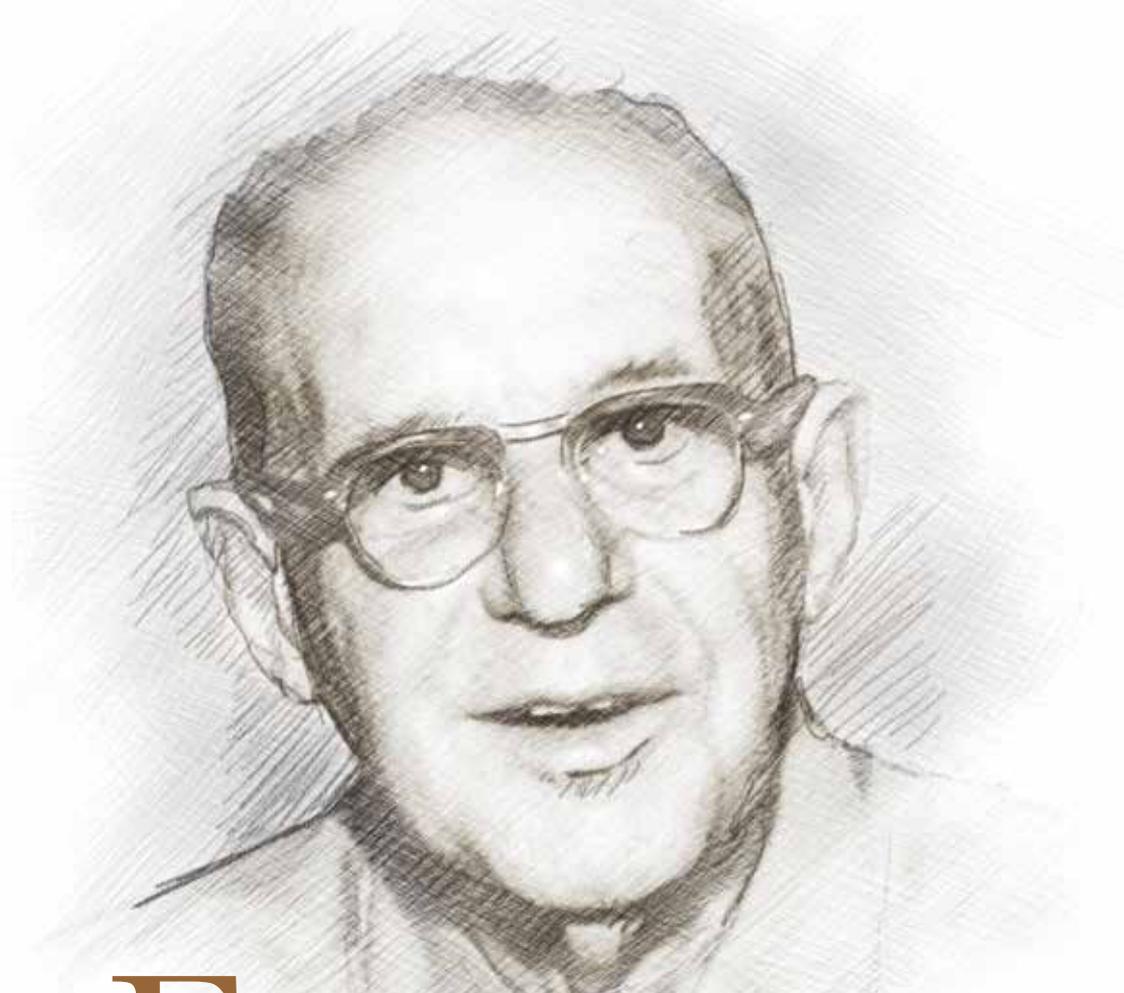
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Forgotten Genius

LLOYD COPEMAN HAD A SLEW OF IMPACTFUL INNOVATIONS AMONG HIS 650-PLUS PATENTS BUT IS NOT IN THE NATIONAL INVENTORS HALL OF FAME

BY REID CREAGER

INTELLING the unceasingly unconventional story of Lloyd Copeman, it's fitting to start at the end. Relatively anonymous despite numerous impactful inventions during the first half of the 20th century, he was such a prolific innovator that some of his patents were approved after he died in 1956.

Best known among Copeman's 650-700 patents are the heat-regulated electric stove, flexible ice cube tray and an automatic electric toaster. At one point he was a millionaire—a highly rare distinction in the first half of the 1900s—ran his own companies,

lived on a large estate, and reportedly knew Thomas Edison and Henry Ford.

But as the middle of the century approached, income from his patents had dried up. He had sold his sprawling family farm east of Flint, Michigan, and faced having to apply for Social Security benefits. Worst of all, his childhood sweetheart and wife of more than four decades was seriously ill.

So much had changed, but so much was not going to change. Copeman kept brainstorming and creating. To help comfort his bedridden Hazel at their

rural home, where residential air-conditioning was not commonly available, he mounted sprinklers on the roof of the house and pumped cold water through them to cool the shingles and lower the temperature in the room where she rested. Then he designed a system of pipes in her room for cold water to run through.

Hazel Copeman was as comfortable as possible until her death in 1950. Lloyd Copeman was always as comfortable as possible doing what he loved the most, with uncanny precision and vision. Few inventors in American history—including many who are in the National Inventors Hall of Fame—have accomplished more.

Early breakthroughs

Kent Copeman vividly recalls some wide-eyed days in his grandfather's basement workshop in the tiny village of Farmers Creek, Michigan. Once he turned 10, Kent would frequently bicycle the four miles from his Hadley home to the large estate, marveling at the possibilities and finished works downstairs.

“One time I was there and he said, ‘You need tools,’ recalled Kent, now 82. “He found me a tool case that had his initials, LGC, on it. He filled it with tools for me from his bench and his racks and gave it to me.”

By the time of these educational mid-1940s afternoons, Lloyd Copeman had long since been a big

deal who was making big deals. He told his grandson that he could walk into any store and see some of his inventions. It didn't happen overnight.

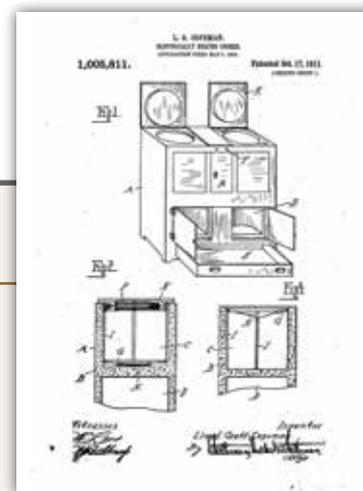
After growing up on the family farm, he attended Michigan Agricultural College (now Michigan State University). He was an information sponge at the many companies he worked for in rapid succession: Baldwin Locomotive Works, the Philadelphia Edison Electrical Co., the Washington Power Co. of Spokane, the Detroit Edison Co., and Consumers Power Co. (The Spokane job came after he had moved to Washington state and married Hazel Berger. They moved back to Michigan a few years later.)

His inventing breakthrough came in the early 1900s: a thermostat that gave a warning when transformer stations for high-tension wires were ready to burn out. His electro-thermostatic heat regulator, which controlled the amount of heat generated by a heating element, became U.S. Patent No. 932,966 in 1909.

When Copeman told Flint businessman Josiah Dallas Dort about his idea for an electric



Lloyd Copeman's idea for an electric stove led to a Michigan-based group raising a half-million dollars to form the Copeman Electric Stove Co. in 1912.



Infinite Impact

This excerpt of patents issued to Lloyd Copeman by the United States Patent Office (now the United States Patent and Trademark Office) merely scratches the surface in terms of his total number of patents—said to be more than 650, including those in other countries.

1909 — 1911

Electro thermostatic heat regulator
No. 932,966
August 31

Electrically heated cooker
No. 1,005,811
October 17

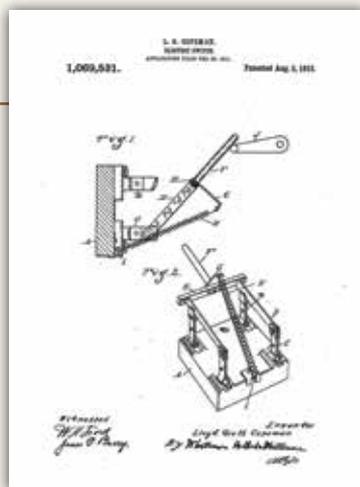
1913

Electrically heated oven construction
No. 1,050,105
January 14

Electric cooker
No. 1,053,280
February 18

Thermostat and thermometer
No. 1,055,446
March 11

Electric switch
No. 1,069,531
August 5



1914 — 1915 — 1920

Toast turner
No. 1,108,552
August 25
(Assignor
– Hazel B.
Copeman)

Electric stove
No. 1,141,175
June 1

Electrically heated oven
No. 1,141,176
June 1

Tool holder
No. 1,361,021
December 7



The Last Word in Toasters

THE COPEMAN AUTOMATIC
The Toaster that Turns the Toast
and Toasts it to a Turn



The Copeman electric toaster was spawned by an idea from his wife, Hazel, who is named on the 1914 patent.

Copeman profited handsomely from sales of his invention rights but went through money quickly, usually in search of other discoveries.

stove, Dort and 22 stockholders raised a half-million dollars to form the Copeman Electric Stove Co. in 1912. The stove—invented in 1915 and promoted as “the fireless cooker”—featured removable round hot plates that were plugged into outlets on the top and inside the ovens.

Another signature invention available from the stove company was a joint effort which, according to family history, was spawned by a comment made by his wife when the couple saw an electric toaster displayed in a show window. At that point, the way a toaster

worked was that bread was put on a rack facing the heating coils, then turned over by hand for toasting on the other side. Hazel asked her husband if he could invent a toaster “that would automatically turn the toast.”

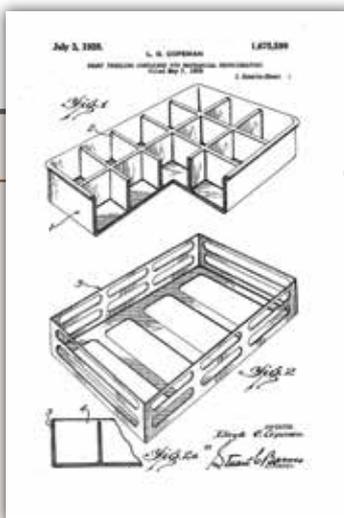
Family sources also say that she made a prototype using hairpins. Eventually, the first toaster that allowed the toast to be “turned” without touching the bread was complete; Hazel received the patent in 1914; and rival companies wanting to make toasters had to pay royalties to Copeman or find another way to turn the toast until the pop-up toaster came along later.

Appliance behemoth Westinghouse absorbed Copeman’s company in 1918. He also profited handsomely by selling the rights to his rubber ice cube tray to General Motors Corp., not long after that 1928 invention.

Per lloydcopeman.com, a website compiled by family members: “While he was out collecting maple sap in the sugar bush one cold February day, the ice and slush began to collect and freeze on Copeman’s rubber boots. He sat down and contemplatively worked the toe of his rubber boots.

“He watched somewhat disinterestedly at first as the ice cracked and flew off the boots. ‘Oh, my God, a rubber ice tray,’ exclaimed Copeman.” The result was the biggest money-making patent of Copeman’s career

(royalties alone netted more than \$1 million).



1928
Method of table top construction
No. 1,656,422
January 17

1921
Refrigeration apparatus
No. 1,396,996
November 15

1925
Wall construction
No. 1,526,965
February 17

1927
Drinking water supply for refrigerators
No. 1,618,514
February 22

Cabinet construction and the method of building the same
No. 1,644,988
October 11

1934
Method of reating fruit or other growing vegetable matter
No. 1,955,950
April 24

Waterproof and punctureproof paper
No. 1,976,329
October 9

1935
Method of and apparatus for cooling beer
No. 2,010,060
August 6

Protective coatings and process of applying and removing
No. 2,020,256
November 5

1937
Bucket and bucket protector
No. 2,071,112
February 16

Dispensing device for sheet rubber deposited from an aqueous dispersion of rubber and the process of forming and using same
No. 2,075,178
March 30

Creating and sharing

Among several hundred other inventions by Copeman was an automobile lubrication system that greased automobile bearings and other mechanical equipment for a quicker, easier and cleaner process. He eventually sold the Copeman Lubricating System or Copeman Lubri-Caps to Alemite Corp., which further refined it. One of his later inventions, the Flexo-Line travel clothesline (1943), is still manufactured and currently celebrating its 75th anniversary.

Copeman had a strong interest in rubber latex for many years. According to the family, that obsession resulted in inventions that included non-run silk stockings; tamper-proof and water-proof envelopes and packages, and rust-proofing automobiles. He patented all of those but the car rust-proofing.

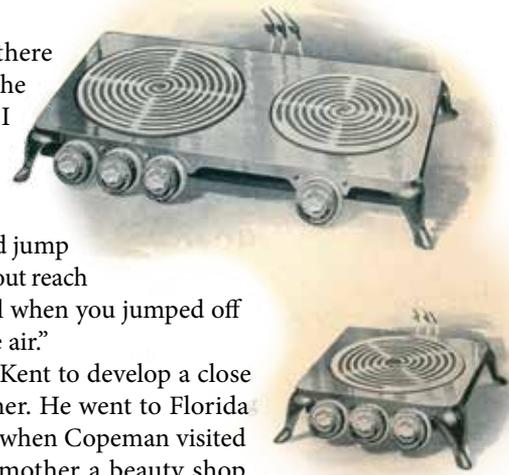
As with most inventors, part of his story are the ideas and dreams that never advanced past that stage. “He had money but went through it pretty fast,” Kent Copeman said. “North of where he lived, he drilled for oil in 1935. He sunk \$60,000 in that oil well. ... He leased a lot of land around Michigan hoping to find oil.”

He loved sharing his creations, even the ones for which he was not known: “They built a large pool on his property that held 100,000 gallons of water. It was the first concrete pool in this part of Michigan. It’s still there. It was built in 1929 and used every day. It still does not leak. This was before anybody had pools in their yard.

“We used to go over there and swim. At one point he built a very tall swing, I would say 25 foot in the air. You could get on that swing and start to be pushed and you would jump off and you would just about reach the other end of the pool when you jumped off that swing, way up in the air.”

It didn’t take long for Kent to develop a close bond with his grandfather. He went to Florida with him a couple times when Copeman visited relatives. “He built my mother a beauty shop. He raised turkeys and gave them out to people at Christmastime during the Depression. He was concerned about the way the town was going. At that particular time, all that was there was a gas station.”

An avid outdoorsman, Copeman loved animals—“dogs, horses, even an owl that he kept in the middle of this big, circular building. One time he had a raccoon. This raccoon would sit on his lap and drive his car when he’d go down the road. The raccoon had his little paws on the steering wheel, just driving along.”



Copeman's electric stove—called “the fireless cooker”—featured removable round hot plates that were plugged into outlets on the top and inside the ovens.

Growing exposure

Given Copeman’s resume and impact on American life, The Flexo-Line Co. co-owner Andrea Perchotte is proud to help drive the campaign for his induction into the National Inventors Hall of Fame.

Method and apparatus for accelerating setting of stone castings
No. 1,656,423
January 17

Method of making match plate patterns
No. 1,667,720
May 1

Stone mold
No. 1,667,721
May 1

Sharp freezing container for mechanical refrigerators
No. 1,675,599
July 3

1929

Storage compartments for ice cream cabinets or the like
No. 1,711,722
May 7

Balloon construction
No. 1,714,079
May 21

1933

Method of old construction for reproducing patterns in rubber
No. 1,913,747
June 13

Clothespin
No. 1,916,856
July 4

Closure member and method of forming and applying
No. 1,916,857
July 4

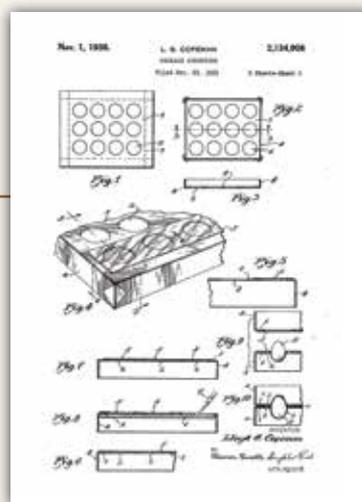
1937

Protective coating and process of applying and removing
No. 2,082,791
June 8

Device for making and storing ice
No. 2,088,840
August 3

1938

Concrete or cement structure
No. 2,112,452
March 29



Method of protecting and forming prefinished metal
No. 2,120,461
June 14

Package structure
No. 2,134,908
November 1



“He was a genius not just in the ideas he came up with, but how to make so many different things in so many different facets of life.” —KENT COPEMAN, GRANDSON OF LLOYD COPEMAN

“The progressive inventions of Lloyd Groff Copeman have revolutionized the daily lives of the American people and helped foster the early technological revolution at the turn of the 20th century that forever changed the United States,” she said. “Considered one of the most prolific American inventors, Mr. Copeman was always asking himself, ‘How could life be made better for the housewife, the farmer or the industrialist?’

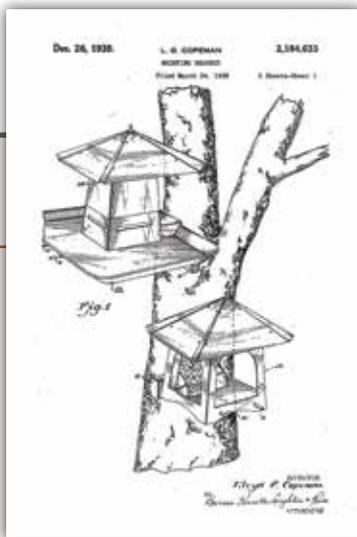
“His inventions have been indispensable to them and the general public in the United States and around the world. Forward-thinking and passionate about inventing, Mr. Copeman persevered to develop innovative products that would benefit others and reshape the future. His goal was not to accumulate wealth

but rather to continually invest his money into developing new ideas.

“Despite the significant impact Mr. Copeman has had on the lives of Americans and those around the world, he’s long been forgotten. Bestowing on him the prestigious honor of being an inductee into the National Inventors Hall of Fame would serve to challenge and inspire current and future generations of American inventors to persevere and develop well-designed products that contribute positively to society and the economy.”

DesignWanted named Copeman among the 10 most influential product designers of all time. His story and accomplishments have been featured in numerous publications that can be found at flexo-line.com/about/.

Kent Copeman said the family-created website—which includes a list of all of his known U.S.



1939

Bird shelter
No. 2,151,010
March 21

Mounting bracket
No. 2,184,633
December 26

1940

Bird feeding station
No. 2,216,511
October 1

Cigarette and process of treating same
No. 2,185,293
January 2

1941

Suet cake container
No. 2,235,959
March 25

Container for confections
No. 2,248,963
July 15

Flour sifter combination
No. 2,252,701
August 19

1949

Cream separator
No. 2,477,863
August 2

1950

Hand tool for agriculture implements
No. 2,528,947
November 7

1951

Method and apparatus for the manufacture of cigarettes
No. 2,543,277
February 27

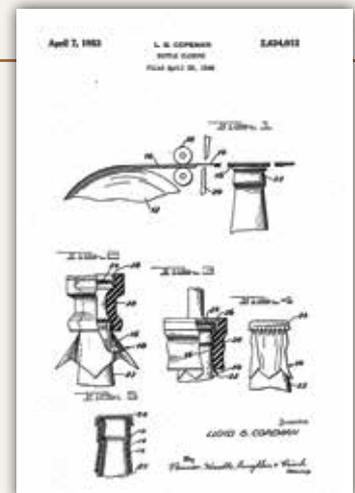
1952

Spill guard and ice tray
No. 2,593,106
April 15

1953

Tractor hitch
No. 2,627,423
February 3

Bottle closure
No. 2,634,012
April 7



patents—has been instrumental in publicizing his grandfather's accomplishments. Now that many of those family members now in their 80s and older, they want to see Lloyd Copeman get his deserved recognition while they are still alive.

"He was a genius not just in the ideas he came up with, but how to make so many different things in so many different facets of life," said Kent Copeman, still living four miles from his beloved mentor's former property. "He was devoted to helping people and making life better for them, especially his family. He was definitely a different kind of person." 🍷



Copeman demonstrates how he was inspired to create the rubber ice cube tray.



Different Drum

LINDA RONSTADT REMEMBERS HER GRANDFATHER AS A 'CHARACTER'

About 15 years ago, my best friend scored tickets for a classical concert by Linda Ronstadt at our alma mater, Michigan State University. Along with my wife and youngest daughter, we sat mesmerized as the 11-time Grammy winner soared through vocally challenging pieces and entertained us with banter during short breaks.

Ronstadt explained that she had a family connection to Michigan State: Her grandfather, Lloyd Copeman, briefly attended MSU before being expelled.

Ronstadt is the daughter of Ruth Mary (Copeman) Ronstadt, who died in 1982. Born and raised in Flint, Michigan, the elder Ronstadt was one of Lloyd Copeman's three children. Kent Copeland is Linda's cousin.

During her brief remarks about her grandfather, the singer said she didn't know why he was expelled but recalled him as a "character." She also mentioned him in her 2013 autobiography, "Simple Dreams":

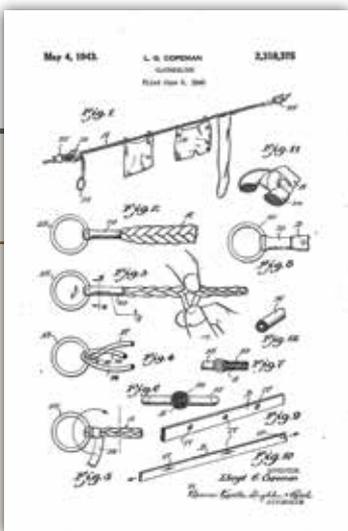
"He used to demonstrate one of his inventions, a 1918 version of the microwave oven that he called 'cold heat,' by frying an egg through a newspaper. Thinking that the oven was too expensive to manufacture, he never patented it.

"He worked closely with Charles Stewart Mott, then chairman of the board of General Motors, and developed a great deal of what was then state-of-the-art equipment in the Buick factory in Flint, Michigan."



According to Betty (Elizabeth Jane) Copeman Gerlach—Ronstadt's aunt and Copeman's youngest daughter—the inventor's troubles in school weren't limited to Michigan State, where he studied mechanical engineering. She said on lloydcopeman.com that he was also expelled from the one-room school he attended in the village of Farmers Creek, Michigan, as well as from Lapeer Senior High School.

She added that after Copeman had become an established inventor, MSU offered him an honorary doctorate but that he refused, saying: "When the degree would have done me some good, you wouldn't give it to me. Now I have little desire to accept it." —Reid Creager



1943

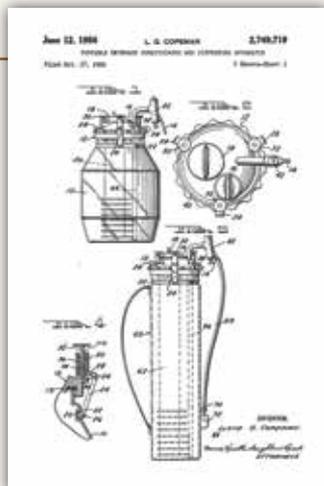
Method of dispensing and using rubber
No. 2,307,020
January 5

Clothesline
No. 2,318,375
May 4

1956

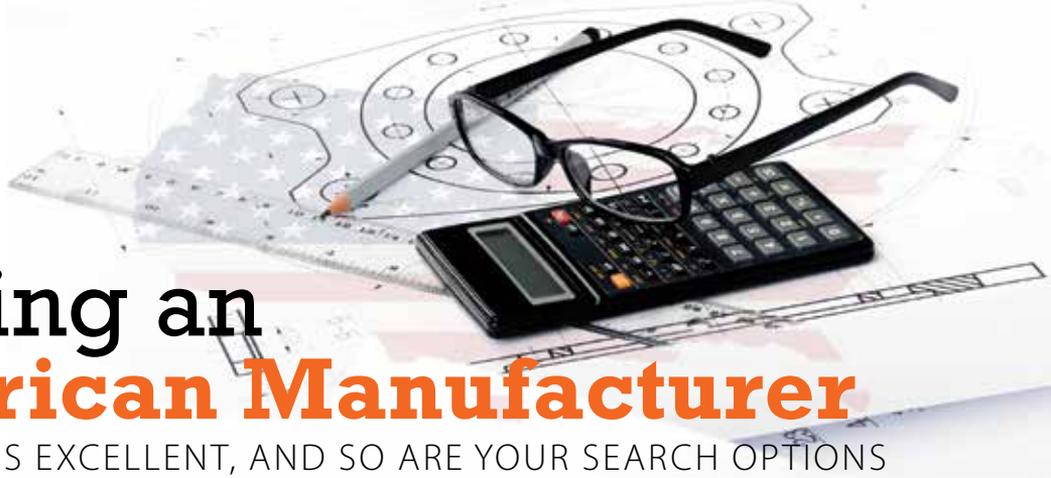
Copeman, Lloyd Groff deceased; Elizabeth Jane (Betty), Gerlach, executrix

Portable beverage conditioning and dispensing apparatus
No. 2,749,719
June 12



1957

Moisture impervious container
No. 2,781,159
February 12



Finding an American Manufacturer

THE TIMING IS EXCELLENT, AND SO ARE YOUR SEARCH OPTIONS

BY DON DEBELAK

WITH ALL of the recent tariffs that have been levied on China, this is a particularly good time to look into American manufacturers.

The site I prefer to start with to find a manufacturer is The Job Shop Company (d2pcompanies.com). It has six divisions: Design-2-Part shows, Design-2-Part magazine, supplier directory, JobShop.com, Job Shop Web Design, and RepPlace. A job shop specializes in small production quantities, and typically is ideal for beginning inventors.

Design-2-Part (d2p.com), America's largest design and contract manufacturing trade shows, are held throughout the United States. Manufacturers looking for business set up and solicit your business, giving you a chance to meet with them face-to-face. In addition, people you talk to who can't help you typically will give you leads of potential manufacturers. They will also give you opinions on the best way to make your product, and possibly direct you to designers or engineers who help inventors get their product ready for quotes from manufacturers.

Other sites to check out: business.thomasnet.com; makersrow.com; industry.net, and mfg.com.

What to prepare

Often, inventors going overseas use sourcing agents who put the product in a form where manufacturers can quote on what people need to pay for each unit. You can normally avoid the expense of computer-aided design and computer-aided manufacturing drawings (CAD/CAM) by preparing: patent drawings that clearly identify each feature with a number; a glossary of each feature, numbered with an explanation of the part; a listing of the materials you want for each major feature; and clear dimensions for each major part. If possible, it will help if you have a model or prototype, even if it is rough.

Besides preparing drawings and models, I've found you will have an easier time if you can explain marketing information such as projected retail price, targeted customers and key competitors. I also recommend you at least submit a provisional patent application, so you can tell manufacturers you are patent pending.

Trade show networking

If directories don't help you find a manufacturer, visit trade shows in your target industry. Do an internet search for trade magazines involving your industry for dates and locations of those trade shows.

At a show, seek manufacturers with similar products to yours. Talk to the people at the booth to see whether they might be interested in making your product. If the company has excess capacity, it will be willing to talk to you. Sometimes, if you are short on funds, you might be able to convince the company to form a partnership with you.

Often, the company will tell you it outsources its manufacturing. If that is the case, ask which manufacturers it uses; sometimes it will tell you.

Ask the person at the booth if he or she is a company employee or an independent sales representative. If the person is independent, he or she work with many different companies and has many industry contacts. Ask for further conversations to determine whether the person can give you advice about possible manufacturing contacts.

Consult SCORE experts

Originally called Service Corps of Retired Executives, SCORE (score.org) is a free service of the Small Business Administration that helps start-up businesses.

I've found that many of the branches have several retired experts with considerable manufacturing experience willing to mentor you through the manufacturing process. I recommend all inventors check out SCORE. It could save you from making some major mistakes. 

Don Debelak is the founder of One Stop Invention Shop, which offers marketing and patenting assistance to inventors. He is also the author of several marketing books, including Entrepreneur magazine's *Bringing Your Product to Market*. Debelak can be reached at (612) 414-4118 or dondobelak34@msn.com.



PART 2 OF 2

And Here's the Pitch...

STARTUPBUS JOURNEY ENDS WITH SURPRISES, TECH DISASTER, AND NEW FRIENDSHIPS **BY JEREMY LOSAW**



Vanel Marc (left) and Giovanni Suplee model the Dad Sak with “Baby Frank” at an impromptu photoshoot.

MY EXPERIENCE on the 2018 edition of the hack-a-thon road trip StartupBus mirrored the classic reality show formula of “The Real World.” However, instead of the typical cast of jocks, potheads and tortured souls, there were talented developers, engineers, marketers, podcasters and entrepreneurs ready to change the world.

My favorite reality show “Jersey Shore” was all about “Gym. Tan. Laundry.” StartupBus was all about “Pitch. Pitch. Pitch.”

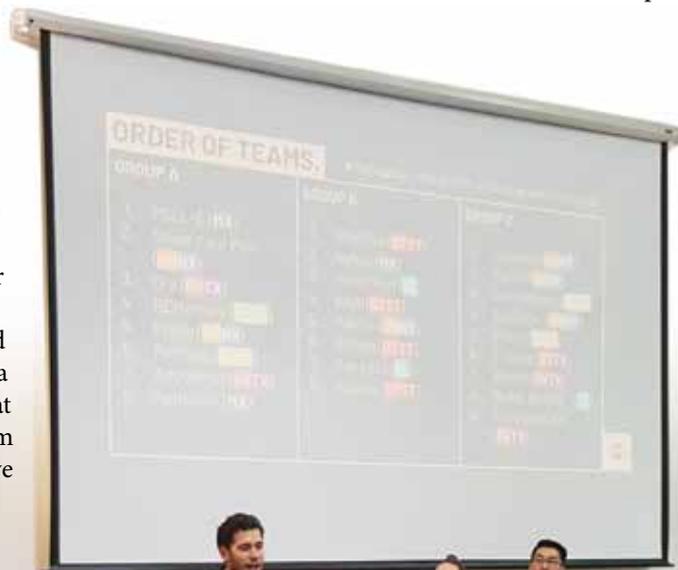
In Part 1 last month, I revealed how I found my way onto the bus and the first few hours of how the teams were formed. Now I will delve into how my team, Sak Labs, developed our infant carrier backpack, the Dad Sak. On a bus. In three days. Oh, and where we finished in the pitch competition.

Overcoming a roadblock

I was stunned by how much progress my team made on the first day on the bus. Once we had our idea in hand, we started to work on the fastest way to prototype it. We had the bus driver make a stop at a Walmart supercenter in Georgia.

In just half an hour, my team split up and purchased a backpack, an infant carrier, a sewing kit, a duffle bag, and our baby doll that we named Frank. The energy and enthusiasm was high as we boarded the bus, but then we hit a roadblock.

Two of my teammates, Lance and Vanel, discussed with me how to execute the prototype, and there was a clash of ideas as to how to proceed. We spent about an hour brainstorming how the panels of the pack and infant carriers would come together, and how to most effectively get the zipper routed. Eventually we found a path forward, and Vanel—our sewing expert and owner of his own backpack brand called Flypak—set to work sewing under the tiny overhead lights inside the bus. By the time we stopped for the night, the prototype was well on its way, our ecommerce site was nearly up and running, and our social media expert Giovanni tucked Frank under his arm and fell asleep.



A team from the New York-Ohio StartupBus makes its pitch in New Orleans, the final stop of the competition and the scene of a tech disaster for the Dad Sak team.



We had two more days before reaching our destination in New Orleans. Despite our great start, we still had hurdles to overcome and a pitch for the product to refine. Vanel continued work on the prototype, I started working on a provisional patent filing, and the rest of the team worked on the launch strategy.

The main stop of the day was the Microsoft regional office in Nashville, where each member of each team had to give a one-minute pitch to the entire group. All of us were ill prepared and very nervous, but we muscled through. I chose to use a lot of humor in my pitch to grab the audience, but the judges really gravitated to Lance's pitching style. We nominated him as our primary pitch man for the product for the rest of the trip.

Late-night preparations

Once the bus stopped for the night, we all had a bit of a rest. I jumped into the hot tub and a couple of the riders did a late-night Bible reading. After an hour of recovery time, the work continued. At 1:30 in the morning, Lance, Geovanni and I ripped apart my bed and made a softbox out of the sheets, then did some photography for the website.

Meanwhile, the other two Florida bus teams continued work. Tatyanna, the developer for the golf app "Buddy Bunker," shot quite a few Red Bulls and continued coding through the night, while the Polititrust team worked on its social media strategy. Many people didn't sleep that night.

After three long, stinky, Red Bull-fueled days on the bus, we finally rolled into New Orleans. Most of

the buspreneurs were groggy from lack of sleep and wearing pajamas. This was our final stop and where the pitch competition would commence. The Dad Sak was fully launched, the patent was filed, and we had even sold one unit on our e-commerce site. I was feeling great about the product and was desperate to win the competition. I didn't leave my family and work responsibilities behind to take this bus and not have a good showing.

The pitch competition was broken into three rounds over two days. In Round 1, all 25 teams would give their one-minute pitch. The final rounds were held on Day 2, when the top 15 teams would give three-minute pitches, and the final round was a 10-minute pitch for the five best teams. The winner would be decided by a panel of judges and receive no prizes. Just hugs.

Sadness, then gladness

All three teams from the Florida bus were nervous before the first round, and with good reason. Moments before the start, we found out that in addition to the team-elected pitcher, the judges would choose one other team member at random to deliver the one-minute pitch. So each of us had to be prepared.

Tatyanna from the Buddy Bunker team spent the better part of two hours with her head on the desk trying to calm her nerves and memorize lines. When it was Sak Labs' turn, Lance gave an awesome pitch that was really funny and riled up the crowd. I had been practicing in my head and was amped up to do a pitch, but the judges chose my teammate Walter—who, despite his severe nerves, did an awesome job. At the end of the night, Dad Sak was one of the 15 teams invited to the second round the next day. Unfortunately, our Florida bus mates, Buddy Bunker and Polititrust, were eliminated.

The following morning, we walked to the New Orleans Jazz Market for the final rounds. In the second

Tatyanna Cobb from the Buddy Bunker team spent most of two hours with her head on the desk in intense preparation for the 1-minute pitch round.



After three long, stinky, Red Bull-fueled days on the bus, we finally rolled into New Orleans. Most of the buspreneurs were groggy from lack of sleep and wearing pajamas.



round, each team had to do a three-minute pitch with a slide deck. I was the lead for building the deck, and Lance and I shared the pitch duties. He showed the product and provided some comedy while I dished out the hard numbers. It was an excellent performance, and I was convinced we did enough to make the final round.

After the judges deliberated, we were not named as one of the top five finalists and my heart sank. But unexpectedly, the judges announced a sixth team as a wild card, and the DadSak was in the finals!

High fives for all

The team regrouped, and we had about 30 minutes to make changes to the deck. I scrambled to add a few slides, and we rehearsed and tuned the pitch before being hurriedly called up to the stage for the final pitch.

After Lance finished his few minutes of discussing the product, I took the mic and disaster struck. My computer died, and our deck was gone.

We pleaded for time to fix the snafu, but our request was denied by the judges. I took a deep breath, grabbed the mic, and tried to conjure the slides in my mind and improvised through the rest of the pitch. I felt like I hit all of the high points but left the stage thinking that our chances were dashed by the technical glitch.

After the judges deliberated, there was another surprise announcement. Two teams were tied for the runner-up spot. I still knew we had no chance, but then they called Dad Sak as a runner-up.

Our team shared hugs and high fives as if we just

won the Daytona 500. I was proud of my team, proud for the whole Florida bus, and proud of myself for such a great achievement.

The winner of the competition was Story Book Inc., a product to create fairy tale stories with customizable characters with different ethnic and family structures. That team had an awesome product and pitch, and deserved the win. When it was all over, the finalists took the stage for photos and more hugs. During the 20-minute walk back to the hotel, we vowed to keep the product development going and make sure the Dad Sak makes it to market.

The most lasting gifts

StartupBus was an epic journey, much better than any episode of reality TV. Sure, it was a competition, but that was just a red herring for the real point—to push ourselves beyond our limits and to form great friendships.

Even though I am a product development professional, I had never launched a product so quickly, written a patent, or pitched investors. It was so empowering to obsess over a problem and break down all barriers to reach a goal; being in close quarters on the bus was the perfect environment to form great friendships. Among the discussion topics were relationships current and past, drunken escapades, the Bible, experimentation with controlled substances—and with many military veterans on the bus, stories about life in the service. The friendships formed in these moments and the self-empowerment were the real gifts of the experience. 📌

Story Book Inc. delivers its pitch on the way to winning the competition. The team devised a product to create fairy tale stories with customizable characters that have different ethnic and family structures.

Who Are These People?

'NO-NAME' INVENTORS BECAME RICH WITH INVALUABLE IDEAS SUCH AS THESE **BY JOHN G. RAU**

P EOPLE OFTEN associate inventions with well-known names such as Thomas Edison (light bulb), Benjamin Franklin (lightning rod), Edwin Land (instant photography), George Westinghouse (electrical systems), Alexander Graham Bell (telephone), etc. However, many of the inventions we typically use in our day-to-day lives actually came from people who are anything but household names.

When you buy back-to-school supplies for your kids, thank Hymen Lipman, who in 1858 created the modern pencil by attaching an eraser at the end of it. Erasers and lead pencils existed at the time, but he had the idea to combine them so as to make it possible to sharpen both the eraser and the pencil. He sold his patent for \$100,000, which was a fortune in the mid-19th century.

A list compiled at businessinsider.com reveals other such relatively anonymous inventors, some of whom you may have read about earlier in *Inventors Digest*:

- Kids and adults with a sweet tooth can thank candy maker Sam Born, who in 1912 invented the Born Sucker Machine that inserts sticks into lollipops. His company was a huge success.
- In 1937, Joseph Friedman invented the bendable straw so that his daughter could more easily drink a milkshake. As the story goes, he was sitting at his brother's soda shop watching his daughter try to drink a milkshake using a straight paper straw. He inserted a screw into the straw and wrapped floss around it to create a ribbed texture. When he took out the screw, the straw naturally bent over the rim of the glass and his daughter was able to drink her milkshake with ease. He patented his idea and started his own company to produce the straw. He eventually sold the rights to the flexible straw and made a fortune.

- Every time you open a can of beer or a soft drink with a pop-top removable tab, thank Ernie Frazee for his 1959 invention. He started a company to mass-produce these cans, which were eventually used by soft drink and brewing companies everywhere. By 1980, Frazee's company reportedly had annual revenue in excess of \$500 million.
- The next time you go to your bank's ATM machine, think of James Goodfellow's 1966 invention: He created the personal identification number (PIN) scheme so that people could take money out of the bank after hours and on weekends. He addressed a basic problem: There needed to be a way to confirm the customer's identity at an ATM, but fingerprint scans or voice recognition devices seemed to be too complicated. Then he realized that he could link a set of numbers, known only to the account owner, to an encoded card. If the two numbers matched, the person would receive the money.
- The next time you stop by McDonald's or Dunkin' Donuts for a cup of coffee to take with you and drink in your vehicle, you should thank Jack Clements. In 1985, he designed the first domed lid that would rest comfortably between the mouth and nose during sips, helping to prevent spilling while on the move.
- Most of us use voicemail; Scott Jones and Greg Carr invented it. They started a telecommunications business in 1986 and began working on a system in which you could dial a number and find out stock information. They soon realized that this was the opportunity to provide people everywhere with voicemail—but until 1988, all phone companies were legally banned from the service. When the ruling was finally reversed, they approached several telecom companies and got financial backing. Both became multi-millionaires shortly thereafter.



AllerMates, invented by Iris Shamus, was one of the first multi-million-dollar products in the wearable accessories market for children.

Moms cash in

These are just a few of the many ordinary people who came up with ideas to solve problems or meet a need and eventually made lots of money from their solutions.

Many stay-at-home moms have become millionaires by coming up with inventive ideas. When they can't find the right products for their baby, some invent their own. A classic example is the Gerber line of baby foods invented in the late 1920s by Michigan mom Dorothy Gerber. She was hand-straining food for her baby daughter, Sally, when she realized there must be some other way to avoid the messy task. Her husband's family business was the Fremont Canning Co. She told him that if his company could puree a tomato all day long, the equipment used could probably make short work of other fruits and veggies as well. After some experimentation, the Gerbers soon introduced their first line of baby foods, a super-yummy menu of strained peas, carrots, prunes and spinach.

Other examples include AllerMates and BabyLegs. AllerMates is an invention by Iris Shamus, who recognized that there was a need for bracelets and accessories for kids to let others know that they have allergies—one of the first multi-million-dollar products in the wearable accessories market for children. BabyLegs are baby legwarmers invented by Nicole Donnelly in 2005 when trying to find a solution for her daughter's diaper rashes. She created some stylish designs and began selling BabyLegs to other moms. This soon grew into a multi-million-dollar business.

You don't have to be a big-name inventor to make money. Just think of something that people need, want and can't live without, and it could be the start of something big. 📦

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



Michigan mom Dorothy Gerber invented the Gerber line of baby foods in the late 1920s. The modern pencil was created in 1858 by Hymen Lipman.



Joseph Friedman invented the bendable straw so that his daughter could more easily drink a milkshake.





Are We Entering IP Market 2.0?

RECENT DEVELOPMENTS FURTHER A MUCH-IMPROVED IP CLIMATE **BY LOUIS CARBONNEAU**

THE WHO'S WHO of the intellectual property business community descended on San Francisco in June for the annual IPBC Global conference, where IP market decision makers convene in hopes of reaching consensus about the direction of the market. While participating for the seventh straight year, I noticed a much more upbeat tone than in past events.

It started with a forceful speech by Andrei Iancu, confirmed as director of the United States Patent and Trademark Office in February. This was the third time I heard him speak about the current patent environment since his appointment—and perhaps the third time was a charm, because Director Iancu seems to have truly found his voice and was unrestrained in his call to action. He was unabashed in his desire to tackle the Patent Act Section 101 beast with the goal of returning some certainty to what actually constitutes patentable subject matter. It is clear that Iancu has completed the diagnosis part of the job and is ready to push an agenda that should re-establish a more balanced relationship between patent right holders and the legal system.

It was also surprising, and refreshing, to hear representatives from large tech companies admit (in many cases for the first time publicly) that things have gone too far—that the pendulum needs to swing back closer to center. Specifically, most corporate buyers stated clearly that they expect to pay more for patents in the future as valuations continue to improve. Some experts agreed that in addition to the above, the combination of recent case law will make challenging patents more expensive. This directly affects patent valuations, as infringers run out of cheap alternatives to taking a license.

On June 22, the Supreme Court issued a decision that will further bolster this trend when it ruled that

a patent owner can recover damages on the sale of infringing products sold outside of the United States. In today's world, where U.S. sales often account for less than 50 percent of the total, this is a major boost to damages claims.

Another encouraging June event occurred on the 19th, when the USPTO celebrated with great fanfare the issuance of its 10 millionth patent (to Raytheon). This gave pro-patent organizations a great opportunity to march onto Capitol Hill and remind that inventors need better protection. As a result, we saw a frenzy of activity on the Hill calling for the STRONGER Patents Act to be adopted. Although that isn't expected to happen anytime soon, especially on the eve of mid-term elections, the mere fact that any legislative patent reform stands to actually strengthen patent rights is enough to guarantee that it won't do the opposite.

The same week as the 10 millionth patent announcement, the United States Court of Appeals for the Federal Circuit heard the St. Regis Mohawk Tribe case that challenged the Patent Trial and Appeal Board's decision in which the PTAB refused to recognize the tribe's assertion of sovereign immunity to inter partes review proceedings. A lot of ink was spilled over the fact that large pharma Allergan sold its patents to the tribe, hoping to shield the company from the perceived bias of the PTAB toward invalidating most patents. Although many denounced this as a "rent-a-tribe" scam, the federal court reportedly was focused at the hearing on the real issue of whether IPRs are operating like an adversarial tribunal or rather as a mere administrative forum. This is one to watch closely, as a ruling in favor of Allergan and the tribe would give an indirect way for patent owners to assert their rights



Corporate buyers expect to pay more for patents as valuations continue to improve. Also, many agree that the combination of recent case law will make challenging patents more expensive.

without the risks of seeing those nixed by the PTAB. Ultimately, the fact that an established company such as Allergan felt it had to resort to this strategy to assert its patents should make it abundantly clear that something needs to be fixed.

With all of these moving parts in the background, the market keeps evolving.

Some entrenched players are disappearing or morphing into something else—some of the most visible, such as Acacia, experiencing some serious pains and other giants such as RPX being acquired. In parallel, it remains a buyer's market, and new entrants are emerging with new business models. Take new non-practicing entity iPEL, which brands itself the "Ethical NPE™": It has raised \$100 million and acquired more than 1,000 patent families in the past year and planned to announce a new licensing program that will be free to start-ups and small- and medium-sized enterprises, as well as a no-haggle fee for larger companies. (An NPE is a company or person holding a patent for a product or process but with no intention of developing it.)

Though I believe we are still eons away from living in a no-haggle IP licensing world, this all shows that we are slowly but surely transitioning to what I would call IP Market 2.0.

Buyers and sellers

The patent market continues its slow but steady rebound with a number of recent transactions. Of note, Texas-based NPE **Longhorn IP** acquired its fifth portfolio. Sold by **Foxconn**, the portfolio is composed mostly of semiconductor assets, previously held by **Sharp**. The new unit will be called **Katana Silicon Technologies LLC**, a reference to where the patents originate. Also in the semiconductor space, **Wi-LAN Inc.**, the patent licensing unit of **Quarterhill Inc.**, said its wholly owned subsidiary **Atria Technologies Inc.** has acquired a portfolio of more than 85 patents and applications from **MagnaChip Semiconductor Corp.**, the maker of analog and mixed-signal semiconductor products. ...

In the biotech space, **Tactile Medical**, an at-home therapy company based in the United States,



acquired 31 patents previously held by **Wright Therapy Products**. The portfolio is made up of technologies related to pneumatic compression therapy devices. ... Brazil-based **BrPhotonics**, a developer of high-speed optical communications, sold 15 of its polymer technology patents to **Lightwave Logic** for \$350,000. These assets further extend the IP coverage for Lightwave's significant polymer portfolio.

Winners and losers

Samsung's court woes continue. After its recent loss against **Apple** for \$538 million, it lost against **KAIST IP US**, the intellectual property arm of a South Korean research university. The federal jury found that Samsung's infringement of a mobile chipset was, to say the least, deliberate, resulting in a \$400 million verdict. ...

A jury awarded U.S.-based **HouseCanary**, a real estate predictive analytics company, a \$700 million judgment. HouseCanary actually was the defendant in the suit filed by **Title Source** (a Quicken Loans affiliate), but it successfully turned the tables and established that Title Source had used its data to build

a competing product, infringing on the licensing agreements and patents owned by HouseCanary. ...

Ericsson won its appeal against **Intellectual Ventures'** patentability claims of wireless communication technologies. The appellate court found that the PTAB's determinations were incorrect due to expert testimony insufficiencies on the question of prior art. A dissent was filed. ... Infringement of cell phone car-mount patents will be battled out in court between consumer electronics company **Belkin** and car mounts company **Kenu Inc.** A jury will make the ultimate decision, as a question of material fact remained following both parties' motions for summary judgment. ...

The USPTO sided with **Argentum Pharmaceuticals**, finding that two patent claims held by **Valeant's** Jublia were unpatentable. One of Argentum's stated missions is to challenge patents' validity in order to reduce pharmaceuticals pricing. With a similar intention, a nonprofit tried to invalidate **Gilead's** patents covering Hepatitis C medication. The PTAB sided with Gilead, stating that the nonprofit's prior art argument failed.



HANDSHAKES

Personalized Media Communications (PMC) increased its already considerable portfolio by adding strategic assets from **Tsinghua Tongfang**, a television manufacturer. The patent license includes a range of television-related technologies. ...

Following **E3's** video games excitement, two of the biggest video games players agreed to a beneficial cross-licensing agreement. Although details remain unknown, we know that **Flowplay** will be able to utilize **International Game Technology's (IGT)** portfolio features, which is impressive given that IGT holds the biggest video game patent portfolio in the game. ...

Qualcomm, France Brevets and **IP Europe** joined forces to create a new funding initiative for European SMEs through the creation of **Patent Factory Europe (PFE)**. This was announced at the IP Europe Annual SME Summit in Brussels. It will be run by IP Europe and French sovereign fund France Brevets, with additional funding from Qualcomm. ...

Immersion, a California-based software development company, entered into a licensing agreement for its touch-feedback technology portfolio with **Calsonic Kansei**, a Japanese automotive components manufacturer. Though details of agreement were not disclosed, it is known that Calsonic is looking to integrate Immersion's technology to enhance its automotive interface. ...

In other automotive-related news, **Hyundai Motor Group** and **Audi AG** agreed to a multi-year, cross-licensing deal that targets the use of fuel cell electric vehicle components and technologies. The licensing agreement covers patents filed and those to be filed in coming years and includes terms of collaborative research and development of fuel cell technology. ... The leader of OLED technology, **Universal Display**, entered into a licensing agreement with **Visionox Technology** (China-based). The agreement includes a material purchase provision enabling Universal Display to supply Visionox with OLED materials to be used in Visionox's displays. ...

Coolpad is offering one last opportunity to its competitor **Xiaomi** to make amends before bringing their dispute to court. Coolpad, the smartphone maker, has pressed Xiaomi to cease all infringement upon Coolpad's patent and sign a licensing agreement for the sake of fair play and healthy industrial progress. ... China's leader in artificial intelligence, **Cambricon**, granted a license to **NetSpeed Fabric IP** for the use of SoCs—in other words, chips created for specific use in AI applications. The performance required for such chips used in AI applications is so specific that NetSpeed Fabric chose to use Cambricon's proven product rather than invest in its own production.

I'LL SEE YOU IN COURT



The most important dispute this month involves **Toyota Vehicles**, which has been accused in no less than 337 complaints in relation to six automobile infotainment systems patents. The suit was instituted by **Broadcom** and brought by the International Trade Commission. ...

LG is being sued by **TVnGO** over five smart television patents. The disputed technology includes the simultaneous display of videos and internet content on the television screen. ... **Wells Fargo** has been accused of infringing patents related to mobile banking check deposits. The plaintiff, **United Services Automobile Association (USAA)**, alleges that the multinational bank has been infringing on four patents all related to mobile financial services. ...

Blackberry is going after **Facebook** and **Snap** for the alleged infringement of patented advertisement technologies and instant messaging gaming features. Both Facebook and Snap have filed motions to dismiss. ...

Whirlpool sued **Pricebreak**, a company that is allegedly selling counterfeit water filters manufactured by the home appliances' giant. The suit covers both patent and trademarks infringement, and demands a preliminary and permanent injunction against Pricebreak.

Around the world

An important win for the **Spanish socialist party (PSOE)** will likely have an impact on the country's IP landscape. The leader of the newly elected party has been quite vocal in the past regarding its intentions to set aside the nation's reluctance to become a signature of the Unified Patent Court agreement, due to the fact that Spanish language was not recognized as one of the official languages under the agreement.

On the legislative front

Members of Congress, led by Sen. Orrin Hatch, R-Utah, are advocating to safeguard pharmaceuticals challenged in IPRs. One of the effects of the amendment, the **Hatch-Waxman Integrity Act** of 2018, would limit the impact of an IPR proceeding. 📌

Louis Carbonneau is the founder & CEO of Tangible IP, a leading IP strategic advisory and patent brokerage firm, with more than 2,500 patents sold. He is also an attorney who has been voted as one of the world's leading IP strategists for the past seven years. He writes a regular column read by more than 12,000 IP professionals.



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How to Draft a Patent

FULL DISCLOSURE IS KEY—WITH DETAILED INFORMATION
ON EVERY COMPONENT **BY GENE QUINN**

THE GOAL of a patent application is relatively simple—to teach others what your invention is, and how to both make and use the invention. When I explain this to inventors, I get a common question: Why would I want to describe my invention to the point where others could copy it?

The simple reason is that U.S. patent laws require such a description. The more complete answer is that such a detailed description of the invention is required in order for the government to grant a patent. Congress has established laws that mandated an invention be described with sufficient detail so that others will be able to benefit from it, learn from it, use it and advance it moving forward—all without the assistance of the inventor.

The only way to do this is by describing your invention with great care and specific detail. That is the price you pay in order to obtain a patent. If full disclosure is too much for you, consider a trade secret—which in some circumstances is quite beneficial. But remember that a trade secret lasts only so long as the information remains secret, which may be a sufficiently long period or may be quite short.

If you decide to move forward with a patent application, it is always necessary to file an application that completely and clearly describes the invention so that others would be able to understand the invention. For many—particularly new inventors, business executives and newbie patent attorneys or agents—it is difficult to understand the so-called description requirement to patentability. It is overly simplistic to merely say that a patent application must describe the invention. Those who fail in efforts to describe the invention do so overwhelmingly because they do not have a full conceptualization of what it is that they have as a protectable invention.

I am not saying that inventors do not know what they have invented. What many fail to appreciate, however, is that far more than what has been invented is patentable. Further, even those who do appreciate the full glory of what can be protected frequently fail in providing what an experienced

patent attorney would call an adequate description because they only describe the invention in language that is 1 inch deep and a mile wide. You absolutely want to file a patent application with a description that is a mile wide, but you also need to drill down far more than 1 inch deep in order to teach the various nuances of at least the key aspects of the invention.

Code requirements

There are always nuances that can go a mile deep for any and every invention, no matter how simple it may seem to you as the inventor. It is essential that inventors take a step back and affirmatively work to see the bigger picture. Don't think of your invention or any aspect of it as simple; think of it as an elegant solution. Consider describing everything as if you are writing for someone who is blind, which will force you to better appreciate those nuances you likely see as simple or commonplace.

It is crucial to drill down past the mile-wide description of your invention for many reasons, but from a practical standpoint remember that you will file your application from about 12 months to 24 months before you are likely to receive a first office action from a patent examiner. By the time you get consideration from a patent examiner, you need various levels of specific detail in the application so that you have nuances to layer on to the broad claims you filed. Without nuances in the specification, you will be out of luck if and when the patent examiner finds good prior art to use against you.

The crux of the adequate description requirement is the enablement requirement, stated in Section 112(a) of U.S. patent code: “The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.”



File a patent application with a description that is a mile wide, and drill down far more than 1 inch deep in order to teach the various nuances of at least the key aspects of the invention.

Also contained in 112(a) is the best mode requirement. With passage of the America Invents Act in 2011, the best mode requirement has become largely, although not completely, meaningless. It is still a requirement under 112(a), but there is no teeth to the requirement because the failure to disclose the best mode cannot invalidate a patent claim once it has been obtained.

Notwithstanding, generally speaking most inventors will undoubtedly want protection for what they perceive as the best mode (i.e., the best way to do things), which means you must disclose the best mode in order to claim the best mode.

The enablement requirement, which remains in full force and effect, requires the applicant to describe his or her invention in a manner that would allow others in the industry to make and use the invention. The requirement looks to the objective knowledge of one of ordinary skill in the particular field or technology area (generally referred to in patent terms as “one of ordinary skill in the art”) and works to require the inventor to describe the invention, and all aspects and variations, with the greatest amount of detail that can be provided. Essentially, enablement looks to place the subject matter of the patent claims generally in the possession of the public.

Go beyond words

The point of a patent application is to convey information. Drawings, charts, tables and formulas can and

frequently are very helpful, as are illustrative examples. Convey information with a variety of tools and mechanisms. When you include drawings, charts, tables and formulas, you will find it even easier to describe in words what is being shown and disclosed.

A patent application must define the actual physical characteristics of the components of the invention. You can do this by describing a generic version of the invention and then ever more detailed alternative embodiments, some of which may include certain pieces, parts or features that will appear some, but not all, of the time.

When dealing with a tangible invention, patent applications must define the structure of the overall invention but also the structure of the components. It is important to describe everything so that the reader will be able to picture the invention in his or her mind. That won't make for entertaining reading, but it will make for a wonderful disclosure that will support a great many claims and can become the foundation of a patent portfolio—if the invention ultimately becomes lucrative enough to warrant it. 📌

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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Great Smartphone Patent War Ends

THE ONLY LOSERS IN *APPLE VS. SAMSUNG* WERE THE ANTI-PATENT CROWD

BY GENE QUINN

THE GREAT smartphone patent war is over. And contrary to the rantings of those who are anti-patent, innovation was not a casualty.

Consumer tech giants Apple and Samsung settled their epic patent battle on June 27 with two orders dismissing litigation in U.S. federal district courts. One order of dismissal entered in the District of Delaware; the other entered in the Northern District of California, marking the official end of a high-profile dispute that lasted for the better part of the past decade.

This impasse—brought to courts in 10 different countries and even going before the U.S. Supreme Court—is notable because it undermines the argument that major patent infringement battles harm tech consumers through added costs and blocking innovation.

Roots of the dispute

These cases involved the assertion of dozens of patents, most of which were asserted by Apple and covering technologies incorporated into some of the most commercially successful consumer tech products ever. Apple's patents, which covered various utility features and design elements of its iPhone products, were first asserted in northern California in April 2011. Apple alleged that Samsung, which had been a component supplier for Apple, infringed upon its patents through the sale of various Android smartphones and tablets, including the Galaxy S 4G and the Galaxy Tab.

"The oft-touted 'smartphone patent wars' were not all they were made out to be, not blocking products from the market and barely denting the companies' bottom line," Rutgers Law School professor and IPWatchdog contributor Michael Carrier told USA Today.

Carrier is exactly right. Neither company showed even a hint of slowing down in terms of smartphone innovation.



It is sometimes difficult to remember that the smartphone revolution is only 11 years old, when Steve Jobs and Apple launched the world's first smartphone. That was promptly copied by Samsung. Since then, smartphones have become more powerful, substantially better computing devices, substantially better phones, and have incorporated substantially better cameras for both video, still and live photos. They enable never-dreamed-of portable assistance—even to technophobes—from map apps with talking directions to personal assistants that can look up and find information to monitoring health data, listening to satellite radio and so much more.

What consumer technology has so transformed daily life for billions of people over such a short period, with the technology getting better every year?

Business as usual

Still, people with an unnatural, unhealthy and irrational hatred of patents say we are supposed to somehow believe that the most high-profile patent case of the past decade is proof of the evils of a patent system run amok.

But even with the thousands of legal filings in multiple jurisdictions around the world, and a case involving the potential of hundreds of billions of dollars worth of infringement damages, no innovation was blocked. No research and development stopped. No products were kept away from consumers. Billions of smartphones somehow managed to find their way into the hands of consumers despite patents—an inconvenient truth for those who hate patents.

Those who say patents get in the way of innovation have a lot of explaining to do, now that the great smartphone patent war has ended and we can actually see what has happened. ☺



SCOTUS Ruling Good News for Patent Owners

THOSE HOLDING PATENTS CAN RECOVER LOST FOREIGN PROFITS FOR INFRINGEMENT **BY GENE QUINN**

THE UNITED STATES Supreme Court recently ruled in *WesternGeco LLC v. ION Geophysical Corp.* that a patent owner may recover lost foreign profits for infringement under patent code Section 271, Subsection (f)(2).

According to Justice Clarence Thomas, writing for the 7-2 majority in the June 22 decision, “The question in this case is whether these statutes allow the patent owner to recover for lost foreign profits.” Thomas answered the question in the opening paragraph, saying: “We hold that they do.”

The prototypical patent infringement action occurs when someone without authority makes, uses, offers for sale, sells, or imports any patented invention within the United States. This is per Section 271, Subsection (a), the general infringement provision. The aforementioned 271(f)(2) expands the definition of what qualifies as infringement to encompass the supplying of a patented invention’s components from within the United States.

There are caveats in 271(f)(2), such as that the component must not be a “staple article or commodity of commerce suitable for substantial non-infringing use.” Further, the supplier must know that the component supplied from within the United States is made or adapted that “such component will be combined outside the United States in a manner that would infringe the patent is such combination occurred within the United States.” Further still, there must be intent.

Key to the decision was patent code Section 271, Subsection (f)(2), which expands the definition of what qualifies as infringement to encompass the supplying of a patented invention’s components from within the United States.



Case background

The dispute between WesternGeco, a company that develops technology for surveying the ocean floor, and ION Geophysical Corporation, a competitor, dates to late 2007. ION began manufacturing components for its competing surveying system and shipping them to companies abroad. Those companies combined the components to create the surveying system that was indistinguishable from WesternGeco’s patented systems.

WesternGeco sued for patent infringement under Sections 271(f)(1) and (f)(2). At trial, the company proved that it had lost 10 specific survey contracts due to ION’s infringement. The jury found ION liable and awarded WesternGeco damages of \$12.5 million in royalties and \$93.4 million in lost profits. ION filed a post-trial motion to set aside the verdict, arguing that WesternGeco could not recover damages for lost profits because 271(f) does not apply extraterritorially. The district court denied the motion.

On appeal in 2015, the United States Court of Appeals for the Federal Circuit found ION liable for infringement under 271(f)(1) but reversed the award of lost-profits damages under 271(f)(2). The federal circuit had held in 2013 that 271(a), the general infringement provision, does not allow patent owners to recover for lost foreign sales, reasoning that 271(f) should be interpreted the same way.

The two-step factor

In the Supreme Court decision, it acknowledged that courts ordinarily presume that statutes apply only within the territorial jurisdiction of the United States. But Justice Thomas explained there is an established

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two-step framework to decide questions of extraterritoriality.

The first step asks whether the presumption of extraterritoriality has been rebutted. If the presumption of extraterritoriality has not been rebutted, the second step asks whether the case involves a domestic application of a statute, and whether the conduct relevant to that focus occurred in the United States territory. If it did, the case involves a permissible domestic application of the statute.

Ordinarily, courts address the first step first. But in this case, the Supreme Court exercised its discretion to forgo the first step and address the second prong of the test. It did this, no doubt, because it concluded that the conduct relevant to the statutory focus was domestic.

Justice Thomas explained: "Section 271(f)(2) focuses on domestic conduct. It provides that a company 'shall be liable as an infringer' if it 'supplies' certain components of a patented invention 'in or from the United States' with the intent that they 'will be combined outside of the United States in a manner that would infringe the patent if such combination occurred within the United States.' The conduct that 271(f)(2) regulates—i.e., its focus—is the domestic act of 'supplying in or from the United States.'"

Thomas also rather emphatically stated: "The conduct in this case that is relevant to that focus clearly occurred in the United States, as it was ION's domestic act of supplying the components that infringed WesternGeco's patents."

To the dissenters—Justices Neil Gorsuch and Stephen Breyer—Thomas and the majority made a rather stinging rebuke: "Their position wrongly conflates legal injury with the damages arising from that injury."

Legal experts reacting to the verdict on IPWatchdog.com agreed that it was a win for patent owners. However, Heather Repicky, a partner in the litigation department at Nutter McClennen & Fish, added this caveat: "Justice Thomas—and the six justices who joined in the majority opinion—indicated in a footnote that the Court's analysis was limited to infringement under 271(f)(2), thus signaling that this decision is intended to apply only to damages associated with infringement under that very specific subsection of the Patent Act." ☐

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Behemoth Amazon Taking Mighty Hits

REPORTS SHINE A LIGHT ON COUNTERFEITS,
PIRACY AND DATA PRIVACY ISSUES **BY STEVE BRACHMANN**

AMAZON.COM has grown from being established by Jeff Bezos as an online bookseller in 1994 to become perhaps the greatest monolith in global retail today. It isn't the largest retailer in terms of revenue; the company was ranked seventh on the National Retailers Foundation list of top retailers for 2017 behind Walmart, Kroger, Costco and others. However, bold business moves completed by Bezos in the past year, including Amazon's \$13 billion acquisition of Whole Foods, has closed the gap between Walmart and Amazon on the *Forbes* Global 2000 list—where those companies are respectively the first- and second-ranked retailers in the world.

The world's only centi-billionaire, Bezos's net worth increased by \$3.3 billion in early June to \$138.8 billion because the price of Amazon stock increased by 2 percent in a one-week period.

There's no reason to disparage the success of someone because that individual happens to be incredibly affluent. But when that personal gain is ill-gotten, it deserves criticism in the harshest terms.

Amazon's stance troubling

A press release issued on June 5 by the watchdog organization *The Counterfeit Report* strongly suggests that Amazon and Bezos have every intention of

skirting the rules to continue the financial benefits they receive from the sale of counterfeits. The organization received multiple e-mail responses to counterfeit product issues it presented to Amazon. Those official Amazon e-mails indicate that Bezos received e-mails from *The Counterfeit Report* and that the e-mail sender was answering on Bezos' behalf.

Amazon's official stance, as outlined by these e-mails, is that counterfeit products will continue to be listed on Amazon's website in countries where the trademark covering the brand isn't registered. *The Counterfeit Report* notes that these counterfeits, of which Amazon is knowingly enabling sales, include consumer goods as well as fake badges for the Secret Service, Federal Bureau of Investigation and the New York Police Department. Bezos shields himself from legal recourse in this situation by resorting to legal machinations that might follow the letter of the law but certainly not its spirit.

A recent letter sent by the Federal Communications Commission in late May of this year indicates that Amazon is also allowing the sale of set-top boxes that falsely use FCC logos in the branding, indicating that the device is permitted by FCC regulations when in fact it is not.

FCC Commissioner Michael O'Rielly wrote a letter dated May 25 and sent to Bezos and eBay CEO Devin Wenig that made specific reference to nine set-top box distributors enabling unlawful streaming of copyrighted material. Seven of those made use of the FCC logo on their products, which distribute their products through Amazon's and eBay's e-commerce platforms. Although Commissioner O'Rielly recognized the proactive steps these major online retailers have taken to remove products that facilitate piracy, he asked for further cooperation from both companies in light of the fact that products falsely marked with the FCC logo continue to be made available.

"Many of these devices contain harmful malware that will most



The Counterfeit Report notes that counterfeits, of which Amazon is knowingly enabling sales, include consumer goods as well as fake badges for the Secret Service, Federal Bureau of Investigation and the New York Police Department.

certainly be passed on to the consumer,” O’Rielly wrote. “Moreover, the consumer may unwittingly believe that the device is lawful, since they were able to purchase (it) from a legitimate company.”

Myriad reported problems

The pervasive counterfeit problem has hurt the legitimacy of Amazon’s retail operation, at least for some. In April, *The Atlantic* published an article that discussed multiple instances of brand owners and consumers claiming that Amazon enabled the sale of counterfeit and patent-infringing products, with one seller of legitimate goods claiming that the problem has grown worse in recent months.

In late May, *Engadget* published a piece criticizing Amazon’s use of the Fulfilled by Amazon service—whereby Amazon facilitates the transaction while shifting the legal burden of selling legitimate products onto third-party sellers who often skirt the rules as a legal loophole to keep itself from being legally accountable for counterfeits.

The increasing availability of counterfeits on e-commerce platforms including Amazon has also been noted in a report from the U.S. Government Accountability Office released in January. The GAO said it purchased 47 items from third-party sellers on popular online retail platforms and that 20 of them were counterfeit. In particular, all 13 items utilizing the brand name of cosmetics company Urban Decay were counterfeits. The GAO study didn’t focus solely on Amazon. Agency purchases were also made through e-commerce sites operated by Walmart, Sears, Newegg and eBay.

Although Amazon is not the only e-commerce site enabling the sale of counterfeits, business operations unique to Amazon suggest that the company is more than willing to flout intellectual property protections for financial gain.

In late May, *TechCrunch* noted that Amazon has sponsored advertisements on its own platform to direct customers to its Fire TV Stick and Fire TV devices when searching the term “kodi box.” Kodi is a home theater software application that can be installed on devices such as the Fire TV Stick and, while legitimate content streaming

services are available through Kodi, the application has become synonymous with the current wave of content piracy.

Senators send letter

An article published in late May by *The Washington Post* reported on a situation where Amazon Echo devices with Alexa virtual assistant software recorded a family’s conversation and then sent that conversation to a random person on the device’s contact list.

Such reports about the potential of data privacy issues arising from the use of Amazon devices prompted a letter dated June 11 from the Senate Judiciary Committee, signed by committee members Sen. Jeff Flake (R-Arizona) and Sen. Chris Coons (D-Delaware), to Amazon on data privacy risks posed by the Echo. The letter specifically referenced the situation reported by *The Washington Post*.

In the letter, Sens. Flake and Coons, respectively the chairman and ranking member of the Subcommittee on Privacy, Technology and the Law, asked Amazon to provide answers to questions such as the number of complaints received by Amazon regarding improper command interpretations made by Echo devices; whether voice data is sent to Amazon-controlled servers; whether Echo devices are always actively listening for wake words such as the voice command “Alexa”; whether Echo devices are designed to record background conversations while listening for voice commands; as well as a description of any and all purposes that Amazon has for using and storing consumer voice data. Those senators might also be interested in the list of technologies that Amazon has developed to track the geographical locations and life milestones of its customers. 📍

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





Another Step in Unmanned Flight

IKHANA FLIES WITHOUT SAFETY CHASE AIRCRAFT **BY STEVE BRACHMANN**

THE NATIONAL AERONAUTICS and Space Administration recently announced that the agency's remotely piloted Ikhana unmanned aircraft successfully completed its first flight within the National Airspace System without using safety chase aircraft.

This is an important step toward the incorporation of unmanned aircraft within the NAS for various applications that include the monitoring of forest fires, search-and-rescue operations and even general aviation.

According to NASA's report, the unmanned Ikhana flight took off from Edwards Air Force Base in southern California on June 12 and quickly entered the Class-A airspace where commercial airliners fly, at an altitude of about 20,000 feet. The aircraft headed north toward Fresno, California, and on its return began a descent to 9,000 feet MSL (the unit of measure for altitude above airport elevation) into Class-E general aviation airspace over the California city of Tehachapi. The craft then initiated an approach into the airport in Victorville at an altitude of 5,000 feet, transiting its Class-D terminal airspace, before exiting the NAS and returning to its base at the Armstrong Flight Research Center.

The path of the flight required the transfer of air traffic control between bases in Los Angeles and Oakland as well as communication with air traffic controllers at the Victorville airport, all completed successfully. According to Mike Marston, the lead operations engineer on the Unmanned Aircraft Systems (UAS) integration in the NAS project, the aircraft traveled approximately 415 nautical miles and spent a total of about 2 1/2 hours in the NAS.

History and specs

Ikhana, which takes its name from a Native American Choctaw word for "intelligence," was acquired by NASA in November 2006 to serve in Earth science missions and advanced aeronautical technology development. The craft itself is a MQ-9 Predator B UAS that was purchased from UAS developer General Atomics Aeronautical Systems Inc.

Early missions for Ikhana included participation in the Western State Fire Mission between 2007 and 2009, a project designed to improve wildfire imaging and mapping capabilities. During the wildfire missions, Ikhana's instrumentation pod was outfitted with autonomous modular sensor tech that allowed visibility through thick smoke to improve the recording of hot spots as well as the progression of wildfires over time. In 2008, Ikhana tested a patented fiber-optic sensor system capable of measuring changes in the craft's wing shape during flight—an effort that NASA notes was one of the first validations of fiber-optic sensor technology during a comprehensive flight scenario.

In 2012, ADS-B In/Out—an automatic dependent surveillance-broadcast that uses satellite navigation to determine the aircraft's position before broadcasting that position to other aircraft—was installed on the craft. A year later, Ikhana underwent a major upgrade to its avionics system and received a new instrumentation pod capable of carrying more than 500 lbs. in generic science payload.

Ikhana is 36 feet long, with a wingspan of 66 feet and a maximum takeoff weight of 10,500 lbs. The craft is powered by a Honeywell TPE331 turboprop engine with digital electronic engine control, and a three-blade, constant-speed propeller enabling control of the aircraft at altitudes greater than 40,000 feet.

Included in Ikhana's payload is more than 3,000 lbs. of equipment including radar, sensors, and communication and imaging tools. Communication links installed on the aircraft include both line-of-sight as well as satellite command and control links.

Ikhana receives its flight navigation instructions from a ruggedized mobile ground control station that hosts the pilot control station, engineering monitoring workstations, science monitoring stations and range safety oversight. The aircraft is capable of being disassembled through removal of the wings, tails and propeller from the main modular unit so that both the craft and the mobile control station can be deployed internationally; the control station is suitable for ship-based applications for the use of Ikhana over ocean waters.

Possible future benefits include the monitoring of forest fires, search-and-rescue operations, and even general aviation.

Unique capabilities

During the recent unmanned flight, Ikhana was outfitted with air-to-air radar (ATAR) systems from General Atomics, a traffic alert and collision-avoidance system (TCAS) from Honeywell, a detect-and-avoid fusion tracker, and ADS-B technology. Regulations from the Federal Aviation Administration require that all aircraft operating in U.S. airspace incorporate ADS-B Out devices by January 2020; Ikhana's ADS-B In device offers additional functionality as an onboard surveillance sensor for detect-and-avoid purposes.

Sam Kim, a NASA project engineer involved with the UAS-NAS Project, mentioned ATAR, TCAS and ADS-B as the three main technologies enabling Ikhana's unmanned flight in civilian airspace. "What's unique about the Ikhana among UAS vehicles is that it has airborne surveillance sensors which it uses as part of its detect-and-avoid technology," he said. "Other UAS vehicles don't have those."

Pilotless passenger flights?

The FAA granted special authority to NASA in late March for conducting this flight without the use of safety chase aircraft. Such chase aircraft is usually required to ensure that UAS aircraft is able to safely traverse airspace in which commercial airliners also operate. According to NASA, Ikhana was compliant with two technical standard orders published by the FAA covering detect-and-avoid systems, as well as air-to-air radar for traffic surveillance.

Although Ikhana requires a human operator to control the craft, NASA engineers are working on an airborne research test system (ARTS) capable of being integrated into Ikhana's flight control systems for the completely autonomous command of the aircraft. ARTS would also be capable of monitoring the health of Ikhana in service to the aircraft's aeronautics and earth science goals.

The development of UAS vehicles for commercial passenger flight is still a long way off, but UAS lead operations engineer Marston doesn't see why technological development won't head in that direction over time.

"The low-hanging fruit would probably be cargo operations such as transatlantic or transpacific flights, which are pretty scripted routes," he said. "Down the road, there's probably a place for pilotless flights on commercial passenger airliners, but we have to convince the FAA and the public that it's safe." 📍

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IoT Corner

Teams are using IoT technology to gain an edge in the **Volvo Ocean Race**, one of the toughest yacht races in the world. The multi-stage, 'round-the-world journey covers approximately 45,000 nautical miles of rough seas.

Team AkzoNobel from Holland equips its crew and boats with a full suite of sensors. Crew members wear Samsung smart watches that read biometric data such as heart rate. That information is then fed back to an Android smartphone that serves the data to the team on shore, as well as to on-board Raspberry Pi's. The Pi's use a machine-learning algorithm to give real-time feedback to crew about human and boat conditions so they can make adjustments.

AkzoNobel finished third in the final leg of the 2017-18 edition that ended in June. The team finished fourth overall; a China-based Dongfeng Race Team won the title. —*Jeremy Losaw*



Wunderkids

Hannah Herbst of Boca Raton, Florida, was 15 when she learned that her 9-year-old pen pal in Ethiopia did not have access to lights. Because Hannah knew that most populations settle around water, she devised the Beacon

(Bringing Electricity Access to Countries through Ocean Energy), a probe prototype that

captures energy directly from ocean waves. It consists of a hollow plastic tube, with a propeller and a hydroelectric generator at opposite ends. As tidal energy drives the propeller, it's converted into useable energy by the generator. She says the energy generated could be used to power water purification technologies or blood centrifuges at hospitals. Her invention won the Discovery Education 3M Young Scientist Challenge in 2015, among other awards.



What IS that?

The website for the **EZ Mount Window Bed** says, "Instantly turn any window into a kitty entertainment center!" Let's not forget humans, who may also be entertained by the appearance of their cat floating on a bed in mid-air from a distance. The window bed mounts with suction cups to a window, with an open top for easy access.

30%

The percentage of software available on the internet that is copyright-infringed, according to numerous internet reports. Statistics indicate many variations in pirating software and music.

WHAT DO YOU KNOW?

1 The 10 millionth U.S. utility patent, issued June 19, involves technology that:

- A) Improves laser detection and ranging
- B) Bolsters cellphone reliability
- C) Improves wireless connectivity
- D) None of the above

2 True or false: Based on the pace of issued millionth patents since 2000, the 11 millionth patent could be issued in 2020.

3 The gas-powered tractor was invented in which century—1700s, 1800s, or 1900s?

4 Who said this? "Without tradition, art is a flock of sheep without a shepherd. Without innovation, it is a corpse."

- A) Leonardo da Vinci
- B) Andy Warhol
- C) Winston Churchill
- D) Prince Charles

5 True or false: Jay Z and Beyonce trademarked their daughter Blue Ivy's name in January 2012.

ANSWERS: 1. A. We attempted to explain the technology in an inventorsdigest.com story on the day of the announcement, but don't get your hopes up! 2. True, though that's anything but certain. Patent No. 7 million came in 2006; No. 8 million, five years later in 2011; No. 9 million, four years later in 2015; and No. 10 million, three years later in 2018. 3. John Froelich of Girard, Iowa, operator of a grain elevator and mobile threshing service, invented it in 1892. 4. C. 5. False. Their petition was denied. Beyonce said she wanted the trademark because she planned on starting a line of children's clothing with that name.

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