IN COOPERATION WITH uspto UNITED STATES PATENT AND TRADEMARK OFFICE ®

MARCH 2024 Volume 40 Issue 03

Inventors DIGEST

WHAT WERE THEY THINKING?

WELL-MEANING INVENTIONS WITH BIG PROBLEMS

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Help recognize our nation's top scientists, engineers, and inventors

Nominate an innovator for the nation's highest honor in technological achievement, **The National Medal of Technology and Innovation**, awarded by the president of the United States. Help us highlight the national importance of technological innovation and inspire future generations of American innovators.

The medal is awarded to individuals, teams (up to four individuals), and companies or divisions of companies for their outstanding contributions to the nation's economic, environmental, and social well-being through the development and commercialization of technological products, processes and concepts, technological innovation, and strengthening the nation's technological workforce.

Anyone can nominate for the National Medal of Technology and Innovation at **www.uspto.gov/nmti**. Submit your nomination today.

Nominations of candidates from traditionally underrepresented groups are encouraged.

Nominations are due by May 3, 2024

For more information, contact
Linda Hosler, Program Manager
Phone: 571-272-8514
Email: nmti@uspto.gov

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STOP PATENT PIRATES

Give no quarter to Patent Pirates.

Or they'll take every last penny.

Our ideas and innovations are precious. Yet Big Tech and other large corporations keep infringing on our patents, acting as Patent Pirates. As inventors, we need to protect each other. It's why we support the STRONGER Patents Act. Tell Congress and lawmakers to protect American inventors.

SAVE THE AMERICAN INVENTOR

SaveTheInventor.com

Famed 15

Latest members of National Inventors Hall of Fame to be inducted in May

The 2024 class of the National Inventors Hall of Fame (NIHF) literally ranges from A to Z—with a similarly broad scope of inventors and their accomplishments.

Signature accomplishments in the fields of cancer-fighting therapy, DNA sequencing, wireless networking, automotive safety, and even theatrical special effects are among those highlighted with this year's inductees. The nine living and six historical inductees will be honored at a May 9 ceremony, "The Greatest Celebration of American Innovation," at The Anthem in Washington, D.C., in partnership with the United States Patent and Trademark Office (USPTO). Humorist, journalist, and podcast host Mo Rocca will emcee.

The day before, new inductees will place their names on illuminated hexagons at the NIHF Museum at USPTO headquarters in Alexandria, Virginia, joining the Gallery of Icons™.

The Class of 2024

James Allison: Immune checkpoint blockade therapy. Allison brought immunotherapy—using substances to stimulate or suppress the immune system for helping the body fight cancer and other diseases—into mainstream medicine. He developed ipilimumab, the first in a class of drugs called checkpoint inhibitors, to treat late-stage melanoma, and received the Nobel Prize in Physiology or Medicine in 2018.

Shankar Balasubramanian and David Klenerman: Sequencing-by-Synthesis (SBS). Their invention is a Next Generation DNA Sequencing (NGS) method that made possible efficient, low-cost, and large-scale genome sequencing. SBS has enabled significant advances in genomics, medicine, and biology.

Eric Betzig and Harald Hess: Photoactivated Localization Microscopy (PALM). Their co-invention is a super-resolution imaging technology that lets scientists look inside cells with unprecedented resolution. Through imaging at the nanoscale, biological structures, processes, and diseases can be studied with much greater clarity.

Joseph-Armand Bombardier: Snowmobile (posthumous). Bombardier invented the Ski-Doo,® the first mass-produced snow machine. It set industry standards and launched snowmobiling as a sport and recreational activity.

Andrea Goldsmith: Adaptive beamforming for multi-antenna Wi-Fi. Her invention of adaptive beamforming improves signal strength in a particular direction by combining sounds from an array of microphones with specific delays, which shaped the performance of wireless networking.

Asad Madni: MEMS gyroscope for aerospace and automotive safety. Madni led the development of this gyroscope, which was commercialized as the GyroChip. First applied in the aerospace and defense industries, this technology has saved lives through its use in aircraft and passenger vehicles.

George Washington Murray: Agricultural machinery (posthumous). Murray invented and patented agricultural machinery designed to accelerate planting and harvesting processes in the late 1800s. He also served in the U.S. Congress and advocated for greater recognition of fellow Black inventors.

Mary Florence Potts: Cold-handle sad iron (posthumous). Potts developed an improved sad iron, or "solid" iron, in the 1870s. It was lighter and offered a cooler, more ergonomic handle compared to other irons at the time. Her invention was widely commercialized as an easier, safer solution for ironing clothing and linens.

Lanny Smoot: Theatrical technologies and special effects. The Disney Imagineer, the patent leader at The Walt Disney Co. with more than 100, has developed many special effects, interactive experiences, new ride vehicle and robotic concepts, and other technological advancements for Disney's theme parks, attractions, resorts, hotels, and cruise ships.

Alice Stoll: Fire-resistant fibers and fabrics (posthumous). A research physiologist and pioneer in aerospace medicine, Stoll led the development of fire-resistant fabrics in the 1960s. Her work made it possible to rate materials by their ability to protect from thermal burns and demonstrated that fabric constructed with fire-resistant fibers was superior to fabric treated with a flame retardant.

Jokichi Takamine: Adrenaline (Adrenalin®) (posthumous). Takamine was a chemist, entrepreneur, and biotechnology pioneer whose research led to the use of adrenaline in medicine. Also known as epinephrine, adrenaline is widely used for many applications, including the treatment of anaphylaxis and cardiac arrest.

Ralph Teetor: Cruise control (posthumous). Teetor, an automotive engineer, invented cruise control in the 1940s. Originally limited to luxury vehicles, this speed control technology has become a standard feature providing greater ease in driving and safety, and with better fuel efficiency.

Xiaowei Zhuang: Stochastic Optical Reconstruction Microscopy (STORM). Zhuang introduced one of the most widely used methods of super-resolution imaging. Used to investigate biological systems and processes, this technique overcomes the diffraction limit of light to produce images with higher resolution than what is possible by conventional light microscopy.

HONOR OUR GREATEST

Nominations sought for 2024 National Medal of Technology and Innovation; March 12 webinar will answer questions

THE USPTO seeks nominations for the 2024 National Medal of Technology and Innovation (NMTI), the nation's highest honor for technological achievement, presented by the president of the United States.

The NMTI medal is awarded to individuals, teams (up to four individuals), and companies or divisions of companies for their outstanding contributions to the nation. The medal recognizes American innovators whose vision, intellect, creativity, and determination have strengthened America's economy and improved our quality of life.

Past laureates (medal recipients) include:

- Steve Jobs and Steve Wozniak for the invention of the personal computer (1985);
- Grace Murray Hopper for her pioneering accomplishments in the development of computer programming languages that simplified computer technology (1991);
- Jim West for co-inventing the electret microphone (2006);
- Frances Arnold for groundbreaking research on biofuels and chemicals that could lead to the replacement of pollution-generating materials (2011);
- Rory A. Cooper for developing cutting-edge wheelchair technologies and mobility devices (2023).

Anyone can submit an NMTI nomination by using the online nomination form and providing letters of support. The USPTO must receive all nominations by 11:59 p.m. ET, May 3, 2024. We encourage nominations of candidates from traditionally underrepresented groups.

Detailed information about the nomination guidelines, a preview of the nomination questions, and a link to the nomination form are available at **uspto.gov/nmti**. For more information about the award and the nomination process, contact **nmti@uspto.gov**.

NMTI staff will host a webinar to answer questions about the award and the process on March 12 at 2 p.m. ET. To attend, visit **uspto.gov/about-us/events**.

DIRECTOR'S BLOG

Protecting Your IP in China

China IPR Toolkit offers vital information regarding protection and enforcement for Americans **BY KATHI VIDAL**

Since the start of my tenure as USPTO director in spring 2022, protecting and enforcing intellectual property (IP) rights in China has been an essential part of our agency efforts to strengthen the global IP system.

U.S. businesses operating in China regularly cite insufficient protection and enforcement of IP as a top concern, and the Office of the U.S. Trade Representative has placed China on its "priority watch" list for over a decade, detailing a long list of IP concerns reported by U.S. businesses operating in China.

I am committed to promoting a level playing field for U.S. rights holders in China and providing insight on the unique challenges they face.

We are fortunate to have a USPTO team of attorneys and IP experts focused on China. The China team includes over a dozen stateside IP attorneys and three IP attachés and legal staff in Beijing, Shanghai, and Guangzhou, China. These experts engage with other federal agencies, U.S. stakeholders, and their Chinese government counterparts to advocate for U.S. rights holders doing business in and exporting to China.

We offer an array of valuable tools for doing business in China, including the recently updated China IP Rights Toolkit. Designed especially for small and medium-sized businesses, the revised toolkit offers an in-depth look at the IP environment in China, including the avenues for protection and enforcement.

It can be difficult to do business in China. The China IPR Toolkit can serve as a helpful first stop on that journey. It is available as a free download from the USPTO website.

I've seen, first-hand, American businesses working to educate themselves on China IP. In October, I joined private sector and government experts in San Diego at the USPTO China IP Road Show.

These one-day, in-person events held around the country detail for local entrepreneurs and businesses how they can protect and enforce their IP in China. They are tailored to their specific locales, taking into account the leading local industries—biotech, manufacturing, agriculture, or the creative industries, to name a few.

We bring in experts who can address challenges faced by these businesses. We also offer the expertise and knowledge of the USPTO's China IP specialists, local businesspeople, and IP experts.

Since 2017, we've held more than 30 China IP Road Show events in every corner of the country.

In our work, I'm grateful for the leadership of U.S. Secretary of Commerce Gina Raimondo. She traveled to Beijing and Shanghai last year to meet with her Chinese government counterparts and representatives of leading U.S. businesses operating in China.

The China IPR Toolkit and the China IP Road Shows are just two initiatives led by our China team. I encourage you to visit **uspto.gov/ip-policy/china** to see the resources we offer, and sign up for future road shows and webinars.

Kathi Vidal is under secretary of commerce for intellectual property and director of the USPTO.

Kathi Vidal (center) spoke with local entrepreneurs and business owners at the China IP Road Show in San Diego. The road show is one of several USPTO tools and programs for U.S. entities doing business in China.

PHOTO COURTESY OF THE USPTO

NEWS FLASH

GUIDANCE ON AI-AIDED INVENTIONS: To incentivize, protect, and encourage investment in innovations made possible via artificial intelligence (AI), and to provide clarity to the public and USPTO employees on the patentability of AI-assisted inventions, the USPTO has published guidance in the Federal Register.

The guidance makes clear that AI-assisted inventions are not categorically unpatentable. It provides instructions to examiners and stakeholders on how to determine whether the human contribution to an innovation is significant enough to qualify for a patent when AI contributed.

Examples of hypothetical situations of how the guidance would apply are on the USPTO's AI-related resources webpage. For more information, attend the USPTO's public webinar on March 5 from 1 to 2 p.m. ET.

WOMEN'S ROLE IN AI GROWING: The USPTO's Office of the Chief Economist (OCE) shared a new article that shows women's participation in patenting—both in AI and other technologies—is growing and associated with more diverse teams and patents with higher economic value.

The article was published in the journal *Nature Biotechnology* and is titled, "Discovering value: Women's participation in university and commercial artificial intelligence (AI) invention." It uses the AI Patent Dataset and information on inventors' genders available via PatentsView to study women's participation in the AI innovation ecosystem.

Given the incredible reach of AI across technologies and organizations, diversifying the AI innovation ecosystem could produce substantial economic gains.

PATENT PRO BONO GROWTH: A USPTO report recently released to Congress found that patent pro bono programs are successfully expanding access to the patent system to financially underresourced independent inventors and small businesses, with more than $39.3 million donated by volunteer patent attorneys and non-attorney advocates (patent agents) from 2015 to 2022.

The report was required by the Unleashing American Innovators Act of 2022 (the Act or UAIA), assessing the health and functionality of the patent pro bono programs. Under the direction of USPTO Director Kathi Vidal, the USPTO nearly doubled the budget for the programs in 2023 from $680,000 to approximately $1.2 million.

View the full report at **uspto.gov/ip-policy/legislative-resources/unleashing-american-innovators-act-2022**.

WHAT'S NEXT

1-DAY TRADEMARKS BOOT CAMP:
Attend an in-person, single-day workshop for entrepreneurs, small businesses, and start-ups in communities with limited or no internet access, covering what they should know about trademarks. The event is March 14, from 9 a.m. to 5 p.m. ET at UMES Center for Entrepreneurship and Innovation in Princess Anne, Maryland.

The event will explore what trademarks are, the benefits of federal trademark registration, and the basics of the registration process. We'll also discuss why it's so important for any new business to select a trademark that is both federally registrable and legally protectable.

This event is free, but registration is required. For registration information or other questions, email **Andriae.Holt@uspto.gov**.

PATENT EXAMINER OPPORTUNITY:
A virtual office hour with USPTO patent examiners, March 13 at noon ET and again March 20 at the same time, is available for anyone seeking a career in that occupation. If you are a U.S. citizen and graduating this year with a focus in biology, biomedical engineering, chemistry, chemical engineering, computer engineering, computer science, design, electrical engineering, mechanical engineering, or physics, team members will be available to answer your questions. For more information, contact **recruitment@uspto.gov**

PATENTS, TRADEMARKS FOR LIBRARIANS:
If you are a librarian looking for a better understanding of patent concepts or want to share reliable resources with inventors looking to protect their intellectual property, attend this free webinar that introduces patent concepts and resources for professional librarians and library staff.

The webinar will be March 19 from 2 to 3 p.m. ET; a webinar for trademarks is at the same time the following day. Please register to attend at **uspto.gov/events**. For more information, contact **PTRCP@uspto.gov**.

Visit **uspto.gov/events** for many other opportunities to attend free virtual events and/or training.

Problem Inventions? Here's One to Chew On

As the introduction to this month's *Inventors Digest* cover story affirms, it's usually not our way to be negative about inventions.

Excluding our January 2020 look at short-lived New Coke in 1985 and the fun July 2021 cover story on the Museum of Failure, we're here to celebrate inventing and innovation, not knock it.

Still, we never examined ongoing, mainstream inventions of questionable value. Not until this month.

We researched reports and data to show how the best invention intentions—especially some in the name of convenience—can backfire. We also wanted to show how people and lawmakers are working to limit the use of inventions that are bad for the environment (water bottles, plastic bags, Styrofoam), and for the magazine to educate readers about alternatives to iffy or harmful products—with their objective pluses/minuses as well.

One of the most surprising entries on the bad inventions lists we searched was chewing gum, which made BBC Science Focus's list of "10 of the World's Worst-Ever Inventions."

My parents, who hated finding it used and rolled up under furniture (same with many a teacher) would agree. The culprit is polyvinyl acetate, a kind of plastic that makes gum difficult to remove—and digest.

Chewing gum has existed, and existed, and existed, in various forms for centuries. Archaeologists recently discovered three wads of chewed birch resin that were about 9,000 years old.

According to Guinness World Records, American John Bacon Curtis produced the first branded, commercially produced chewing gum in 1848. He cooked spruce tree resin on a stove to make a sticky, rubbery material that could be chewed.

In keeping with the spirit of the cover story, here's a positive result of chewing gum: Studies have shown it can improve concentration because chewing it promotes increased blood flow to the brain. And if you want gum without plastic ingredients, New York City-based Simply Gum makes chewing gum from natural products.

You can invariably find positives in most any invention—even if sometimes you have to get inventive about what those positives are.

—Reid
(reid.creager@inventorsdigest.com)

Inventors DIGEST

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Power Surge

(January 2024)

Thank you for being a champion for women. I trust there is an empowered woman in your life that you can give this to. —**MELISSA BARKER**

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MUSK'S BRAIN CHIP IS A MIXED BAG

He says he would like to die on Mars. He has claimed to be an alien.

So it's no surprise that **Elon Musk** is overseeing an experiment that seems out of this world. The question is where it's headed, and why.

The world's richest man announced on January 29 that his company, Neuralink, has implanted its brain-computer interface into a human for the first time. He said the patient was "recovering well" and showed "promising neuron spike detection" but gave no other details.

He named the implant Telepathy.

Neuralink's stated mission is to "create a generalized brain interface to restore autonomy to those with unmet medical needs today and unlock human potential tomorrow." This can help people with disabilities communicate and control external devices merely by thinking about it.

Sounds positive—albeit with a galaxy of questions.

Scientists and ethicists are concerned about the potential for identity theft, password hacking and blackmail. And there is a strong chance of access inequality if the chip is not available to everyone.

But perhaps the two biggest issues are: 1) The risks of research by a private equity model as opposed to the more conventional government-backed research, and 2) The possibility of turning us all into walking computers.

Scientific research by governments and philanthropic agencies aims to promote the public good. We can't be as sure of this with research done by a public, for-profit company—nor can we be sure how long the research funding will hold up.

The implant's goal, for now, is to help people with disabilities. Musk's stated larger goal, though, is for brain-computer interfaces to help *everyone* keep pace with artificial intelligence. The notion that this is necessary or even desired may belong only to Elon Musk.

By the way, Parola Analytics reported that as of last August, Musk's company had 56 patent publications. Kinda curious for a guy who once said, "Patents are for the weak." —*Reid Creager*

BRIGHT IDEAS

BullsEyeBore Core

LASER-GUIDED DRILL ACCESSORY

bullseyebore.com

BullsEyeBore Core allows you to drill straight holes freehand with a laser-guided drill accessory that attaches in seconds. It works with common commercial drills and bits.

The accessory mounts to the front of your drill chuck and rotates with your drill to produce several easy-to-see circular patterns on the work surface. When the circles are aligned (concentric) on the work surface, the drill is straight, and you always get a straight hole.

Unlike bubble levels, the Core does not depend on gravity, so it gives you holes perpendicular to walls, ceilings or boards at any angle.

BullsEyeBore Core will retail for $210. It has an August shipping date for crowdfunding backers.

YSMART MQ5

MAGNETIC, QUICK-RELEASE, RECHARGEABLE FLASHLIGHT

ysmart.co.uk

Instead of twisting your flashlight to turn it on and off, with the YSMART MQ5 you just pull it off your keychain. The magnetic quick-release feature turns on the flashlight immediately.

The MQ5 comes with a durable 10180/100mAh Li-ion battery for longevity. With its magnetic wireless charging, just snap it onto the base for a wire-free recharge.

The flashlight's magnetic base transforms how and where you use your flashlight, ensuring bright, steady light exactly where you need it with no hands required. Its 5.1cm length allows for easy portability.

With a future retail price of $83, YSMART MOS is scheduled to be shipped to crowdfunding backers in June.

"Innovation is an evolutionary process, so it's not necessary to be radical all the time."

—MARC JACOBS

Nitetronic T3 Pro

SMART MATTRESS PAD

nitetronic.com

This pad has an array of features that include air-wave massage, customizable comfort, zero-gravity design and an app that provides soothing white noise.

The Smart Air Floating Technology features Shoulder Massage Mode, using built-in airbag wave technology; Lumbar Relax Mode, using rhythmic inflation and deflation of full-body airbags; and Leg Stretch Mode, also using inflation and deflation of full-body airbags while adjusting leg position.

An app allows you to set the massage model that suits you the best and set an alarm to avoid oversleeping.

The Nitetronic, which will retail for $500, is to be shipped to crowdfunding backers in April.

Shuffle Wallet

BILLFOLD WITH DECK-OF-CARDS OPENING MECHANISM

shuffle.life

With six dedicated card slots that fan open in deck-of-cards fashion with a flick of the wrist, Shuffle Wallet is designed to give you fast access to what you need.

Features include an optional silicone pouch, built-in NFC contact card and two additional cards, durable raw titanium or aluminum finish, money clip, RFID-blocking technology, and optional air tag holder.

Add-ons include a keychain that holds up to 10 keys, a flashlight with dual-level brightness, and a credit card tool that includes a letter opener, box cutter, ruler, wrench, flat head screwdriver, bottle opener and phone holder.

Shuffle Wallet will retail for $149.99. It is to be sent to crowdfunding backers in April.

And Then There Were 3 (2?)

HOME TO THIS YEAR'S FINAL FOUR, ARIZONA CAN BOAST 2 ENDURING INVENTIONS **BY REID CREAGER**

MARCH IS ON,® the month of The Big Dance.® And Then There Were Four.®

As the sporting world converges on Phoenix for the trademark-obsessed NCAA's Final Four® men's basketball tournament, a whole lotta chimichanga eating will be going on.

Chimichanga—a deep-fired burrito filled with meat and other stuffings—is a proud Arizona creation in a state that has a limited menu of invention accomplishment.

Rubberized asphalt, which has had widespread impact, seems to be the most important invention that can be definitively attributed to The Grand Canyon State. We'll throw in a nod to the Taser, with the disclaimer that it was not invented in Arizona but heavily developed there.

More on those three inventions strongly identified with the state that was the name of a big Mark Lindsay hit in 1970:

Chimichanga

Hopefully, it won't leave a bad taste in your mouth that the name for this Arizona culinary staple is a Spanish pseudo-expletive.

According to the *Los Angeles Times*—which, curiously, seems to know much more about the chimichanga than the *Arizona Republic*—Monica Flin invented the chimichanga in the late 1940s or early '50s when she owned El Charro Café in downtown Tucson. Legend has it she was making burritos when a niece bumped into her and sent a burrito into a vat of hot oil. "Chimichanga!" she exclaimed.

But the meatiest inside story involves the fillings that are typically part of the chimichanga. According to Tasting Table:

"The inside of a quintessential chimichanga contains a number of cooked fillings: seasoned meat, beans, and rice. The seasoned meat is usually carnitas (pork), carne asada (grilled steak), or barbacoa (braised beef). The beans are typically refried beans, black beans, or pinto beans. The rice is usually white, yellow, or Mexican style. Classic chimichanga fillings also include cheddar, Monterey Jack, or Chihuahua cheese."

Burp.

At least two other local restaurants also claim to have invented the chimichanga. One of them, Macayo's Mexican Restaurant, joined El Charro in 2011 in a bid to make this versatile burrito a state food. (Arizona's only official state food is its state fish, the endangered Apache trout.)

Monica Flin was purportedly making burritos when a niece bumped into her and sent a burrito into a vat of hot oil. "Chimichanga!" she exclaimed.

The two restaurants petitioned more than 5,000 signatures and sent the attempt to the state legislature. But according to Passionate About Food, there the bill sits.

Rubberized asphalt

The City of Phoenix developed this road-paving process/material in the 1960s with a focus on crack-resistant durability. Reduction of noise is now seen as a benefit as well, with the ability to reduce traffic noise by at least 4 decibels.

Asphalt Plus LLC says rubberized asphalt had been used as sealers, patches and membranes in the late 1930s.

The Arizona Department of Transportation—a veritable encyclopedia on rubberized asphalt, with many articles about it on its website—actually makes it sound exciting.

"It all starts with tires – lots and lots of tires.

"First, they're taken to a facility where much of the wire is pulled out. Next, they get shredded and sent off to a cryogenic system that freezes the rubber to -300 F. The cold temperature gives the rubber glass-like properties, allowing it to be smashed into millions of pieces. From there, the remaining steel and fiber components of the tires are removed … vacuums and magnets are utilized in this step.

"After all that, the crumb rubber is blended into a liquid product to create rubberized asphalt. That mixture, also called a binder, gets dried and blended with oil before being applied to the road."

ADOT says about 1,500 tires are used for every lane-mile of rubberized paving.

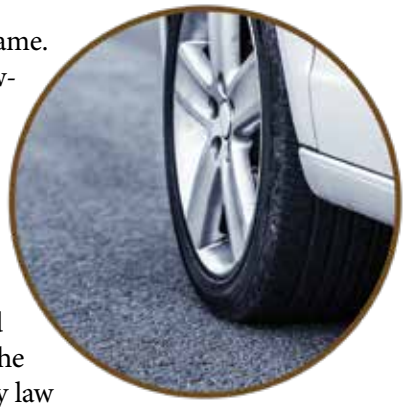
A minor and manageable drawback is that rubberized asphalt is temperature sensitive. It cannot be applied in extreme cold or heat, which can limit application opportunities in such a hot and dry state.

Taser

Some Arizona-centric sources list this handheld device—which incapacitates a person by producing a 50,000-volt electric shock—as one of its own. Nope.

The Taser was developed in 1974 by California scientist and former NASA researcher Jack Cover. Little-known fact: It's an acronym for Tom A. Swift Electric Rifle (as a boy, Cover loved the Tom Swift books about an inventor of crazy gadgets), and a brand name.

Cover's creation used gunpowder, which made it a hard sell. His business collapsed. According to *Reader's Digest*, in 1993 Arizonans Ricky and Tom Smith contacted Cover to refine the Taser so civilians could use it for self-protection, and acquired the technology from him. By the end of the decade, it was used by law enforcement as well.



Rubberized asphalt, developed by the City of Phoenix in the 1960s, features strong durability and noise-reducing qualities.

The current incarnation is very sophisticated. Contrary to popular belief, the Taser is not considered a firearm because it is powered by compressed nitrogen.

Britannica says the Taser "fires two small darts, connected to the device with thin wires, up to a distance of approximately 11 metres (35 feet). The darts can penetrate clothing and, once they make contact with the target, deliver the electric shock, which disrupts the target's nervous system, resulting in temporary incapacitation. ... A Taser can also be used as a stun gun by pressing it directly against the target's body, thereby administering the electric shock."

We're still trying to figure out why Kunio Shimizu gets little to no mention in connection with this invention.

In 1966, he filed a U.S. patent titled "Arrest device," granted in 1970 (No. 3,523,538) but since expired, for "an electrical discharge gun with a projectile connected to a wire with a pair of electrode needles for skin attachment."

The description adds, "It is the objective of the present invention to provide a device for subduing criminals without killing or permanently injuring them."

INVENTOR ARCHIVES: MARCH

March 1, 1921: Hungarian magician and escape artist **Harry Houdini** received a U.S. patent for a diver's suit that the wearer could easily remove while underwater.

U.S. Patent No. 1,370,316, now expired, was granted nearly four years after the application. Houdini also applied for a German patent for a set of nested boxes, and a British patent on the handcuff act he was performing.

The Now and the Later

HOW AN INVENTION CAN BE IMMEDIATE, WHILE DESIGN CAN BE ANYTHING BUT **BY JACK LANDER**

AS A MECHANICAL ENGINEER, I've worked in both mechanics and engineering for a living. I've found that inventions can appear randomly and in short bursts, whereas design is a deliberate and continuous process.

Inventions appear uninvited, sometimes in our dreams—as did the famous benzene ring by German researcher August Kekulé. Incidentally, his discovery was fundamental to organic chemistry.

At other times, inventions appear during a period of relaxation or when not involved in occupations such as studying, talking or writing.

When timing is critical—and it usually is—then invent, prototype, and file for a patent. Don't worry about all the design details.

For example, I was driving relaxed on a Vermont country road when the main component of the semi-automatic bicycle transmission I was trying to invent came to me as an image.

Strangely, I had not thought about the hoped-for invention for a couple days. I mean, who goes on vacation and works free for the boss? (Apparently, I do.)

Anyway, there it was in precise detail, urging me to do an about-face and head back to the office. I refused in less than polite language, and continued to Canada.

Chain pain

Two weeks later, I was back at the drawing board with my T square, slide rule and crepe eraser in hand, working out the dimensions that would enable the machine shop to create prototype No. 1. (We had heard rumors of computer-aided-design, but I hadn't yet used a computer—let alone allow it to do refined engineering work.)

The prototype operated, well, not flawlessly, but impressively until the custom chain broke when a 200-plus-pound engineer (not me) lunged on the pedal.

I knew the chain was marginal, and I had warned all observers that breakage was possible. So, now I shifted from inventing the concept, which we had just proved practical, to designing the chain and about a dozen unique parts—each of which would have to withstand the abuse of a 200-pound gorilla. (No offense intended, Paul.)

The chain was a high priority because management would want to see a reliable demonstration ASAP.

I had three main choices for dramatically increasing the chain's breaking point: Use a high-grade steel, increase the size of the links, or both.

The chain's pitch, links per foot, would determine the size of the drive components and the weight of the entire mechanism. That was not desired because we had hopes of entry in the Grand Prix, only three months away, and lightweight was an advantage.

The bottom line, unfortunately, was that the initial inventor, who now owned the company, was upset when told by the patent attorney that

his name could not be included on the patent. He died before he could capitalize on the project.

Phase 2

Now, let's look into the design phase.

Many of the seemingly unimpressive details of the design may be patentable. And the point is not only to strengthen the patent, but it may be that one of your unimpressive details becomes the only feature that is patentable.

This situation may not make you proud, but the patent is still impressive when used in your licensee's advertising, for example.

Lessons learned:

To be hired as an inventor, you may have to call yourself a design engineer. Serious personnel managers don't admit that we inventors exist as practical human beings capable of creating unique products, even though we can't always perform on command.

New products get invented and designed. However, when timing is critical—and it usually is—invent and prototype to prove your invention works as imagined, and file for a patent as a phase of creating the new product. Don't worry about the chain not being strong enough; that's a design function.

Alternatively, file as soon as you have your invention well enough defined to convince the patent examiner that it will work. This is a bit of a gamble; the patent examiner may ask for a more complete definition before seriously considering approval. However, the date of your filing provides some proof of priority that you may need in case of a contest with another inventor.

Trivial features may be the only things that get you a patent.

Jack Lander, a near legend in the inventing community, has been writing for *Inventors Digest* for nearly a quarter-century. His latest book is "Hire Yourself: The Startup Alternative." You can reach him at jack@Inventor-mentor.com.

Podcasting for Inventors

A QUICK OVERVIEW, INCLUDING THE MEDIUM'S MULTIPLE BENEFITS AND TIPS FOR GETTING STARTED **BY ELIZABETH BREEDLOVE**

BECAUSE PODCASTS provide a unique and intimate platform for sharing stories, insights, and expertise, they are an ideal tool for inventors looking to amplify their message. Let's dive into the world of podcasting, exploring its benefits and providing a guide for inventors to get started with them if they haven't already.

Podcasting is a form of digital media that involves creating and distributing audio content through the internet.

Podcasts are typically episodic, allowing creators to produce a series of audio recordings on specific topics. Users can subscribe to podcasts through the platform of their choice, enabling them to receive automatic updates whenever new episodes are released. Podcasts cover a wide range of subjects, from business and technology to entertainment and self-improvement.

Incorporating podcasting into your overall marketing strategy as an inventor can offer numerous advantages:

Storytelling and connection: Podcasts allow inventors to tell their stories in a personal and engaging manner. Sharing the journey of how an invention came to be, the challenges faced throughout the development process, and triumphs achieved create a powerful connection with listeners.

Thought leadership: With podcasting, you have a platform to showcase your expertise in your industry or field. By discussing relevant topics and sharing insights, inventors can position themselves as thought leaders and gain credibility within their niche.

Audience engagement: Podcasts offer a unique opportunity to engage with your audience on a deeper level. The conversational nature fosters a sense of intimacy, allowing listeners to feel like they are part of a community. You can then continue the conversation with listeners by posting recaps or clips on your social channels, and inviting people to engage with the content in the comment section.

Brand building: Building a brand goes beyond a logo and a tagline. Podcasting allows inventors to establish and reinforce their brand identity through consistent messaging and a unique voice. When done right, it's a more organic and personal way to build your brand as you connect with your audience.

Versatility: Podcasts can be consumed anytime, anywhere. Whether your audience is commuting, working out, or relaxing at home, your podcast can accompany them, increasing your listenership and their likelihood of engagement.

Getting started

Here are the practical aspects of getting started and adding a podcast to your marketing strategy.

Define your podcast's purpose and audience. Before you begin to dive into the technical aspects of podcasting, it's crucial to define the purpose of your podcast and identify your target audience. What message do you want to convey, and to whom are you speaking? Understanding these elements will guide the content and tone of your podcast.

Choose a unique and catchy podcast name. This is the first impression listeners will have. Make it memorable, reflective of your brand, and easy to spell. Ensure that the name is not already in use to avoid confusion or infringement claims.

Invest in quality equipment. You definitely don't need a professional studio to start podcasting, but investing in decent equipment is essential for producing high-quality audio. Consider

purchasing a good microphone, headphones, and a pop filter to improve sound quality. Fortunately, decent podcasting equipment is cheaper than you may think, making it a low barrier to entry! As your podcast gains popularity, you can always upgrade your equipment if needed.

Select a podcast format. Will it be interview based, solo commentary, or a combination of both? Establishing a consistent format helps create a cohesive listening experience. It also makes it easier for you to plan content, as you'll have a guideline to follow already in place.

Create an engaging introduction and outro. Craft a compelling introduction that hooks listeners, fits your brand's voice and tone, and clearly communicates what your podcast is about. Similarly, design an outro that includes a call to action, encouraging listeners to subscribe, share, and engage with your content.

Plan and structure your episodes. Outline the structure of your episodes, ensuring a logical flow of content. Include repeatable segments, such as Q&A sessions, guest interviews, or feature stories, to keep your podcast dynamic and engaging. Not every episode needs to follow the same format, but you do need some continuity between episodes.

Aim for quality recording and editing. Choose a quiet space for recording, minimizing background noise. Free and user-friendly software like Audacity or GarageBand can be used for editing. Pay attention to pacing, removing any unnecessary pauses or distractions.

Use podcast hosting and distribution. Select a podcast hosting platform such as Libsyn, Podbean, or Spotify for Podcasters to store and distribute your episodes. Once your episodes are uploaded to your host, podcasting platforms like Apple Podcasts, Spotify, and Google Podcasts can be used for wider distribution.

Promote. Leverage social media, your website, and email newsletters to promote your podcast. Create visually appealing graphics and snippets to share on various platforms. Encourage guests and listeners to share their favorite episodes.

Sharing the journey of how an invention came to be, the challenges faced throughout the development process, and triumphs achieved create a powerful connection with listeners.

Make scheduling consistent. Create a podcasting schedule to help you regularly release episodes to keep your audience engaged. Consistency helps build anticipation and establishes trust with listeners.

Podcasting has emerged as a powerful tool for inventors to amplify their message, connect with their audience, and establish themselves as industry leaders. By understanding the benefits of podcasting and following a structured approach to getting started, inventors can harness the full potential of this dynamic medium as they market their invention.

Let your invention story resonate with a global audience eager to listen and learn.

Elizabeth Breedlove is a freelance marketing consultant and copywriter. She has helped start-ups and small businesses launch new products and inventions via social media, blogging, email marketing and more.

Enabling in a Good Way

3 DEVICES SHOWCASED AT CES HELP IMPROVE THE LIVES OF THOSE WITH PHYSICAL IMPAIRMENTS

BY JEREMY LOSAW

THE CONSUMER ELECTRONICS SHOW is the premier tech event of the year, and 2024 offered a technological feast.

AI is starting to make its way into all categories of consumer electronics. Big players announced bleeding-edge tech like the LG transparent TV and the $200 Rabbit R1 personal AI assistant.

These devices are great for a large majority of people, who have full access to their senses and physical abilities. However, the hidden trend of enablement tech is emerging.

Devices that help people who are differently abled are starting to make their way to the fore. Here are three companies that exhibited new enablement tech in the CES Eureka Park area that are looking to help improve the lives of people with physical impairments.

Kangsters Wheely-X

The Wheely-X is a gaming controller for wheelchairs.

The user wheels his or her chair up the ramp and onto the roller wheels at the back of the device, which is plugged into a computer. The sensors on the roller wheels pick up the motion of the wheels as the user spins them and turns that into motion inside a video game. The device can be used for bespoke wheelchair-based games or as a controller for other video games.

Company founder Kyrian Kim's goal for the product is to allow people in wheelchairs to have access to fitness. His mom uses a wheelchair, and his experience living with her inspired him to want to help.

"As a fitness lover myself, I always wondered why, with my mom in a wheelchair, it is so hard to access fitness," Kim said. "I want my mom as healthy as possible."

Inspired by the impact Peloton was having in personal fitness, he set out to create a "Peloton for wheelchairs."

Before starting the Wheely-X project, Kim spent time at a different company working on smart wheelchairs, so he thought his project would be easy.

A gaming controller for wheelchairs. A headset for blind people. A tongue-activated device controller. Enablement tech is emerging.

Below: Cornel Amariei of Romania wanted to invent a product for the underserved blind community.

Bottom right: Kyrian Kim's goal is for people in wheelchairs to have access to fitness.

A few years later, he admits the development was more difficult than expected. He has found it hard to make a device that is helpful for the different abilities of wheelchair users.

However, he is now selling his product and having success as a business-to-business product; approximately 80 percent of the devices in the field are at fitness and rehab centers. He would like to increase the device's reach by pushing more toward the consumer market so that it can be an everyday fitness product.

A South Korea native, Kim is pushing to place Wheely-X in gyms in the United States to allow people able bodied and otherwise to experience the fun and challenge of using it, and to make it a part of fitness routines like a treadmill or elliptical.

Lumen

This headset for blind people uses Lidar technology like that of a self-driving car to guide them through the physical world. It maps terrain, detects obstacles and provides directional guidance by providing vibrating pulses to the temples that direct users left or right to maneuver around objects and navigate the environment.

Lumen was founded by Romanian inventor Cornel Amariei—named one of the most influential 10 people under 30 in Europe by Forbes USA. As the only able-bodied person in his immediate family, he understands how technology can remarkably improve the lives of disabled. He realized that the blind community was underserved, so he wanted to build a product to help.

"There are 14 million blind people in the world. ... You only find two solutions which are actually used—the blind cane and the guide dog," Amariei said, noting they are thousands of years old.

Guide dogs are effective but time consuming and expensive to train. And sometimes, they are not compatible with their owners or their lifestyle.

"What if we can use technology to do what a guide dog does without the drawbacks?"

Amariei and his Transylvanian team took self-driving car technology and scaled it down to proportions that would fit inside a headset. It was a huge challenge, but he and his team succeeded in shrinking the tech to use 10 percent of the power and 10 percent of the space.

Lumen has been tested with more than 250 blind people; Amariei even had live tests with blind people at his booth on the CES show floor.

The product, now in manufacturing and certification, will be on the market this year in eastern Europe and land in the States in 2025.

Augmental

This tongue-activated device controller, shaped like an orthodontic retainer, has a circuit embedded in it to pick up pressure and movement of the tongue to allow control of devices like smartphones or computers.

Tomas Vega wants disabled people to be able to participate in the digital world.

Founder Tomas Vega wanted to allow disabled people to be able to participate in the digital world.

"The world is no longer a world of atoms but a world of bits. If you are excluded from the digital arena, you are excluded from the world," he said.

Augmental has been in development for four years. It relies on modern tech—such as 3D printing and scanning and flexible circuit technology—to make each device work and customize it for the unique mouth physicality of each user. The device is now in the marketplace and being used extensively, with some people using it for 8 hours a day.

Vega admitted it has been a struggle to find investors to buy into enablement tech but believes the value of including marginalized people in the digital, augmented and virtual worlds is worth the effort of development.

Details: wheely-x.com, dotlumen.com, augmental.tech

Jeremy Losaw is the engineering director at Enventys Partners, leading product development programs from napkin sketch to production. He also runs innovation training sessions all over the world: wearewily.com/international

PHOTOS BY JEREMY LOSAW

Freedom for Fido

WOMAN'S 4-IN-1 DEVICE GIVES OWNERS CONTROL AND DOGS THE ABILITY TO ROAM AND PLAY

BY EDITH G. TOLCHIN

WE HAVE FEATURED quite a few newly invented pet products over the years: The Lure's Allure/SwiftPaws, *Inventors Digest* February 2024; Catamazing, *ID* November 2022; HummViewer, *ID* March 2023; Walkee Paws, *ID* February 2022.

Here's a new pet product, Leashball™, invented by Kim Moore of South Lake Tahoe, California.

Edith G. Tolchin (EGT): Tell us about yourself. Where are you from?

Kim Moore (KM): My husband and I live in one of the most beautiful areas of the world, South Lake Tahoe.

The experiences of my youth taught me that life wasn't going to be easy, and no one was going to make the world a better place for me. It was all on me to put my best foot forward and make my world a place that made sense to me as I traversed my way from childhood to adulthood.

For the past three decades, with my husband (and best friend), we have raised three incredible children who have since become amazing individuals in the world. We are blessed with a granddaughter who is the biggest supporter of my inventions. I serve as a Realtor, which has enriched our lives and funded my inventions.

EGT: How did Leashball come about?

KM: I am both a dog and outdoors enthusiast. Many of our vacations were spent pitching tents and boating on our lakes in California. As time evolved, more dog restrictions for leashes were becoming prominent. My daughter's Min Pin was one of those playful dogs that loved to greet all the newcomers but wasn't so anxious to listen to our commands!

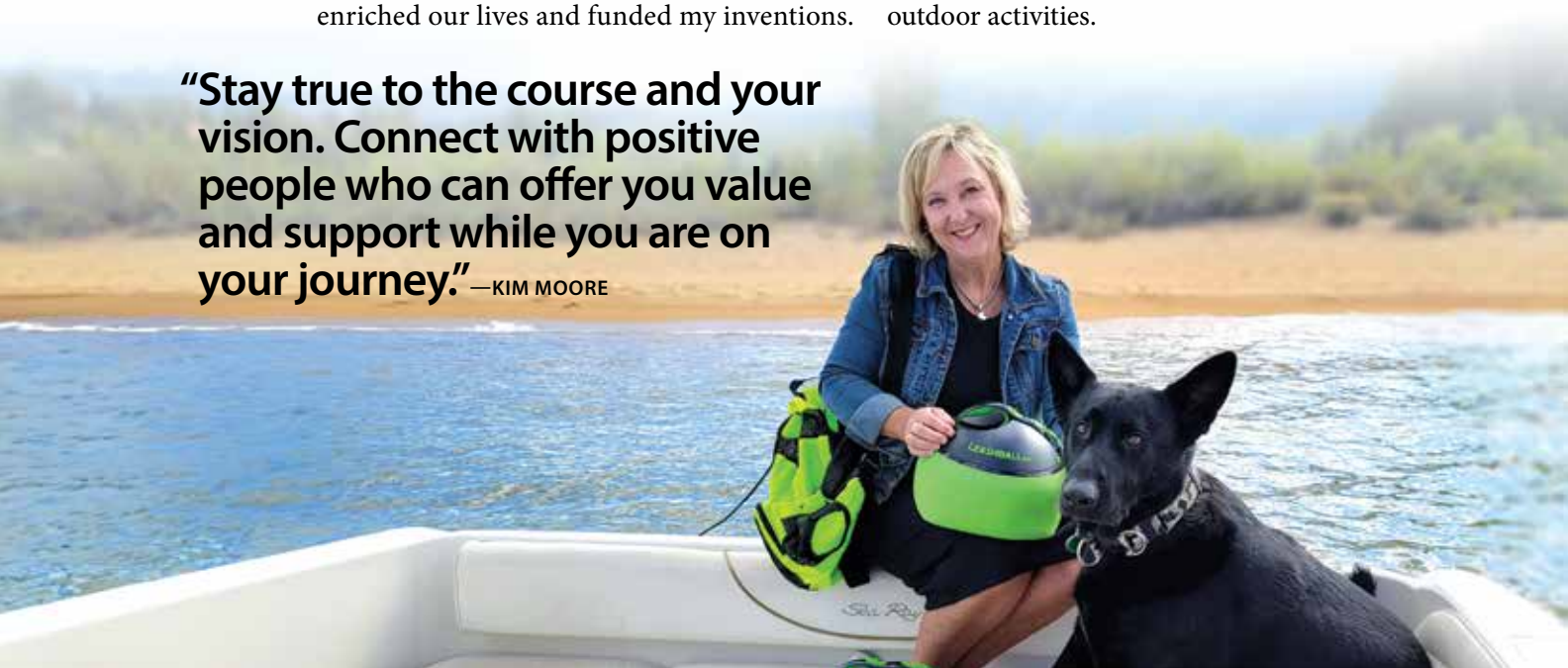
At first, as many do, we tied him to the beach chair. This was not very effective, as his leash was constantly getting tangled around everything and became a huge annoyance. Leashball came about from those many trips to the beach, coupled with fireside family conversations with a wine glass in hand.

EGT: Please describe Leashball's features.

KM: Leashball is the ultimate 4-in-1 solution for pet owners who want to keep their pets under control while giving them the freedom to play and roam. There's no need to worry about tangled leashes or runaway, lost pets.

This versatile device combines a 15-foot tethering system, a food bowl, water bowl, and a removable, retractable leash into one compact package, making it the perfect solution for outdoor activities.

"Stay true to the course and your vision. Connect with positive people who can offer you value and support while you are on your journey."—KIM MOORE



EGT: Do you have various models/styles, or just one? Any add-ons?

KM: Leashball currently only has one model (or) style. We are hoping to add a smaller-size ball and more colors once we are successful with the size and color we have.

Our green was chosen specifically for its brightness and versatility. Our retractable leash is propriety, so if your leash gets lost, you can order a new one. We will also have an upgraded bag to carry your Leashball to your various outdoor activities.

EGT: Where are you selling?

KM: It is selling on our website. Our goal is to sell it in retail pet stores that cater to outdoor dog activities. We are hoping to put Leashball into some outdoor sporting goods stores as well.

EGT: Is Leashball patented? Did that process take a long time or much effort?

KM: I had a provisional patent application for the first prototype of Leashball. The process was arduous and expensive and only lasted one year before a full patent was required. This would have been amazing, except more alterations were required on the first prototype, rendering the provisional patent application null and void.

Knowing what I know now, I would not have filed a provisional patent application. But the patent explorations did prove we had a unique product.

EGT: Where are you manufacturing?

KM: Leashball is being manufactured in China. I was fortunate to have an engineer who not only was well versed with the inventor community but also had substantial connections to manufacturing in China.

We all try to have our products made in the USA, but as a sole proprietor and financer this was not an option given the extreme costs to create prototypes and molds.

EGT: Have you encountered any logistics problems?

KM: I think we all encounter some type of logistical issues, whether with product development or environmental. China is a lovely country, but it does have an extensive number of holidays we had to contend with.

The other main constraint occurred during COVID-19. Not only did it affect my ability to produce income to support the manufacturing of Leashball, it also lengthened the entire process.

EGT: What is your advice for novice inventors beginning to develop a product for the pet industry?

KM: One of the most important pieces of advice I can offer is to stay true to the course and your vision. Connect with positive people who can offer you value and support while you are on your journey.

Being an inventor is not for the faint of heart. It can be draining both emotionally and financially. But on the flip side, inventing is one of the most growth-producing processes a person can experience.

Be tenacious in your spirit. Never view mistakes as a failure but as a challenge to make your invention better. Look to those who have been in the industry before you; befriend them, and soak up all the information you can.

Lastly, finish what you set out to accomplish—no matter how many roadblocks you may encounter. There is nothing more exhilarating than to see and hold your product after years in the making.

Details: leashball.com

Leashball combines a 15-foot tethering system, a food bowl, water bowl, and a removable, retractable leash into one compact package.

PHOTOS COURTESY OF LEASHBALL

Edith G. Tolchin has written for *Inventors Digest* since 2000 (edietolchin.com/portfolio). She is the author of several books, including "Secrets of Successful Women Inventors" (https://a.co/d/fAGlvZJ) and "Secrets of Successful Inventing" (https://a.co/d/8dafJd6).

WHAT WERE THEY THINKING?

QUESTIONABLE INVENTIONS IN OUR DAILY LIVES—AND QUESTIONS ABOUT THEM

AT *INVENTORS DIGEST*, we don't just like inventions. We celebrate them, along with the creative spirit and perseverance involved.

But also at *Inventors Digest*, sometimes we just don't like inventions. Certain ones.

This cover package is a rare occasion when we'll talk about that in an extended way. The purpose is not to be negative; it's to show how even the best intentions can be short-sighted.

This list of current, mainstream inventions will give a nod to those good intentions and other positive aspects—while detailing why overall, we might be better off without them. —*Reid Creager*

PLASTIC BAGS

ACCORDING TO a 2016 report by the World Economic Forum, by 2050 there will be more plastics in the ocean by weight than fish.

Plastic bags are easy to manufacture and carry, lightweight and versatile. They are also an ongoing, manmade wrecking ball to the environment—although recent actions by governments to limit them show promise.

The World Economic Forum says only 16 percent of plastics are recycled. Much of the rest ends up in oceans, rivers and landfills, where they can linger for hundreds of years. Worse, plastic releases harmful greenhouse gases as it slowly breaks down.

The WEF says these ubiquitous shopping bags make up 14.1 percent of garbage in our oceans. Plastic bottles that contain liquids including sports drinks, soda drinks and water are second at 11.9 percent.

Stanford News reported in 2021 that during the past decade, the rate of plastic consumption by fish had doubled, increasing by 2.4 percent every year. Animals also can mistake plastic bags for food, leading to blockages in their digestive system or choking.

Plastic bags are mainly made from petroleum, a non-renewable resource. The extraction and processing of petroleum is harmful to the environment.

Another result of plastic bags, and perhaps the most annoying and unsightly, is their contribution to litter because of how easily they blow in the wind.

Although the health community has known of the environmental hazards of plastic bags for more than half century, the United States has been slow to act. A promising sign emerged in 2022, when the U.S. Department of the Interior issued Secretary's Order 3047. This "aims to reduce the procurement, sale and distribution of single-use plastic products and packaging with a goal of phasing out all single-use plastic products on Department-managed lands by 2032."

Further, a January 2024 report from nonprofits Environment America, U.S. Public Interest Research Group Education Fund and Frontier Group found that bans on plastic bags in America have reduced the number of bags used by billions.

The study, "Plastic Bag Bans Work," revealed that bans in New Jersey and Vermont—as well as in Philadelphia, Portland, Oregon, and Santa Barbara, California—reduced the number of single-use plastic bags used each year by about 6 billion.

A January 2024 report found that bans on plastic bags in America have reduced the number of bags used by billions.

The report said that more than 500 municipalities in 28 states had plastic bag legislation in effect as of 2021. Additionally, 12 states have single-use plastic bag bans: California, Colorado, Connecticut, Delaware, Hawaii, Maine, New Jersey, New York, Oregon, Rhode Island, Vermont and Washington.

Some other countries have also acted. According to a report by Kelvin Chidi Ujeh for the International Bar Association, South Africa has restricted the manufacture and usage of plastic bags by enacting parliamentary legislation. Several European countries and Japan have adopted a fee for plastic bags.

BOTTLED WATER

HOW MANY TIMES have we seen otherwise well-meaning influencers and decision makers sitting at a meeting or hearing with a plastic water bottle in front of them? The sight is drenched in irony.

In a 2019 TED Talk, a man with the strange name of Jesper K. Strange Kjeldsen said bottled water is one of the dumbest inventions ever.

Early disclaimer: Kjeldsen has a vested interest in saying so. He is cofounder of the Danish water company Postevand, the Danish word for tap water. But besides the environmental damage caused by bottled water plastics, other alarming facts about the product can't be ignored.

Entrepreneur Jesper K. Strange Kjeldsen said bottled water is one of the dumbest inventions ever.

Kjeldsen mentioned the potentially harmful effects of consuming microplastics— polymer fragments that can range from less than 0.2 inch (5 millimeters) down to 1/25,000th of an inch (1 micrometer)—in bottled water.

Turns out, the effects of these teeny bits of plastic could be even more harmful than he said.

The reports of a study by scientists at Columbia University and Rutgers University, released in early January 2024, revealed that bottled water sold in stores can contain 10 to 100 times more bits of plastic than previously estimated.

These bits of plastic are nanoparticles, which are smaller than microplastics and so infinitesimally tiny they cannot be seen under a microscope. At 1,000th the average width of a human hair, nanoplastics can migrate through tissues of the digestive tract or lungs into the bloodstream, distributing potentially harmful synthetic chemicals throughout the body and into cells, according to experts.

TIME magazine reports that although there is little evidence that shows what exactly happens once nanoplastics enter the bloodstream, "there is copious evidence that chemicals used in plastic production are deleterious for human health and mammalian reproduction.

"Even if the nanoplastics themselves are not harmful, they can serve as carriers for dangerous chemicals used in plastic production, such as bisphenols, phthalates, dioxins, organic contaminants, and heavy metals that are harmful in high doses, increasing the risk of cancer and impacting key organs such as the kidneys, the liver, the heart, reproduction and the nervous system. They can also accumulate through the food chain."

In fairness to bottled water proponents, tap water is not without issues.

Six months before the January news about bottled water, a study by the U.S. Geological Survey showed that at least 45 percent of America's tap water could be contaminated with at least one form of PFAS known as "forever chemicals." (PFAS stands for per- and polyfluoroalkyl substances.) These abundant chemicals are found in items ranging from nonstick cookware to stain-resistant carpets to contaminated sources of food and water.

Easy-to-install filters can help reduce these impacts.

Kjeldsen says paying to drink water is tantamount to paying for air. It may be more accurate to say that consumers of bottled water are paying to drink *cleaner* water.

But a lot of facts say this is not happening.

PUSH-BUTTON CAR IGNITION

IF YOU'RE LOOKING for a debatable entry on our list, this 21st-century offering might get you started. Especially if you're in the automotive industry.

But there is a lot of factual evidence to wonder why this invention, now a mainstream "feature," ever happened.

Part of the thinking behind the push-button or keyless ignition is that it is somehow easier to start a car by pushing a button than turning your wrist. The "logic" goes all downhill from there.

Another purported attraction of the push-button setup is that because the ignition won't start until it gets a signal from the paired fob, this bars entry by thieves. Fine, in principle—except for two things.

First, the notion of a theft-proof fob is a decided oxymoron. Second, the fob creates a new opportunity for theft. Or, make that opportunities.

In 2022, Los Angeles-area college student Ayyapan Rajesh and co-researcher and IT security expert Blake Berry, from the GitHub project HackingintoYourHeart, proved flaws in keyless entry systems for a research project at the University of Massachusetts Dartmouth.

"I was surprised how easy it was. An 8-year-old can do it," Rajesh said in a TV report.

Faraday pouches, which block fob signals and protect credit card chip information, can help. But given the fact that hackers seem to always be ahead of the next anti-theft innovation, maybe an old-school Club across the steering wheel is just as effective or better.

Last year, Ian Tabor, a London man who is a cybersecurity researcher specializing in automobiles, was stunned to learn his keyless-entry Toyota RAV4 was stolen. He was victimized by an ingenious heist that he called a CAN Injection Attack (CAN standing for Controller Area Network), accomplished by compromising the vehicle headlight's Electronic Control Unit.

The headline on the arstechnica.com story read: "There's a new form of keyless car theft that works in under 2 minutes."

The notion of a theft-proof fob is a decided oxymoron. The fob also creates a new opportunity for theft.

A story on motoroius.com showed the perils of keyless fobs making people more lazy: A recent spike in auto thefts was attributed to people leaving their fobs in the cupholder.

Keyless-ignition systems often make it harder to tell whether the vehicle's engine is running. That proved a deadly silence for a couple who, according to the *New York Times*, mistakenly left their 2017 Toyota Avalon running in the garage and died of carbon monoxide poisoning.

Regardless of theft considerations, the addition of a fob with a car is just one more thing that can go wrong or break—think icemaker on a refrigerator—which can be a major inconvenience or danger if you are in the wrong place at the wrong time.

But nothing is more of a head-scratcher than the automotive industry lauding the convenience of a keyless-entry fob that prevents you from fumbling around in your pocket or purse for car keys. Unless they make an invisible fob, you will always have to know where that is as well.

STYROFOAM

NINETY-FIVE PERCENT AIR, Styrofoam is used for cups, plates, egg cartons, insulation, in packaging, and other purposes. It is inexpensive to produce.

Its harmful effects on the environment—many of them shared with plastic—is the obvious main drawback. According to Better Goods, Americans throw away 25 billion Styrofoam coffee cups every year.

Made from a plastic called polystyrene, Styrofoam was first synthesized in 1839 but not developed in the form we know until 1941, when the Dow Chemical Co. wanted to create a life raft for the U.S. Coast Guard.

(Styrofoam is a trademarked name but often used to refer to other polystyrene foam products, akin to any kind of tissue paper often being referred to as Kleenex.)

Also like plastic, it is petroleum based, is a choking hazard for animals that mistake it for food, and is found in abundance in landfills. According to Green Citizen, 80 percent of the total Styrofoam produced in the United States ends up in landfills, and about 1,369 tons of it are buried in U.S. landfills daily.

Although Styrofoam is not biodegradable—depending on which source you believe, it takes from 500 to a million years to decompose—you may be surprised to learn that it is recyclable. However, because of its bulk, it is not accepted by most local communities when placed in outdoor or commercial recycling bins. You have to find programs that accept Styrofoam waste, or special drop-off locations or collection events.

According to Green Citizen, 80 percent of the total Styrofoam produced in the United States ends up in landfills.

Green Citizen says recycling Styrofoam is so expensive because recycling centers "have to invest in special machines that can process the material into condensed blocks. These machines are more expensive than the market rate for recycled Styrofoam, which means recyclers lose money by recycling Styrofoam.

"Also, most local recycling centers don't have the necessary equipment for Styrofoam recycling, so it has to be sent to a centralized plant, which makes the whole process very costly."

Even with the necessary equipment, it's difficult to revert Styrofoam to its basic foam.

Styrofoam also has links to cancer. When a Styrofoam container is heated, it can leach one of the chemicals used in its production, called styrene, into food and drinks. Styrene is suspected to be a human carcinogen.

Styrofoam is also highly flammable, and fumes during burning can be toxic.

In 2019, Maine became the first U.S. state to ban Styrofoam food containers. Many others have followed suit.

Alternatives include foam products made from mushrooms and corn, which are fully compostable.

CIGARETTES

IT'S NOT EXACTLY NEWS to report that cigarettes have a strong link to cancer. They have more than 4,000 chemicals—200 of which cause cancer, according to Dr. Antonio Howell, who helps smokers try to quit.

What is fascinating is how long they have hung on as a mainstream product despite overwhelming evidence they can kill you.

From the time the first machine for rolling cigarettes was invented in France in 1843, cigarettes' "health benefits" were touted to encourages sales. (Few know that cigarettes' most notorious component, nicotine, has health benefits that include antidepressant properties, weight loss, and treatment of Parkinson's disease.)

If you've ever sifted through the pages of a vintage magazine at an antique store, a big part of the amusement is the ads. It can also be a big source of amazement.

As late as the 1960s, it was common to see ads with a doctor promoting the health benefits of cigarettes. They indulged in the ultimate irony: claiming their cigarette caused less coughing and throat irritation than the other guy's.

One of the staples of the classic TV series "Mad Men" was the high-wire act of pushing a product that was under growing scrutiny since incidences of lung cancer began spiking in the 1940s. That was a forever turning point for cigarettes—aided by the landmark 1964 surgeon general's report on smoking and health, along with nearly universal bans on smoking in public places.

History.com has a great piece on how major cigarette manufacturers played this shell game with the most creatively positive spin. Philip Morris advertised "health studies" it sponsored through the 1940s. So did R.J. Reynolds Tobacco Co., which even created a Medical Relations Division it advertised in medical journals.

Cigarettes have hung on as a mainstream product for a long time despite overwhelming evidence they can kill you.

In 1946, History.com wrote, "Reynolds launched an ad campaign with the slogan, 'More doctors smoke Camels than any other cigarette.' They'd solicited this 'finding' by giving doctors a free carton of Camel cigarettes, and then asking what brand they smoked."

According to the U.S. Centers for Disease Control and Prevention, cigarette pack sales declined from 21.12 to 10.79 billion packs during 2000–2020. That is a hefty decline, but still a hefty number of cigarettes sold.

The CDC also reports that cigarette smoking cost the United States more than $600 billion in 2018—including more than $240 billion in health care spending—and that the tobacco industry spends billions of dollars each year on cigarette and smokeless tobacco advertising and promotions.

We are a long way from snuffing this out.

DYNAMITE

THOUGH USEFUL IN DEMOLITIONS, this nitroglycerine-based agent of mass destruction is often used for the wrong purposes. But you can say the same thing about other mainstream items ranging from guns to kitchen knives.

What sets apart dynamite is that it figuratively blew up in the inventor's face.

When Alfred Nobel's experiments with nitroglycerine resulted in accidents that killed several people—including his younger brother, Emil—one would think he would turn to other pursuits. But his father, an engineer and inventor, built bridges and buildings and had long experimented with ways of blasting rocks. Perhaps most important, explosives and detonating caps were in great demand in mid-1860s Sweden.

Alfred got a patent for dynamite in 1867. He had discovered that mixing nitroglycerine with a fine sand called kieselguhr turned the liquid into paste, which could be shaped into rods that were inserted into drilling holes. He was soon running almost 100 factories.

Never did he imagine dynamite would be used as a common weapon of war. In his most famous quote, he said:

"Perhaps my factories will put an end to war sooner than your congresses: On the day that two army corps can mutually annihilate each other in a second, all civilized nations will surely recoil with horror and disband their troops."

Dynamite grew a more notorious reputation when used for killing. Nobel's association with the substance worsened when one of Alfred's older brothers died in April 1888 and a French newspaper, thinking Alfred had died, wrote an unflattering obituary.

It has been widely reported that the obit said: "The Merchant of Death is Dead! Dr. Alfred Nobel, who became rich by finding ways to kill more people faster than ever before, died yesterday."

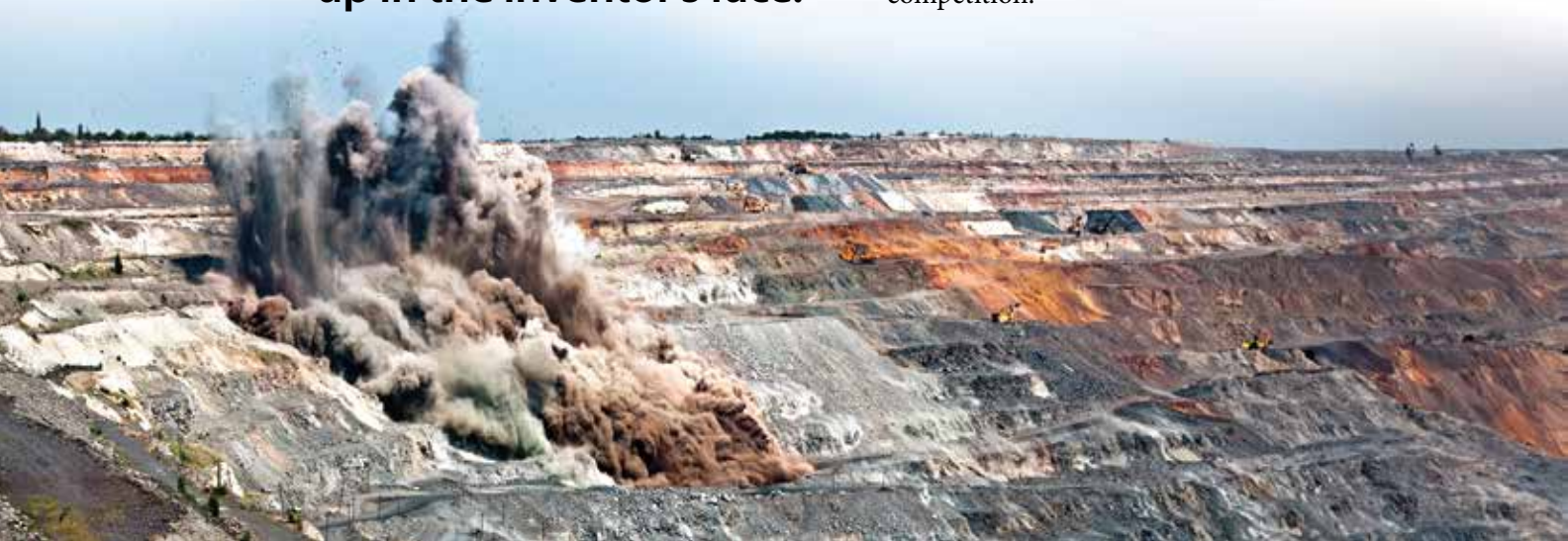
There is no proof of this. According to research relayed in the History Stack Exchange, the newspaper account was much milder: "A man who can not [sic] very easily pass for a benefactor of humanity died yesterday in Cannes. It is Mr. Nobel, inventor of dynamite."

Urban legend goes on to say that after reading the mythical "Merchant of Death" characterization, Nobel was so determined to be known as a man of peace that he devoted the rest of his life to it.

In fact, his name on the Nobel Prize resulted from his friendship with peace activist Bertha von Suttner, the author of "Lay Down Your Arms." When he wrote his will to establish the Nobel Prizes, he included an award for those promoting peace.

Dynamite has a little-publicized alternative called Drizoro Maxdinamit, a highly expanding mortar for safer demolitions that can also be more economical in many instances. One can assume Alfred Nobel wouldn't mind the competition.

What sets apart dynamite is that it figuratively blew up in the inventor's face.



TANNING BEDS

USED CORRECTLY, a tanning bed gives you browner skin.

That is the only known "benefit" of tanning beds. Ironic, given that tanned skin is damaged skin.

Damaged skin ages prematurely. So while you are adding the color you think makes you look younger, you are speeding the skin's aging process.

Tanning beds provide mainly deep-penetrating UVA rays, which do not provide important Vitamin D and which have been linked to melanoma. Nearly 70 percent of tanning salon patrons are Caucasian girls and young women.

How dangerous are these human Easy-Bake Ovens since their inception 40-plus years ago?

The World Health Organization's International Agency for Research on Cancer classified UV tanning beds as Class 1 human carcinogens. That's the highest risk category.

The myth that tanning beds provide Vitamin D was disproven long ago. So is the notion that indoor tanning is safer than outdoor tanning.

The Derm Review reports that "teenagers and young adults who use tanning beds regularly can be especially vulnerable to skin damage." Anne Arundel Dermatology says more people develop skin cancer from tanning than develop lung cancer from smoking.

Brazil and Australia are among the countries that have completely banned commercial indoor tanning, with many others mandating some kinds of restrictions.

America is also taking action. Forty-four of the 50 states have passed laws that provide some form of under-18 restriction on indoor tanning.

If you're a teen looking for that "Hollywood tan," your best bet is a California beach. Because in 2012, California became the first state in the union to ban tanning beds for those younger than 18.

(If your workout place has tanning beds, you might be as surprised as I am. TrustedChoice.com, which has a webpage devoted to tanning salon insurance, says personal injury lawsuits are increasing from consumers who believe they have been harmed by beds.)

The World Health Organization classified UV tanning beds as Class 1 human carcinogens. That's the highest risk category.

Family Doctor says that if you are determined to have browner skin, try a self-tanning product that contains the active ingredient dihydroxyacetone (DHA). This active ingredient has been approved by the U.S. Food and Drug Administration.

Self-tanning products in the form of lotions, foams, wipes and sprays are also abundant. Most will make your skin darker in just a few hours.

You will have to re-apply after a week or so, but that's better than the risk of being a patient in a cancer ward.

VAPING

If nicotine is the most dangerous element in cigarettes, why invent a substitute that thrives on that same element?

THE CLAIMED BENEFITS of vaping as a better alternative to cigarettes are backed by statistics and some experts. However, for every argument on the pro side is an equally powerful argument on the con side.

And it's hard to argue the validity of this question: If nicotine is the most dangerous element in cigarettes, why invent a substitute that thrives on that same element?

Cue the "Dueling Banjos" music for some very vexing vaping validation and vilification:

A July 2019 study by the *New England Journal of Medicine* found that cigarettes smokers who took up vaping were 67 percent more likely to quit smoking. The study also found that e-cigarettes are twice as effective at getting people to quit smoking as traditional nicotine replacements, such as the patch and gum.

The U.S. Centers for Disease Control and Prevention reported that teens who use e-cigarettes are four times more likely to try regular cigarettes than their peers who never used tobacco, and 21.8 percent of youth cigarette use may be attributable to initiation through vaping.

Peter Hajek, professor of clinical psychology at Queen Mary University London, said, "Smokers who switch to vaping remove almost all the risks smoking poses to their health."

The CDC confirmed six vaping-related deaths and over 450 possible cases of lung illness associated with e-cigarettes as of September 6, 2019. People who use e-cigarettes have a 71 percent increased risk of stroke and 40 percent higher risk of heart disease, as compared to nonusers.

(Proponents even say that vaping reduces health care costs. Given the government data in the preceding paragraph, there seems to be a massive disconnect there.)

Here's a fact that cannot be countered. E-cigarettes can catch fire and even explode.

Per Britannica ProCon, e-cigarette explosions have led to the loss of body parts (such as an eye, tongue, or tooth), third-degree burns, holes in the roof of the mouth, and death. Researchers at George Mason University found that 2,035 people sought emergency room treatment for burn or explosion injuries from e-cigarettes between 2015 and 2017, and believe there were more injuries that went untreated.

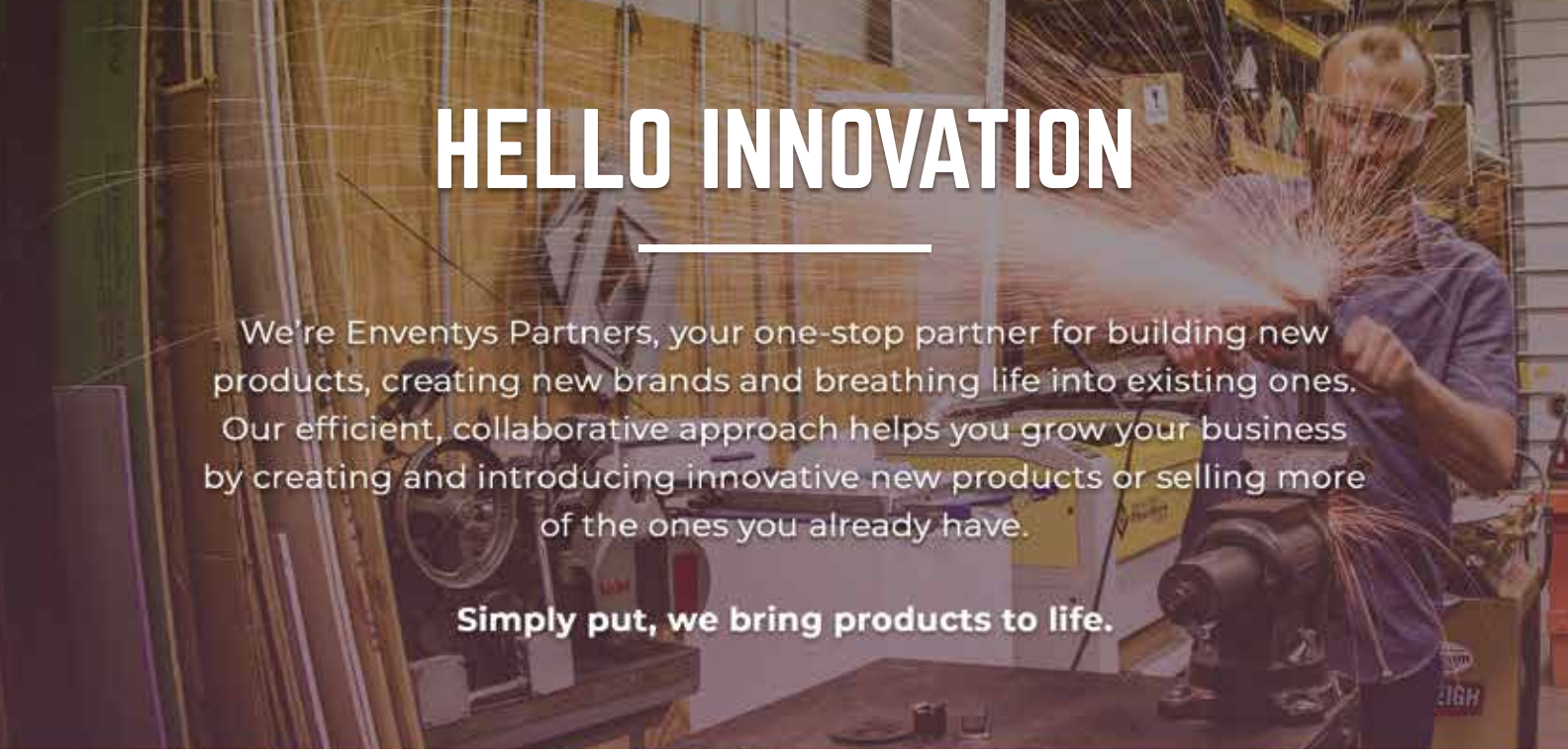
Bottom line: Vaping creates an aerosol or mist that contains small particles of nicotine, metal and other harmful substances. Like cigarettes, it is addictive.

For those who have quit smoking cigarettes and stopped doing e-cigs as well because of vaping, great. But there must be a better way.

TOP 10 (POSITIVE) INVENTIONS

You can find lists like these all over the internet, all differing in content and priority. But a list posted by National Geographic looks right on the money to us, in no particular order:

- **Wheel**
- **Printing press**
- **Light bulb**
- **Telephone**
- **Airplane**
- **Personal computer**
- **Internet**
- **Vaccines**
- **Automobile**
- **Clock**



HELLO INNOVATION

We're Enventys Partners, your one-stop partner for building new products, creating new brands and breathing life into existing ones. Our efficient, collaborative approach helps you grow your business by creating and introducing innovative new products or selling more of the ones you already have.

Simply put, we bring products to life.

HOW WE DO IT

- Product Development
- Industrial Design
- Engineering & Prototyping
- Manufacturing
- Sourcing
- Market Research
- Crowdfunding (Kickstarter)
- Digital Advertising & Marketing
- Social Media Marketing
- Public Relations

We've helped bring more than 2,500 products to market. Is yours next?

For more information and to view samples of our work, enventyspartners.com

ENVENTYS PARTNERS

Bravado is Not an Option

TRITE HOLLYWOOD SLOGANS IGNORE REALITY: YOUR PRODUCT WILL LIKELY HAVE FAILURES AND NEED CHANGES **BY WILLIAM SEIDEL**

JOHN C. MAXWELL is an American author on leadership who wrote, "Leaders who practice the Law of Victory believe that anything less than success is unacceptable. And they have no Plan B."

On one hand, confidence in leadership can be so high that a backup plan is not necessary. It embodies a mind-set of unwavering commitment to succeed.

On the other hand, it is naïve, unprepared and shows an unwillingness to change.

Growth requires change, and pioneering new products involves many revisions. In fact, innovation is change. Having a Plan B is a different route to get to the same destination, or a pivot to a revised destination.

Even the best-designed plans go sideways. Contingency plans are common management tools.

Unrealistic mantra

In the military, contingency plans are used for every phase of every mission. Contingency plans even have contingency plans.

First, this is not a law! It is a rallying cry and an inspirational message to empower people in a primal way.

Maxwell's message may be motivational for generals, absolutists and leaders—but it has no place in business, because change is constant.

Clients have told me, "Failure is not an option!"

This is a mantra for the U.S. Marines and an attitude of total commitment, like the Law of Victory. Though inspiring, this is the stuff of Hollywood.

In 1970, the Apollo 13 moon landing was aborted. The NASA flight director said, "When bad things happened, we just calmly laid out all the options, and failure was not one of them."

This is another Hollywood writer tagline, like "Build it and they will come," from "Field of Dreams"—which is also enormously misleading.

There is no 100 percent success! To say otherwise is to know nothing of sales, marketing, research, development or the product business. Ask any salesperson if he or she converts 100 percent of all leads to sales. The answer is never.

All-Stars fail most of the time

Though it varies by industry, for qualified sales leads a 20 percent close rate is about average. Automotive sales close rates are around 17 percent, home sales close rates around 3 percent.

In music, there is no tolerance for anything less than hitting every note every time. It is right to demand 100 percent success from your airline pilot, but this is not true for most situations.

Eighty percent completions from the basketball free throw line is good; 75 percent pass completion in football is great; batting 35 percent in baseball can make you an All-Star.

But would you hire an auto mechanic with a 35 percent success rate?

A success rate of 10 percent sounds low, but compared to what? Is it 10 percent of product sales off the shelf, which is a miserable failure, or is it one in 10 infomercials that succeed, which is average?

Or, 1 in 10 ideas that succeed from idea to product success, which is highly improbable.

Most consider a 0.2% product success rate unacceptable. However, only 3,000 of 1.5 million patents are commercially viable. And this does not include the high failure rate of unpatented products.

Concept failure rate is huge

Larry Udell of the Innovation Institute evaluated over 20,000 ideas, inventions and products in 30 years. He found 0.1%—or one in 1,000 product concepts—succeed.

Generally speaking, novice inventors are as likely to succeed as the man in the street (0.1%). Ralph Baer, who invented video games, says, "Of the 10 to 15 items we do a year, maybe one or two of them wind up with a licensing agreement."

The Law of Victory is motivational and an affirmation for leadership and generals, but it does not apply to most business situations.

The biggest reason new products fail is no product-market fit. Forty-two percent fail because of no market need, 18 percent fail because of price/cost issues, and 14 percent ignore the customer, which is inviting failure.

Add these percentages and we see most product failure can be avoided by understanding how the product fits a customer need.

Corporations and professionals have customers, listen to them, and their failure rate drastically drops. Novice and independent inventors do not have customers to research.

There can be no realistic projections for early-stage concepts. If it is innovative, it is complicated because there is nothing comparable and requires expensive primary research to identify customers.

If it is just another "me-too-product," sell it at a lower price or with better marketing.

Rare success in early stages

Early-stage product development is from concept to complete product. Business development begins in the early stages to assure there are customers and a viable opportunity.

This continues through the life of the product. Sales success is based on customer acceptance.

Early-stage corporate failure is enormous and hidden. Corporate products fail in the lab, or fail to meet the price, or have poor profits, timing issues, reduced funding, and a host of other reasons.

It's called culling the opportunities or the kill rate: Eliminate the marginal and focus on the profitable.

Many top performing companies have less than a 6 percent success rate of products that start from concept to customer acceptance. These failures are not recorded, rarely discussed, and simply discarded.

Forbes reports the success of new product launched for established businesses can be from 5 to 15 percent. This is after the product is developed and introduced, like evolutionary products and line extensions—which have a success rate of about 10 percent.

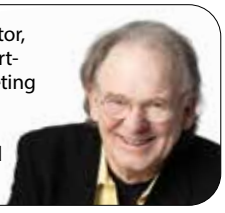
Last word

The Law of Victory is motivational and an affirmation for leadership and generals, but it does not apply to most business situations. Maintaining a positive attitude is important—but not at the risk of denying the truth.

The truth is that anything can succeed if it is marketed correctly. Consider the sales of 22 million Billy Bob Teeth, millions of Pet Rocks and the $300 million of Chia Pet.

Product success is within reach for anyone with the passion, perseverance and grit to make it succeed. And it always starts and ends with the marketing.

William Seidel is an author, educator, entrepreneur, innovator, and a court-approved expert witness on marketing innovation. In his career and as the owner of America Invents, he has developed, licensed, and marketed billions of dollars of products.



Let's Make a Deal

KEY FACTORS IN A LICENSING AGREEMENT MAY VARY IN IMPORTANCE, DEPENDING ON THE INVENTOR AND SITUATION

BY APRIL MITCHELL

I OFTEN GET QUESTIONS about licensing agreements, specifically the most important aspects of them. I have seen my fair share and know that no two are exactly alike.

There are some key factors I look for in a contract. Though I may not always get all of them, I know that a perfect contract does exist because I have signed one (at least it was perfect in my eyes).

Term sheet

This first step is a written document, usually with bullet points, that outlines the key terms and conditions of a deal between two parties. It summarizes the main points of the deal agreements and should be agreed upon before executing the legal agreements.

Certain stipulations typically addressed in a term sheet are a description of the intellectual property being licensed; scope of the license, including the territory, exclusivity and royalty rate (percentage of sales or a payment per unit); payment structure; warranties and representations; termination provisions to protect both sides, and the governing law and jurisdiction.

A term sheet can be created, or the parties can agree on these terms during a meeting or via email. Term sheet stipulations will be in the final licensing agreement. You can find many templates online.

No one can claim definitively what should be the most important factor in a licensing agreement.

The perfect situation

What would be the top factors in my perfect licensing agreement?

In no particular order:

- A non-returnable advance against future royalties upon signing the contract;
- A timeline for release of the product;
- Minimum guarantees built in;
- A marketing strategy.

In my experience, I want 2-4 of these factors. Getting all four is like winning a golden ticket for me—and should you be so lucky as to get all these factors in your licensing contract and can negotiate good terms within these factors, that is a fantastic win.

Some other factors also important to me in a licensing agreement that I'd like to have but don't always get:

- Having my name or company name or logo somewhere small on the box/packaging;
- Getting a certain amount of free units of the product (usually 6-12, depending on the product);
- The right to purchase the product at cost to give as gifts or to donate;
- Being able to purchase at market value any IP gained by the company, such as trademarks or copyrights, after the contract has ended.

Again, these are great to have and a definite win. Most often, I find companies are very open to negotiating factors like this within the contract.

The poll

In January, I took a poll on LinkedIn asking for people to weigh in on the most important part of the licensing agreement. I wanted to see where other inventors and product developers stood.

Fifty-three people participated. The four options were: an advance upon signing the agreement, timeline for product release, minimum guarantee, and other.

Forty-five percent deemed the minimum guarantee most important, followed by 34 percent for timeline for product release, 13 percent for an advance upon signing, and 8 percent for other. The comments section was also valuable to gain knowledge as to the reasoning behind some votes.

As you can see, people value different things in a licensing agreement. So no one can claim definitively what should be the most important factor.

To sign or not to sign

Will I sign a contract if it does not have everything I'd like? Often, yes.

We have to give a little to get a little, and showing that I am a team player can go a long way. However, I believe it's important to have at least a couple of my key factors in agreement for me to feel comfortable signing it.

I may settle for less in an agreement if I know it's the last company looking at a particular product, just so it can make it to retail. Or maybe if I believe in what a company stands for and really would like to work with it—but it doesn't have the funds or resources to do what other larger companies can.

If I started pitching the product to companies and was given an awful offer that a company was not budging on, I may not take it in hopes another company would be more reasonable.

If you are unsure about a contract or have not become comfortable reviewing and negotiating them, you may want to seek advice from a lawyer who specializes in licensing agreements.

April Mitchell of 4A's Creations, LLC is an inventor in the toys, games, party and housewares industries. She is a two-time patented inventor, product licensing expert and coach, and has been featured in several books and publications such as *Forbes* and *Entrepreneur*.

Going Big at the Big Show

ENVENTYS PARTNERS AND THE USPTO HAD SUBSTANTIAL PRESENCE AT AN ACTIVE CES 2024 **BY JEREMY LOSAW**

THE LAST TIME I attended the Consumer Electronics Show—the most popular and widely attended tech event in America—was two years ago. It was ravaged by last-minute pullouts by big tech companies due to COVID concerns.

This year's show was better than ever: well attended (official count of 135,000), vibrant, and a visual feast for the tech enthusiast. Key takeaways from CES 2024:

Enventys Partners booth

We went big for CES 2024. Our massive 40' x 20' booth was at the entrance of the Eureka Park area of the show, perfectly positioned for showgoers to hear about our world-class product development and marketing service.

We shared the booth with three other companies that serve entrepreneurs: Story Box (digital content creation), Easy Ship (All-In-One Shipping Tool for eCommerce), and Retail Bound (agency that launches brands with retailers). The goal was to provide the ultimate resource for those looking to launch and scale their physical product business.

The Enventys Partners team also partnered with Daymond John of "Shark Tank" fame to host a pitch competition. More than 130 entrepreneurs jumped into the pitch booth and did a 90-second pitch for their product. Daymond also stopped by the booth to meet the team and sign a few autographs.

Eureka Park hosts the world

The Eureka Park area of the show, on the ground floor of the Venetian casino, is reserved for startups and university innovations. It has always had a strong international presence, represented this year by companies from France, Italy, Switzerland, Holland, Israel, Taiwan, Korea, Japan and Thailand. These country-sponsored booths accounted for approximately 75 percent of the floor space in Eureka Park.

It is amazing to see the diversity of startups, the products they launch, and the unique cultural flavor of the innovation.

It is amazing to see the diversity of startups, the products they launch, and the unique cultural flavor of the innovation.

Daymond John of "Shark Tank" (front, center) helped Enventys Partners host a pitch competition.

However, the increase in overseas innovation has significantly reduced the number of domestic exhibitors. When I started going to the show seven years ago, most of the Eureka Park floor were U.S.-based companies. It would be great to see domestic innovation make a comeback in 2025 and beyond.

Innovation trends

One emerging, heartwarming trend to see was the rise of enablement technology (covered elsewhere in this issue). This included devices dedicated to improving the lives of differently abled people—including low-cost prosthetic fingers and haptic devices for blind people to enjoy live sporting events.

These types of devices tend to be overlooked because the markets are smaller than those aimed at the general population, It can be hard to procure funding to develop these devices.

There seemed to be a rise in devices aimed at geriatric care: monitoring devices for elders, belts with airbags to protect hips during falls, and gyroscopic gloves to stabilize hand tremors for Parkinson's patients.

It was great to see these focuses.

The AI factor

With the rise of AI, there is a blinding number of startups trying to combine AI tech with hardware.

We saw some interesting applications, such as a liquor pouring head that uses AI to predict inventory requirements and calculate usage trends for restaurants. However, AI still seems to be in its infancy in terms of good execution and applications.

USPTO presence

The United States Patent and Trademark Office had a massive booth in Eureka Park to highlight the power of IP in the physical and tech product world, and highlight funding opportunities. The USPTO had an area devoted to startups that had been the beneficiaries of grant funding, and another area to show the subtle difference between real and counterfeit consumer products.

A ton of USPTO staff was on hand to answer questions. I took home some good advice and resources to share for some of my overseas inventors.

John Merenda demonstrated his Power1 modular phone case for iPhones, and accessories.

Power1

Most years, Enventys Partners has one or more clients exhibiting. This year was no exception.

John Merenda exhibited his Power1 modular phone case for iPhones. His latest phone case design leverages the USBC port of the newest-generation iPhones to create a wireless charging dock for AirPods and Apple Watches. The phone case also has accessories aimed at digital creators, such as a battery bank and external memory, so one can shoot high-resolution video all day.

Enventys Partners has worked with Merenda for about five years on various iterations of the technology. It was great to see him in anticipation of his launch on Kickstarter soon.

PHOTOS BY BRITTANY FINNEGAN @LETSFCKINEAT AND JEREMY LOSAW

The United States Patent and Trademark Office's presence included a massive booth in Eureka Park, an area devoted to startups that had been the beneficiaries of grant funding, and numerous staff members to answer questions.

A Rotten Playbook

APPLE'S ACTIONS IN MASIMO INFRINGEMENT CASE SHOW IT'S THE WORST IP VIOLATOR IN BIG TECH **BY LOUIS CARBONNEAU**

I USUALLY REFRAIN from singling out individual companies, but I feel compelled to do it this time.

And what I will say below applies, to various degrees, to a lot of other large implementers. I am sure they will recognize themselves.

The judicial saga between pioneering U.S. health watch maker Masimo and Apple, which unfolded around the holidays, illustrates the worst side of predatory infringement by a company that, with time, has become the most unethical of Big Tech I can think of when it comes to violating other people's IP.

Apple's approach is very simple, and its playbook akin to many of our current politicians: copy, deny, delay, attack.

This continued unethical behavior around IP is very shortsighted and costing the company its reputation, billions and billions in lost sales, and many lost partnerships.

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Apple not only willfully infringed Masimo's patents, it allegedly stole its trade secrets; poached a dozen of its top employees (a practice called "smart hiring"), including Masimo's CTO; filed multiple challenges to Masimo's patents in front of the Patent Trial and Appeal Board, etc.

It then lost its case before the International Trade Commission, and tried to lobby the White House to overturn the decision (as it had done successfully with the Obama Administration a decade earlier after the ITC issued an exclusionary order sought by Samsung).

When that didn't work, Apple appealed the decision and was able to buy a few weeks of reprieve right around Christmas to continue selling its Apple Watch. When that lapsed, it finally relented and removed the infringing feature (a pulse-oximetry sensor) from its products, which the ITC judged was acceptable.

The decision means that the Apple Watch can remain on the market, but with that functionality disabled.

Apple is expected to continue its legal arguments in the appellate briefing, contending that it should have prevailed at the ITC and that the exclusion order is improper. The ongoing legal process may take several months, with a final decision possibly a year away.

Additionally, Masimo may pursue infringement damages in a parallel federal court litigation. It has an existing trade secrets lawsuitagainst Apple seeking nearly $2 billion in damages.

The only reason Masimo was able to make it that far in the process was because it had enough financial resources (most inventors do not) to sustain Apple's onslaught of legal challenges, and its CEO seemed to have made this a personal quest to prevail. Money may never fully compensate it for the damages it has already sustained.

Finally, without the ITC off-ramp—the closest thing totraditional injunctive relief—Apple would still be stealing Masimo's lunch and

the small company's watch sales would have already plummeted.

One detail worth mentioning: Had Apple manufactured its products in the United States as opposed to China, the ITC would have had no jurisdiction on this matter.

Microsoft's hard lesson

The following message is to my fellow lawyers who work in the Apple IP department.

Guys, you know better than this. It is high time you start educating your business clients—all the way to CEO Tim Cook—that this continued unethical behavior around IP is very shortsighted and costing the company its reputation, billions and billions in lost sales, and many lost partnerships, as fewer still want to do business with Apple.

Take it from me: Once you pass the tipping point, it is very hard and extremely expensive to make it back.

I know this firsthand. I was in a senior legal and IP function at Microsoft when the company went through a very traumatic Department of Justice investigation that almost ended in its breakup. A lot of our business clients were behaving unethically at that time—mostly because they did not know any other ethos than working for a company that could impose its will at every turn, or at least thought it could, and get away with it.

When the company tried to call some friends to testify in its favor, there were none left. It took over a decade and two CEOs for Microsoft to finally reestablish itself as a more responsible corporate citizen (for the most part). It has now reclaimed much of its lost reputation (and market cap).

Fellows, remember that you—seasoned IP lawyers—have oftentimes more business experience than many of your corporate clients and, I would hope, a better sense of what is ethically proper. Thus, you can be part of the solution.

It might be time to get rid of the rot before you start hating the company for which you work. So many others already do.

Louis Carbonneau is the founder and CEO of Tangible IP, a leading patent brokerage and strategic intellectual property firm. He has brokered the sale or license of 4,500-plus patents since 2011. He is also an attorney and adjunct professor who has been voted one of the world's leading IP strategists.

2023 PREDICTIONS IN REVIEW

A year ago, I made these five predictions for the IP marketplace:

1 The patent market will continue to split in two opposing segments; the first one (going down) is where operating companies acquire assets. The second one (going up) is made of well-funded, non-practicing entities that have access to vast amounts of cash to feed their assertion programs.
Result: I think I hit this nail on the head, as most of this has held true. We definitely saw many more large companies accelerating their divestiture of patents in a way to reduce expenses and put noncore assets to work.

Meanwhile, non-practicing entities have become the default buyers in most sales, as operating companies have lost appetite (and $$) to purchase third-party patents. That might change in 2024, though, as some of the funding we took for granted might be redeployed elsewhere—and some large patent holders have indicated they are back on the market looking to acquire.

2 The U.S. Supreme Court will screw inventors once again, this time over the concept of enablement.
We all know by now the carnage it left with the 2014 *Alice* doctrine. Watch out now for the *Amgen v. Sanofi* case that is scheduled to be heard during this session.

The issue: "Whether enablement is governed by the statutory requirement that the specification teach those skilled in the art to 'make and use' the claimed invention, or whether it must instead enable those skilled in the art 'to reach the full scope of claimed embodiments' without undue experimentation—i.e., to cumulatively identify and make all or nearly all embodiments of the invention without substantial 'time and effort.'"

This may sound technical for the uninitiated but, if it elevates the current burden, it is yet another tool offered to defendants to challenge the validity of any issued patents after the fact. As if they needed more.

Result: Well, that was an easy one, I will admit. SCOTUS never fails

SCOTUS never fails to disappoint us. It almost never takes on patent cases, which finds us wanting more activism on its part, until it does and then finds us wishing it never did.

to disappoint us. It almost never takes on patent cases, which finds us wanting more activism on its part, until it does and then finds us wishing it never did.

In the case above, the Supreme Court did issue a decision that created yet another tool for defendants (lack of enablement) to challenge the validity of issued patents (as if they needed it). This new challenge to validity is already mystifying lower courts and creating a confusing progeny of cases, just as it had done in *Alice*. Thank you, SCOTUS!

3 The U.S. Congress will manage to pass no legislation on patent rights during the current session.
Result: OK, this one was a real softball to myself and I could not miss, barring a miracle. Well, there was none—and both bills on the hill that aim at fixing the most glaring issues with the U.S. patent system (PREVAIL and PETRA) are still the lore of legal conferences where pundits on both sides speculate as to how things would look like if Congress actually passed legislation. See page 41. Do not hold your breath for 2024.

4 A flood of patents owned by failed startups will be sold to non-practicing entities and feed the new wave of patent litigation.
Result: I am not too sure about this one. We sure saw our lot of failed startups in 2023 that knocked at our door wanting to divest their last standing assets, i.e. their IP portfolio. We also were contacted more than usual by trustees in bankruptcy and receivers alike, or by angel investors or venture capitalists left holding the bag.

But I can't say that it was drastically higher than in the previous year, as the economy mostly held true despite all the predictions pointing to a serious recession. Furthermore, we did not see a huge spike in patent litigation, mostly because so few patents these days will make the cut where someone feels comfortable asserting them in court.

5 Most people will opt out of the United Patent Court.
Result: I was right for a few months after the UPC was launched in June 2023, as most people were watching from the sidelines to see how the brand-new tribunal would behave.

It was a bit like watching your next-door neighbor coming home with a bunch of fireworks for the 4th of July: You watch carefully from afar until you figure out that he knows what he is doing. So it went with the UPC—and by fall, most of the big guys were using it to bring their case.

It did not hurt that the UPC had virtually zero backlog and could hear and dispose of cases in a few months, and grant injunctions!

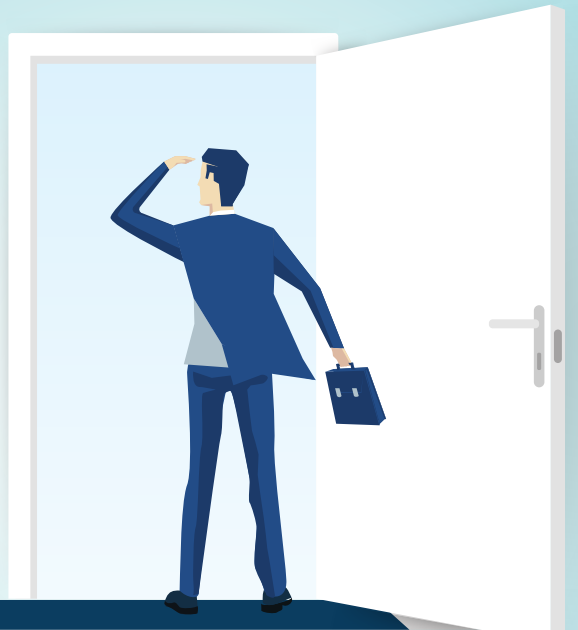
This rocket docket won't last. In the meantime, if you can do it, it sure beats bringing a patent lawsuit in (most of) the United States.

And a bonus one: As a result of the ChatGPT frenzy, AI will become more tightly integrated into patent analytics software tools, because people will demand it. And maybe someday, there will be one of those expensive software packages that will actually guess right and find the proverbial diamond in a pile of coal.

Result: We definitely see service providers embracing AI to bring better analytics tools.

One has yet to crack the nut where tools can automatically look for, identify evidence of use and prepare a draft claim chart with proper source material. But we are only months away from that, based on what I have heard or seen. When that happens, a lot of traditional patent service firms will probably need to adapt or quickly fade away.

Climb the Charts



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Hope for Change —for a Change

SOME PTAB MASTERS PANELISTS OPTIMISTIC ABOUT PASSAGE OF PREVAIL ACT FOR PATENTEES **BY EILEEN MCDERMOTT**

All Eye on Washington stories originally appeared at IPWatchdog.com.

SPEAKERS AT IPWatchdog's PTAB Masters 2024 program predicted little movement on the U.S. Patent and Trademark Office's Advance Notice of Proposed Rulemaking anytime soon, but some pinned their hopes for change at the Patent Trial and Appeal Board to the pending Promoting and Respecting Economically Vital American Innovation Leadership (PREVAIL) Act.

Panelists who typically represent petitioners and those who represent patent owners at the PTAB also agreed there are many ways the perception of the board could be improved. These could include changes like allowing oral arguments more often, allowing experts to testify in person, and a more meaningful rehearing procedure, for example.

There was more disagreement, however, around proposals like changing the standard for patent invalidity at the PTAB to "clear and convincing" rather than "preponderance of" the evidence, and requiring that claims be interpreted using the "plain and ordinary meaning" standard used in district courts—both proposals that are in the current version of the PREVAIL Act.

Problems and solutions

Former USPTO Director and Sullivan & Cromwell Partner Andrei Iancu, speaking during the late-January program, said the system has become too unbalanced against patent owners.

Between the practice of filing serial *inter partes* review (IPR) petitions by the same petitioners against the same patents; parallel IPRs; multiple attacks in the district courts and at the PTAB; and the option to file a reexamination after losing an IPR, there is never quiet title for patent owners anymore, he said.

"In a fairly functioning, balanced patent system ... you do it once, do it right and don't do it again. If a mistake is made, that's what the appellate process is for—not these other parallel, serial, multiple challenges in different venues."

Jim Carmichael of Carmichael IP agreed there are too many chances to attack patents in the current system. There's not only a second window, but a third and fourth and fifth and sixth window to challenge a particular patent, Carmichael said, adding: "Our patent owner clients would like to have their rights settled at some point."

The PREVAIL Act would also tackle these issues, with proposals that would require standing for PTAB challengers; limit multiple petitions against the same patent by "prohibiting any entity financially contributing to a PTAB challenge

from bringing its own challenge"; apply estoppel at the time the challenge is filed rather than after the final written decision; and that would end the practice of filing reexaminations following failed PTAB petitions.

Former USPTO Director Andrei Iancu said the system has become too unbalanced against patent owners.

Bipartisan support

Judge Paul Michel, who recently participated on a panel that reviewed pending PTAB legislation and rules, said the PREVAIL Act has a real chance because it has bipartisan support—including from the second-highest ranking senator for the Democratic Caucus, Dick Durbin of Illinois—and because stakeholders on both sides of the issues agree there are changes that need to be made at the PTAB.

For instance, Scott McKeown of Wolf Greenfield, who represents mostly PTAB petitioners, said that allowing oral hearings more easily might help the reputation of the PTAB.

The practice of requiring both parties to agree to oral hearing results in a perception that the petitioner can prevent the patent owner from being in the same room as the judges, McKeown said.

"I don't think that changes the outcome [often], but the perception is the problem," McKeown added, explaining that such a policy plays into the hands of those who say the PTAB is anti-patent.

In a later panel, however, McKeown disagreed that the PREVAIL Act has a good chance of passing.

"I'm not very optimistic," he said, adding that it won't move this year and most likely not next year, either. "I don't think it's reasonable because it's trying to do way too much."

Eileen McDermott is editor-in-chief at IPWatchdog.com. A veteran IP and legal journalist, Eileen has held editorial and managerial positions at several publications and industry organizations since she entered the field more than a decade ago.

IoT Corner

Australian startup **Morse Micro** recently demonstrated a 3km range of its latest WiFi module, expanding possibilities for IoT applications.

Based on the Wi-Fi HaLow standard, the Morse chipset uses 900MHz frequency transmission—much lower than standard 2.4GHz WiFi. This allows signals to travel farther and have better penetration through obstacles, in addition to having lower power usage.

Though the HaLow standard has lower bandwidth, Morse Micro demonstrates 1Mbs transmission, which is fast enough to support streaming video. This technology is well suited for IoT applications that usually have lower bandwidth requirements, and benefit from longer range with the ability to be run on batteries.—*Jeremy Losaw*

PHOTO COURTESY OF 3M

Wunderkinds

Inspired by his native Ethiopia, 14-year-old **Heman Bekele** of Fairfax, Virginia, invented a soap that he hopes can treat skin cancer. This won the grand prize in the 2023 3M Young Scientist's Challenge. The soap delivers cancer-fighting drugs via lipid nanoparticles, which work to activate the body's immune cells to fend off cancer. The ninth-grader at W.T. Woodson High School in Annandale, Virginia, is the first black scientist to receive the honor, according to iAFROTECH.

What IS That?

A narcissist's delight—a life-sized cutout of your favorite person, made from cardboard or Coroplast (corrugated plastic), by **Texture of Dreams**. Sizes range from 1 to 8 feet. Your job is to send an uploaded image that you have enlarged to life-size on your computer, without pixelation. Might be easier to just stand there in a frozen pose all day.

Get Busy!

The Touch of Genius Prize for Innovation deadline has been extended to March 15. This prize can be granted for innovative and accessible computer software applications, tactile hardware, or curriculum that promotes braille and/or tactile literacy. The winner will receive up to $10,000. Details: **touchofgeniusprize.org**

WHAT DO YOU KNOW?

1 **True or false: The NCAA has both the spelled and numerical federal registrations "Sweet Sixteen" and "Sweet 16."**

2 **Which came first—U.S. copyright law, or trademark law?**

3 **Which celebrity was granted the most patents, with four?**

A) Charlie Sheen **B)** Julie Newmar
C) Eddie Van Halen **D)** Gary Burghoff

4 **True or false: After the Doors' single "Hello, I Love You" hit No. 1 in America in 1968, they paid royalties to the Kinks because of the song's resemblance to the British group's 1964 hit "All Day and All of the Night."**

5 **The saying that March is "In like a lion, out like a lamb" is trademarked by which company?**

A) Pulte Homes **B)** ThermoWorks
C) Totes **D)** None of the above

1. False. The Kentucky High School Athletic Association got there first. 2. First U.S. copyright law, 1790; Federal Trademark Act, 1870. 3. D. Three were fishing apparatus, the other a toilet seat lifting handle. Newmar got two, the others one. 4. True. Kinks frontman Ray Davies said he threatened a copyright suit only after his publisher informed him of the similarity and that the Doors had owned up to it. "Jim Morrison admitted it, which to me was the most important thing," Davies told *Mojo* magazine in 2012. 5. D. The ancient proverb has no trademark.

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