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UNITED STATES
PATENT AND TRADEMARK OFFICE

JANUARY 2022 Volume 38 Issue 01

Inventors

DIGEST

HIGH-TECH GHOST

40 YEARS OF THE CD PLAYER

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NEW COLUMNIST'S
FIRSTHAND STORIES

Fertile Minds
IDEATION WITH KIDS
REAPS RICH REWARDS



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Coming soon: The Patent Public Search tool puts all the power of our in-house tools wherever you are.

The Patent Public Search tool is a new web-based patent search application that will replace internal legacy search tools PubEast and PubWest, and external tools PatFT and AppFT. The new tool has two user selectable modern interfaces that provide enhanced access to prior art. Its new, powerful, and flexible capabilities will ease your patent searching process.

The Patent Public Search Tool is launching soon. Watch for an announcement on our website and social media channels.

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ON THE COVER
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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
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NEWS FLASH

Start Your Search With the Inventor Search Assistant Tool

USPTO tool gives inventors an easy-to-use means for checking prior art

YOUR “EUREKA!” MOMENT IS HERE. You are optimistic, but not sure, you have a novel invention idea that will be embraced by the public with the potential to be very profitable.

Now what?

It is possible for you to conduct your own prior art search, but it can be difficult. So the USPTO has developed the Inventor Search Assistant Tool (ISAT), a way to help demystify the patent process by sparing you from having to go through a patent search training program.

A machine learning system, the tool helps inventors get started with a prior art search by integrating multiple data sources (such as non-patent literature and foreign patents), and providing other useful information (such as cooperative patent classification and figures) into a single platform. It also has an easy-to-use reporting/sharing capability.

The application, in an early beta format, “is not intended to be a replacement of a professional search or other Boolean-based, publicly facing search tools that the USPTO is rolling out via Patents End-to-End,” said Scott Believeau, branch chief of advanced analytics at the USPTO. “It’s an automated way meant to

be a ‘starting point’ for a novelty-type search that an inventor could review or work with a regional office, attorney, or others.”

To use the tool:

- Go to <https://developer.uspto.gov/inventor-search/#/search/publication/intro>
- Start by searching for either descriptive text or keywords of your invention, or search by a known USPTO application ID.
- View the relevant documents and figures in the search results.
- While viewing results, select each document of interest to save.
- Click the Display Saved Results button to view all saved documents and export or print.

The Inventor Search Assistant Tool was developed in support of the Study of Underrepresented Classes Chasing Engineering and Science Success (SUCCESS) Act of 2018.

The USPTO wants your feedback about the software, in hopes that it can be a valuable part of an IP awareness toolkit for inventors. The link is surveymonkey.com/r/3PW5SGL. For questions please email us at developer@uspto.gov.

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MAGIC MOMENT

JANUARY 2, 1975: TRADEMARKS GET THEIR DUE

ON JANUARY 2, 1975, the name Patent Office was changed to the Patent and Trademark Office to reflect the agency’s longstanding role of issuing trademark registrations. The name was changed again to the United States Patent and Trademark Office in 2000.

Today, trademarks are ever-increasing in value as an important form of intellectual property protection. According to the USPTO’s annual report for fiscal year 2021, trademark

application filings for all classes surpassed 943,000, a record high.

A trademark is defined as a word, phrase, symbol, design or a combination of these that is used to identify the source of the goods or services of one party and distinguish them from the good and services of other parties. Trademark rights may be used to prevent others from using a confusingly similar mark, but not to prevent others from making the same goods

or from selling the same goods or services under a clearly different mark.

Trademarks that are used in interstate or foreign commerce may be registered with the USPTO. They allow owners to establish brand recognition and to enforce legal rights in their mark to guard against infringement.



TRADING CARD

NO. 8

Sir Alec John Jeffreys

IT'S A HAUNTING, agonizing refrain in violent crimes that went unsolved for decades or were never solved at all: There were no fingerprints.

Then, Sir Alec John Jeffreys changed crime-solving forever.

Born January 9, 1950, the longtime genetics professor at the University of Leicester in England discovered in 1984 that patterns in some parts of a person's DNA could be used to distinguish one person from another. The undisputed accuracy of "DNA fingerprinting" has had revolutionary impacts on the criminal justice system, as well as on the lives of victims' families and the wrongly accused.

Jeffreys had already used his DNA pattern recognition technique in paternity and immigration cases—with well-publicized results—when police asked him to help solve cases involving the rape and murder of 15-year-old Dawn Ashworth in 1986 and a similar crime three years earlier.

Richard Buckland, a 17-year-old with learning disabilities, had confessed to the Ashworth murder. But when Jeffreys analyzed DNA samples from both crimes, he found they matched—and neither one matched Buckland's genetic code.

After police collected blood and saliva samples from more than 4,000 men in the area, they found a match with Colin Pitchfork, a 27-year-old baker and father. He was arrested in 1987, convicted and sentenced to life in prison—where Buckland may have ended up were it not for Jeffreys' discovery.

Years later, in an interview with the University of Leicester, Jeffreys admitted he first doubted the indicators from the DNA sample: "The police were sure they got the right guy (Buckland)." But more testing upheld his findings.

Jeffreys' father and grandfather were prolific inventors. As a child, he was given a microscope and an "absolutely lethal" chemistry set—a reference to a sulfuric acid scar on his right cheek when an experiment went disastrously wrong. He covers it with a beard.

He earned a PhD from the University of Oxford in 1975, which introduced him to the world of genetics, and he spent two years at the University of Amsterdam working on trying to isolate genes before arriving at Leicester.

In 1984, he was working on the gene that codes for the protein myoglobin. Part of the gene consists of short sequences repeated many times. The number of repeats was found to vary between individuals.

At first, Jeffreys saw them as useful markers of the myoglobin gene. But eventually, he realized they were unique to the individual and could act as a fingerprint.

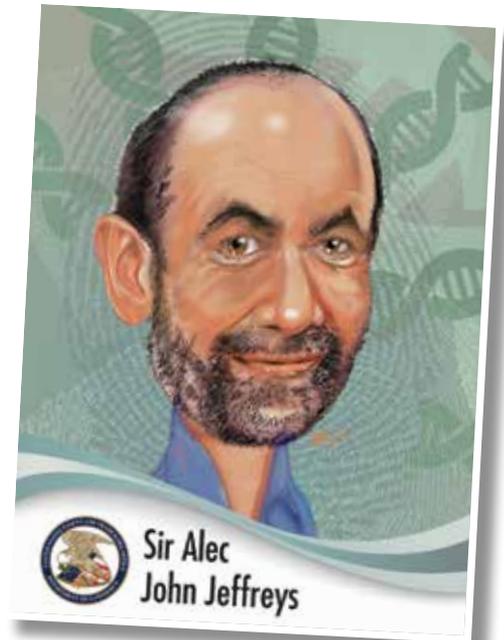
"The discovery of DNA fingerprinting was a glorious accident" while "messing about in the lab," he said. The September 10, 1984 discovery was "a moment that changed my life."

He said he figured DNA testing would be used as a last resort in criminal investigations but was happy to be "completely wrong." The subsequent establishment of forensic DNA databases throughout the world underscores the science's importance in solving crimes.

A 2005 inductee into the National Inventors Hall of Fame, Jeffreys has six patents. He is a recipient of the Lasker Award and the Royal Medal, and the Albert Einstein World Award of Science, among others.

With characteristic modesty, Jeffreys shuns the notion that DNA fingerprinting was one of the greatest discoveries of the 20th century. He said it was "good science and a lot of hard work."

Requests for the USPTO trading cards can be sent to education@uspto.gov. You can also view them at [uspto.gov/kids](https://www.uspto.gov/kids).



2 Tribunals Rule on Patent Validity

Understanding the similarities and differences between the PTAB and district courts on IP matters

WHICH TRIBUNALS RULE on a patent's validity in the United States? And which decide on infringement or damages?

In the United States, the Patent Trial and Appeal Board (PTAB) and the U.S. district courts adjudicate patent validity. But only the courts address infringement and penalties.

Because patents are economically important and patent litigation often comes with high stakes, it is important to understand the major ways in which these tribunals are similar and different.

The PTAB was formed by the 2011 America Invents Act within the U.S. Patent and Trademark Office. Administrative patent judges decide cases at the PTAB. They are required to

have a technical and legal background and are appointed by the secretary of commerce.

The PTAB adjudicates the patentability of issued patents in AIA trial proceedings, during which a third-party challenger files a petition arguing that an issued patent's claims are unpatentable. The patent owner, whether a company or person, can defend its patent. If the PTAB rules in favor of the challenger, the USPTO director cancels the unpatentable claims.

District courts rule on patent validity in bench trials or jury trials. In a bench trial, a district court judge determines patent validity.

District court judges, though trained in the law like PTAB administrative patent judges, might not have a technical background. A few do, but most do not. In a jury trial, 12 members of the public from various backgrounds—technical, non-technical, legal, and non-legal—decide patent validity.

These courts determine infringement, and can award injunctive and monetary relief as damages. There are two kinds of district court proceedings in which patent validity may arise:

- A patent owner may sue a third party for infringement, and the third party defends itself by asserting that the patent is invalid.
- A third party may file a declaratory judgment action for a ruling that a patent is invalid.

Because the PTAB cannot hear patent infringement allegations, it is common to have parallel proceedings in which patent validity is adjudicated simultaneously before the PTAB and a district court. In fact, approximately 85 percent of PTAB cases involve a patent subject to concurrent district court litigation.

To bring a civil action in district court, a party must have Article III standing: That is, the party bringing suit must have an injury that



District courts determine infringement, and can award injunctive and monetary relief as damages. The PTAB does not.

is traceable to the defendant and can be redressed by a favorable court decision.

There is no Article III standing requirement in AIA trial proceedings at the PTAB; any third party may challenge a patent.

The district courts and the PTAB both employ standards of review when deciding patent validity. But the standards are different.

In district courts, patents enjoy a statutory presumption of validity, so challengers must prove each patent claim invalid by clear and convincing evidence—the highest burden of proof in U.S. civil litigation. To secure institution of a trial in an AIA trial proceeding, the challenger must show a reasonable likelihood that at least one claim in the patent is unpatentable. Then, if the trial is instituted, the challenger must prove each patent claim unpatentable by a preponderance of the evidence.

The reasonable likelihood and preponderance standards are lower than the clear and convincing standard used in district courts.

Before the district courts and the PTAB, the parties may conduct discovery.

The scope of discovery is, however, more limited before the PTAB than before the district courts. One of the reasons for this is the goal of keeping costs down, because the PTAB was created to be an alternative forum to the district courts for resolving patent validity.

Finally, per statute, the PTAB will issue a final written decision within 12 months of instituting a trial. The district courts are not under any statutory timeline and may take much longer than the PTAB to issue a decision. The length of time for a district court decision can range from several months to several years.

For more information about PTAB, visit uspto.gov/ptab.

WHAT'S NEXT

TRADEMARK BASICS BOOT CAMP: Modules in this free, eight-part virtual series return for 2022 with Module 1 on January 11, and subsequent modules every Tuesday in January and February from 2 to 3:30 p.m ET. Users can attend any or all specific modules that meet their needs.

- **January 11, Module 1:** For small business owners or entrepreneurs interested in learning about trademarks and how to apply for a federal registration.
- **January 18, Module 2:** The overall trademark registration process, from filing to registration.
- **January 25, Module 3:** Important principles related to trademark searching and effective use of the USPTO's Trademark Electronic Search System (TESS).



TO REGISTER: uspto.gov/about-us/events/trademark-basics-boot-camp

TEACHING OPPORTUNITIES: On January 25 from 6 to 7:30 p.m. ET, the Office of Education at the USPTO will host an intellectual property workshop for K-12 educators interested in integrating intellectual property, innovation, and invention activities into their STEM/STEAM curriculum. Educators can learn about different types of IP including patents, trademarks, copyrights, and trade secrets.

TO REGISTER: uspto.gov/events

OFFICE HOURS: On January 26 from 3 to 4 p.m. ET, the Office of Education hosts the next installment in its monthly virtual "office hours," in which K-12 educators and learners may ask questions regarding intellectual property, USPTO resources, and explore ideas for integrating intellectual property concepts into various subject matter. Sessions are held on the last Wednesday of every month.

MORE INFORMATION: uspto.gov/learning-and-resources/kids-educators/k-12-ip-education-office-hours-8

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

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Dole Blazed a Trail We Should Aim to Follow

When Bob Dole learned from Joseph Allen that an important piece of pro-inventor legislation was in danger of not being passed on the Senate floor, he did not hesitate.

“Follow me,” he said.

Allen, the key staffer working with Sen. Birch Bayh (D-Ind.) on passage of the Bayh-Dole Act of 1980, recalled that day upon learning Senator Dole (R-Kan.) had died on December 5 at age 98.

Bayh was away from his office. According to Allen, “I handed (Dole) the statement that I’d prepared for Senator Bayh, we quickly wrote in ‘Senator Dole,’ and he called the bill up and got it passed.”

Allen’s tribute on IPWatchdog.com underscores how Dole could ignore partisan differences for a greater good, as well as showing his devotion to American inventors.

When Dole and Bayh “discovered that billions of dollars of taxpayer-supported R&D was being squandered because the incentives intended by the patent system to spur commercialization had been destroyed,” Allen wrote, “they formed an unlikely partnership to overhaul the system.”

The Bayh–Dole Act, or Patent and Trademark Law Amendments Act, involves supporting and protecting inventions arising from U.S. government-funded research.

Allen noted that Senator Dole later amended and strengthened the law by moving its oversight and implementation to the Department of Commerce, which oversees the United States Patent and Trademark Office. Many have said the legislation helped move the U.S. back into industrial dominance, with *Economist Technology Quarterly* calling it “possibly the most inspired piece of legislation to be enacted in America over the past half century.”

Hospitalized for more than three years after being wounded in World War II, Dole then extended his service in government. He was not flashy or loudly outspoken. He simply got things done.

Speaking at the World War II Memorial in a Dole tribute on December 10, actor Tom Hanks said Senator Dole “willed (the memorial) into place” and “did all but mix the concrete himself—which he may have done had he had the use of that right arm” permanently damaged by his war injuries.

Even though Sens. Dole and Bayh are gone—the latter died in 2019—we can honor their lives and commitment to America’s innovative strength in a simple way. Follow them.

—Reid

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CORRESPONDENCE

Letters and emails in reaction to new and older **Inventors Digest** stories you read in print or online (responses may be edited for clarity and brevity):

Big Tech's Big Push

Big Tech companies have been the biggest users of the USPTO's Patent Trial and Appeal Board (PTAB), filing hundreds of petitions challenging the patents of smaller innovators since the board was established in 2012.

Big Tech infringers like the PTAB because it provides them with an additional tool to drag out infringement disputes and increase the cost of enforcing patents for smaller innovators. Since the PTAB was established in 2012, through 2020, Apple filed 694 petitions challenging patents; Samsung, 635; Google, 357; LG, 252; and Microsoft, 240.

These companies are now pushing legislation that would reverse recent reforms at the PTAB to tilt the balance further in their favor and make it even harder for patent owners to defend their intellectual property.

This is a blatant effort by Big Tech to gain more power, allowing them to crush small competitors and maintain their market dominance. It would also help some of China's biggest tech companies, including ZTE and Huawei, who are also among the top users of the PTAB.

STEVE POSNER, *Partner, Seven Letter*

(Editor's note: Posner wrote on behalf of The Innovation Alliance, which "represents innovators, patent owners and stakeholders from a diverse range of industries that believe in the critical importance of maintaining a strong patent system that supports innovative enterprises of all sizes.")

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Via inventorsdigest.com, comment below the Leave a Reply notation at the bottom of stories. Or, send emails or other inquiries to info@inventorsdigest.com.

MODERNA-NIH DISPUTE: A FRESH COVID MESS

We know that COVID-19 has resulted in millions of deaths, but there is much disagreement regarding possible long-term effects of vaccines. We also know that Moderna and the National Institutes of Health (NIH) collaborated to develop a COVID-19 vaccine—but there is disagreement on whether three NIH scientists should have appeared on the patent application filed in July by Moderna, which made no such inclusion.

The latter dispute could be headed to court, with possible impacts on current inventorship rules.

U.S. patent code, in accordance with guidelines in the USPTO's Manual for Patent Examining Procedure, says that a contributor to the content of a patent application is an inventor if the contribution

is present in at least one claim. But with multiple scientists from both Moderna and the NIH both contributing to the eventual vaccine, assigning incentive contribution to particular individuals could be challenging—unless their contributions can be conclusively proven.

The NIH says Dr. John Mascola, Dr. Barney Graham and Dr. Kizzmekia Corbett helped design the genetic sequence used in Moderna's vaccine and should be named on the patent application.

If this dispute goes to court, it's possible that current implementation of the inventorship law of the United States code will be under review. And if the court decides to change how inventorship is determined, that could invalidate some active patents.



Such changes in how inventorship is determined could also trigger a flood of lawsuits challenging patents and patent applications. And what effects would these changes have on enforcing international patents?

The Moderna-NIH dispute could become much more than a corporate and government entity flexing their muscles over bragging rights. It bears watching in the context of much larger potential ramifications.

—Reid Creager

BRIGHT IDEAS



Kara Pure

PURE WATER DISPENSER

POWERED BY AIR

karawater.com

Billed as the world's first air-to-water dispenser of mineral-rich alkaline water, Kara Pure can make up to 10 liters of water per day from the air.

Using this product can also reduce the amount of water bottles you use.

Kara Pure, which runs silently, is also an air purifier and dehumidifier. It features a sleek design that will fit into many home decors.

Use is simple, without need for a water line. Just plug it in. Kara Pure is good for homes with iron-heavy well water, contaminated or bad-tasting water, or in drought-stricken areas.

With a retail price of \$2,299, Kara Pure is to ship in June to crowdfunding backers.

“Inventing is a lot like surfing: You have to anticipate and catch the wave at just the right moment.”—RAY KURZWEIL

SPORTSMATE 5

AI-POWERED EXOSKELETON

xenhanced.com

Billed as the world's first and lightest portable exoskeleton for consumers, SPORTSMATE 5 is designed with controllable resistance and assistance for fitness.

Bulky, heavy and very expensive exoskeletons have existed for decades in military, industrial and rehabilitation fields.

With this device, two powerful actuators are at your hips. In Outdoor mode, the two actuators lift your legs and push them forward when you need to save energy; Fitness mode provides more resistance for training muscle.

The standard set, which includes a knee brace, will retail for \$1,358. Shipping for crowdfunding backers is set for May.



BP Doctor MED

MEDICAL-GRADE BLOOD PRESSURE
SMARTWATCH

yhetechs.com

Makers of this device say it is the world's first medical-grade, true wearable blood pressure smartwatch.

BP Doctor MED features a patented, dual-inflatable air cuff design that monitors blood pressure fluctuations 24/7 with the traditional oscillometric BP measurement. Along with BP monitoring, the watch also tracks your daily activities and sleeping sessions, and provides comprehensive health data insights.

The device can work for up to 7 days on a single full charge. It also has push notifications, call alerts, reminders, vibrating alarms, and more.

BP Doctor MED, which will retail for \$359, was to ship to crowdfunding backers this month.



POSSIBLE DELAYS

Coronavirus-related factors may result in changing timetables and later shipping dates than companies originally provided.

Welli Bins

SUSTAINABLE, PLANT-BASED
STORAGE BIN

wellibins.com

Made of sugarcane-based EVA (ethyl vinyl acetate), tree bark and other renewable biomass, Welli Bins is a catch-all for miscellaneous items that collect around the house or in the car: toys, gardening equipment, dirty shoes, gloves, used masks, etc.

With insulative capabilities, the bins (1 foot long, 1 foot wide and 11 inches high) can store ice and keep drinks colder for longer without the weight and bulk of a cooler. They are less than half the weight of rubber and more tear resistant. The product is also washable.

Welli Bins will retail for \$60, with shipping for crowdfunding backers due in May.



Super Boing

MADE BY ACCIDENT, THE SUPER BALL WAS AN UNLIKELY CULTURAL PHENOMENON IN THE 1960S **BY REID CREAGER**



THE CONSARNED thing just wouldn't stop bouncing.

Norman Stingley, a chemical engineer working for Bettis Rubber Co. in Whittier, California, in 1964, was experimenting in his spare time when he accidentally created a goopy, rubberlike substance and compressed it under 3,500 pounds of pressure. Before long, he had a dense, compact synthetic rubber ball with bounce that seemed otherworldly.

Stingley offered his invention to his employer in 1965—the same year that a girl named Joanne Rowling was born in Yate, United Kingdom. Rowling grew up to be an author whose “Harry Potter” book idea was rejected by 12 different publishers; Bettis Rubber was about to make a similar mistake decades earlier.

The compound polymer inside the ball was too unstable, Bettis officials said. It would break too easily.

So Stingley took his invention to Wham-O, the toy company already famous for the Hula Hoop and Frisbee. Wham-O said it would play ball if Stingley could make his compound more durable, and sent him back to his lab.

Several weeks later, the chemist came up with what he felt was the perfect formula. According to How Stuff Works, “It called for just the right ingredients, as well as the right temperature and pressure. It also required a certain shape—a sphere of about 2 inches (5.08 centimeters) in diameter—for the process to work effectively.”

‘Made from amazing Zectron’

It certainly worked well enough for kids and kids at heart—including this writer—who went boingy boingy over the boingy boingy when it screamed into stores in '65.

Stingley called the proprietary material inside the ball Zectron, a space age-sounding name.

Inventor Norman Stingley offered Bettis Rubber Co. the chance to capitalize on his discovery of a super-elastic compound. He was rejected.

PHONETICS AND ‘THE BIG ONE’

The Super Ball has a prominent place in pop culture history for another reason: Legend has it that it was the impetus for the term “Super Bowl.”

When the National Football League and

American Football League were discussing a merger and a championship game between the two leagues in the late 1960s, the owners struggled to come up with a name for the NFL-AFL title game.

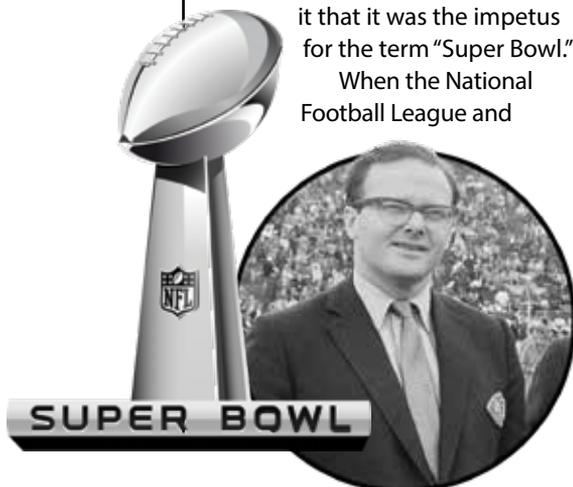
NFL Commissioner Pete Rozelle suggested the generic “The Big One,” which never caught on. “The World Series of Football”? Too much like baseball’s fall showcase.

AFL founder and Kansas City Chiefs owner Lamar Hunt half-heartedly proposed the name “Super Bowl.”

“My own feeling is that it probably registered in my head

because my daughter, Sharron, and my son, Lamar Jr., had a children’s toy called a Super Ball and I probably interchanged the phonetics of ‘bowl’ and ‘ball,’” Hunt told the *New York Times* in 1986.

The first two title games in 1967 and 1968 were called “The AFL-NFL World Championship Game”—a decidedly uninventive mouthful that needed updating. As the media got wind of Hunt’s suggestion, it eventually took hold and became the official name of the third championship game between the leagues in 1969.





The material was actually a hard synthetic rubber called polybutadiene, used especially in the manufacture of tires. Science authors Martin R. Farrall and Alastair J. Cochran wrote that the balls also were made of hydrated silica, zinc oxide, stearic acid, and other ingredients vulcanized with sulfur at a temperature of 165 degrees Celsius and at a pressure of 3,500 pounds per square inch.

Wham-O marketed the toy as the Super Ball, “made from amazing Zectron,” and sat back as the generic-looking spheres became a cultural phenomenon and cash cow the public could not stop milking.

Wham-O said the ball was capable of bouncing back to 92 percent of the height from which it was originally dropped. With a decent amount of force, a ball could easily be bounced into pavement and fly a hundred feet in the air or more.

Time magazine, which includes the Super Ball in its all-TIME greatest toys list, chronicled the craze in 1965:

“A dark purple sphere about the size of a plum, Super Ball has already bounced into millions of U.S. homes, (and) shows no signs of slowing down. McGeorge Bundy (national security adviser to President Lyndon B. Johnson) bounces Super Balls in his Washington basement, brokers on the Pacific Coast Stock Exchange throw them about the floor during slack hours, Manhattan executives dribble them on their desks, and kids around the country are bouncing them down sidewalks and school corridors.”

(My Super Balls were coal black. And despite the supposed durability improvements Stingley made, they would eventually end up broken in half, revealing a jagged rubber core that looked like some kind of extraterrestrial surface.)

At the peak of sales, about 170,000 balls were manufactured daily. Wham-O estimates it sold more than 20 million Super Balls, with an original price of 98 cents, between 1965 and 1970. Within a year or two, miniature versions were sold in gumball machines for a quarter.

Renowned for its marketing genius, Wham-O conducted promotional stunts to keep the toy in the public eye. A Super Ball about the size of a bowling ball was dropped from the 23rd floor of an Australian hotel; on its second bounce, the ball landed on the roof of a parked convertible and destroyed it.

Bounced by knock-offs?

Unfortunately, the evils of knock-offs go as far back as inventing itself.

By the early 1970s, imitation super-bouncers under various names and crazy colors flooded the market. The Super Ball frenzy lost its spring, even though the imposters did not hold quite the same hop.

Wham-O revived the toy in the late 1970s and again in 1998. The curse of ubiquity was cemented by then.

Nonetheless, Stingley had long since become a very rich man. Little is publicly reported about him, other than the fact that he used his wind-fall to open a rubber products manufacturing plant in Madera, California, in February 1968.

It isn't easy to find an original Super Ball these days. A recent check on eBay showed that an item billed as an original 1960s Wham-O Super Ball, which sold for \$29, had a 1976 copyright on the ball. Oops. 🙄

On August 25, 1965, Norman Stingley applied for a patent for his Highly Resilient Polybutadiene Ball. He was granted U.S. Patent No. 3,241,834 on March 22, 1966.

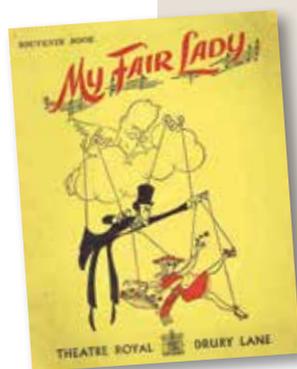
In part, the description reads: “This invention relates to a toy and more particularly to a ball or sphere having extremely high resilience and a high coefficient of friction.”

INVENTOR ARCHIVES: JANUARY

January 18, 1957: Alan Jay Lerner and Frederick Loewe’s musical “**My Fair Lady**” was copyright registered, a year after its launch on Broadway. It became a movie in 1964.

The production is based on George Bernard Shaw’s play, “Pygmalion,” first performed in 1913. “Pygmalion” is based on the ancient Greek sculptor.

Loewe and Lerner came up with the title from three words in the nursery rhyme “London Bridge is Falling Down.”



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Darlings, Imagined and Real

FALLING IN LOVE WITH YOUR INVENTION?

LOOK DISPASSIONATELY AT POSSIBLE DANGERS **BY JACK LANDER**

THE ART of excellent writing, like excellent inventing, is learned as well as inherited. One of the rules of good writing is to kill your darlings before you publish.

Darlings are those phrases, sentences, paragraphs, or even the entire piece that have you imagining loud cheers from your readers for being so clever that you can hardly believe your genius in creating them.

Not all invention darlings need deep-sixing, of course. And inventions usually don't conclude quickly, so we have time to consider if they are truly a contribution to society or are mainly self-aggrandizement.

Not novel? How can that be?

Perhaps the greatest cause of affairs with our darlings is the inspiration of having created something novel. It's a great feeling—but too often starts us on a journey that ends *after* we file for a patent.

Even when we have done our research into prior art, which hopefully is disclosed from a quality patent search, we find that our patent cannot issue because the patent examiner at the United States Patent and Trademark Office discovers our “novelty” in issued patents that our professional searcher had missed.

“How can that be?” you may ask. The answer is that the examiner is a specialist.

For example, if you invent a novel lock, the examiner will be a member of a group that specializes in locks. Their ability in finding not just patented individual features, but *combinations* of those individual features, which, if assembled, describes your invention, is superior to what most searches disclose. One reason is that the specialist examiner has the advantage of familiarity in the art in addition to excellent resources.

Using the 10 inclusive years from 2009 to 2018, I calculated the ratio of patents issued against patents applied for and got a result of 52 percent issued. Thus, the USPTO kills nearly half our darlings.

The lessons learned: It pays to have a quality search. And don't depend on your darling being patented until the patent office informs you that your patent will issue shortly.

Don't make Edison's mistake

Another hazard is the competing patent. Let's say your darling is issued a patent, and even though it is remarkably novel, the *market* determines that it is a less desirable way to accomplish a certain result than what is already being produced.

For example, Thomas Edison believed his DC (direct current) electricity was better than Nikola Tesla's AC, and electrocuted countless animals (including an elephant) to prove that AC was extremely dangerous.

Tesla was able to send AC current over thousands of miles economically, and Edison was not. The economics that favored Tesla was attested to by many experts; transforming voltage, which is not possible with DC, is not difficult to understand.

Don't be so in love with your darling that your pride won't let you see reality.

Still another hazard is having your darling issued a patent, but without the claim or claims that make it superior to what is already in use.

Example: Your application has five claims, only one of which you believe to be the crux of its value. If that claim is denied and the other four allowed, you will probably have a patent that won't attract a licensee. Or, if you produce it, your competition will be free to use the rejected claim.



The point of my citing these potential hazards is not to discourage your inventing but to make you aware of the need for a marketing perspective.

Another hazard comes when our darling really is a darling, and your patent issues with its all of its critical claims. You round up some money and start producing. Your darling is now public information, and other producers may knowingly infringe your patent by producing with your darling on center stage.

Will you have the money to produce, market and defend your invention through litigation? What if several producers vie for your darling's affections? Can you afford to take them all on?

Steps toward success

The point of my citing these potential hazards is not to discourage your inventing but to make you aware of the need for a marketing perspective, with some suggestions:

- Evaluate each invention for its utility, not its charm or brag value. A person buys a product because it saves time or money, or both; produces pride of ownership; it's amusing; it solves a problem; and no doubt a few others. But a person doesn't buy it because it is merely another way of achieving something that is already working well, or because it is patented.
- Nursing an invention through the prototyping and patenting process is expensive. If your advantages over what is now on the market and is popular are only marginal, consider saving the expenses for a future invention.

- Don't depend on a patent attorney or patent agent to provide a meaningful market assessment. They are legal experts, not marketing experts.
- Don't depend on your friends and family for a sound, objective opinion. They may not be entirely frank in their evaluations.
- Prepare a sell-sheet early on, even before any other step that costs you money. If your sell-sheet can't convince you that your darling is a winner, it's not likely that your potential buyers will be interested.
- Buy a copy of David Hitchcock's book, "Patent Searching Made Easy," and study it. This book is published by Nolo, which specializes in the legal aspects of inventing.

You may wonder whether I have ever succumbed to the charms of an invention darling. Oh, yeah.

I'm older now, as you no doubt discovered if you read the November issue. But older doesn't always mean wiser, so I've asked my wife to insist that I read this article immediately if I wake her again at 3 a.m. mumbling something like, "Mary, I just dreamed the most fantastic invention." 📌

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.



It's a New Metaverse

FACEBOOK'S NEW PARENT COMPANY PROMISES TO BE MORE IMMERSIVE IN THE ONLINE EXPERIENCE **BY ELIZABETH BREEDLOVE**

IN LATE OCTOBER, Facebook founder Mark Zuckerberg introduced Meta, the new parent company for Facebook, Instagram, WhatsApp, Oculus and other subsidiaries.

Zuckerberg explained the change as a way to keep up with the ever-evolving internet.

“We’ve gone from desktop to web to mobile; from text to photos to video,” wrote Zuckerberg in a founder’s letter published on October 28. “But this isn’t the end of the line. The next platform will be even more immersive—an embodied internet where you’re in the experience, not just looking at it.

“We call this the metaverse, and it will touch every product we build.”

He said the “defining quality of the metaverse will be a feeling of presence”—noting that the metaverse will allow you to do nearly anything you want, and these experiences will be linked to your devices. He clarifies that “this isn’t about spending more time on screens; it’s about making the time we already spend better.”

Zuckerberg’s vision is for Meta to be the next chapter in bringing people together in entirely new ways.

What does this mean for you?

If you’re an inventor, a small business owner, or anyone managing a business’s Facebook or Instagram account, you’re likely trying to make sense of this announcement.

The name change itself means very little for you and will have a minimal impact on day-to-day social media management. However, it’s still worth considering what the metaverse will look like for you and your business.

Though the idea of the metaverse seems a bit ambiguous and abstract right now, Facebook (ahem, Meta) is onto something here.

Think about the past two years. How many new ways have you found to connect with your audience, and even your friends and family, since January 2020? Although COVID-19 clearly accelerated this change, our usage of the internet as a means of connecting with others has been gradually shifting and changing since the first usage of the term “social media.”

So, whether or not you buy into or even understand the concept of the metaverse that Meta has put forth, the fact is that it’s coming. Meta is using these principles to guide the decisions it makes with how it grows, develops and improves Facebook and Instagram, two of the biggest social networks worldwide.

Because advertising is the primary way Meta generates a profit, we can expect to see subtle shifts there first.

Some alternate worlds

Let’s look at some of the metaverses, or alternate worlds, that already exist online.

Fortnite is an online video game with three different game mode versions, one of which gives players complete freedom to create worlds and battle arenas.

Minecraft is an online video game consisting of a 3D world where users can collect tools and objects, build structures, play games and create new gameplay mechanics and assets.

Roblox is a gaming platform that allows users to create games and play games created by other users.

Those born in the mid-1990s and later are already spending time on these platforms, meeting up with friends in these virtual worlds. Within these worlds they create avatars that they then use to connect with others through games and other events.



Inventors are still trying to make sense of this. However, it's still worth considering what the metaverse will look like for you and your business.

We're already seeing brands advertising in these spaces, but advertising looks a bit different here than elsewhere.

Because the metaverse is all about the experience, interruptive ads aren't popular. Rather, ads that serve almost as virtual "billboards" perform better.

Think about how billboards work: You notice them as you ride by, but they don't pause your drive while you look at them. Similarly, strategically placed digital ads that are noticeable but not interrupting perform well in the metaverse.

Some brands take it a step further and *create* an experience instead of just not interrupting another experience.

For example, Louis Vuitton created a new virtual world in the form of a video game that sets users on a quest to faraway locations inspired by major global cities such as London, Paris and New York. Hyundai, on the other hand, opted against creating its own virtual world and instead offered virtual test drives in Roblox.

What next?

If you're older than 25 or so, you may still be left scratching your head (myself included!).

But nearly everyone young and old has found comfort in a digital community in the past two years—whether it's a virtual team-building activity, a family Zoom party over the holidays, or a virtual game night with friends. It only makes sense that these opportunities for

digital connection continue to abound and the metaverse continues to grow.

So, here are some questions to ask yourself and your team as you evaluate and adjust your business strategy for 2022 and beyond:

- How are you already connecting with your customers and your target audience online?
- How is your target audience already participating in the metaverse? Where are they online? What digital spaces are seeing growth in your target demographic, specifically?
- Which new opportunities do you have to connect with your target audience?
- Which baby steps can you take now to set yourself up for success within the metaverse later?
- What are your short-term and long-term goals for building a community online? How do these goals fit into the metaverse?
- How can you convert your presence within the metaverse, now or in the future, into actual product sales?

With a bit of forethought and a basic strategy in place, your business will be equipped to handle the metaverse in whatever form it takes. ☺

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.



Breath of Time

SOUTH KOREAN'S DEVICE MONITORS LUNG PERFORMANCE, HELPS TRAIN BREATHING **BY JEREMY LOSAW**

INPYO LEE did not know what lay ahead for his cancer-stricken mother. But one thing he did know: Having her lungs checked only every few months was frustrating.

The South Korean engineer saw her go in for periodic checkups but felt they were not helping in a meaningful way. "I always have been interested in respiratory health since my mum suffered from lung cancer for a long time," he said. "Having lungs checked in 3-6-month intervals was not frequent enough."

Monitoring of the lungs is often overlooked by the health and wellness device movement. We have step counters and heart rate monitors, yet these do nothing to directly monitor how well our lungs are working.

Usually, lung performance is monitored by going to a clinic with lab-grade equipment typically available only to high-performance athletes or those suffering from respiratory illness, and is almost always done sporadically. Breath analysis devices are available in hospitals and clinics, but Lee wanted people to be able to get preliminary, at-home results before undergoing expensive tests.

The result is Bulo.

A home-use lung analyzer and breathing training device about the size of a kazoo,

Bulo has an array of sensors inside that measure the flow, volume and power of a user's breathing. It conveys the data via Bluetooth to a smartphone to track and record performance.

The app calculates key metrics, even the relative

age of the lungs. It can also guide users through breathing exercises to prepare for meditation or increase performance over time.

Bulo is suitable for athletes, people recovering from respiratory or respiratory affecting illnesses, and the casual user who wants to improve lung performance. The device has a removable mouthpiece for easy cleaning.

Quick path to prototype

Bulo came together very quickly.

It was conceptualized in 2017, when Lee and two fellow Samsung engineers competed at the company's Hackathon event in Seoul. He began working with doctors from a nearby hospital on a home-use lung testing device.

After the hackathon, the team entered a program at Samsung called C-Lab that helps develop innovative ideas by providing consulting help and funding.

Development ramped up quickly. A prototype was developed within months.

Although the device had an on-board screen instead of an app, it was well polished and ready to show to the world.

"The first prototype did not have a supporting mobile application that could connect the device but had a separate display," Lee said. "Although we did not have special materials or processes, implementing our idea to the world had a very special meaning to us."

The three engineers created a health care product company called Breathings, one of three startups sponsored by Samsung to demonstrate its products at the 2018 Consumer Electronics Show. The interest in the product



"Having lungs checked in 3-6-month intervals was not frequent enough." —INPYO LEE



was immense and provided momentum for further development.

Sensitive challenge

Designing the initial prototype was one thing; taking it to market was something else.

The device's display was an expensive component and too small to be useful, so the team decided to push the data to a smartphone app. Lee and his partners also faced a big manufacturing challenge.

The performance of Bulo's high-accuracy sensors can be affected by humidity, temperature and other environmental factors during assembly on the factory floor. Therefore, the assembly of the product is done in a factory in Suwon, South Korea, that has experience making high-precision devices for Samsung and with whom Lee worked on previous projects.

As with many consumer devices, the cost of goods was a challenge. The team and its manufacturers worked to get the price to a range that customers would accept.

Breathings originally called the device Bulu but renamed it Bulo in 2020, when the product was launched on Kickstarter.

The new name is derived from a Korean phrase, "bulojangseng," which means "not getting old." It also sounds a bit like the word "blow," a preferred fit.

Bulo raised \$123,136 from 1,113 backers. Even with the campaign based in Seoul, approximately half of the backers were from the United States.

The first production run was completed in the fall. Backers had devices in hand before the end of the year.

Bulo was launched on Amazon in summer 2021 to take advantage of the demand in North America after the strong crowdfunding campaign.

Patents and progress

With such groundbreaking technology, the product is heavily patented. Bulo has 10 patents in South Korea, as well as international coverage.

The IP portfolio has allowed Breathings to develop the product quickly and help keep competitors at bay. It has also helped attract investors through added confidence in the product, which has added value to the company.

Bulo won an innovation award at the all-digital CES 2021 in the health and wellness category, also winning awards at the World IT Show and Korean Electronics Show.

Lee was to be exhibiting the device at CES 2022 this month. A new version of the app—in development and scheduled for release in early 2022— will create training programs for the user based on specific weaknesses determined by his or her data. 📱

Details: breathings.co.kr

Bulo has an array of sensors inside that measure the flow, volume and power of a user's breathing. It conveys the data via Bluetooth to a smartphone to track and record performance.

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



Doing the Heavy Lifting

MAN'S CARRYING SLING HANDLES LIFE'S LOADS WITH COMFORT IN MIND **BY EDITH G. TOLCHIN**

HERE'S A multipurpose carrying sling for active families that provides clutch assistance with toting heavier items, strolling with canine friends, and many other uses.

Joe Wold is the inventor and cofounder of LifeHandle. He lives in Boston with his wife and two children.

Edith G. Tolchin (EGT): What are the distinct advantages of LifeHandle over comparable products?

Joe Wold (JW): The crux of the LifeHandle product line is the Base Sling—made of breathable air mesh; neoprene padding; soft, non-skin-irritating fabrics, and patent-pending HUB technology—to attach LifeHandle accessories including the All-Purpose Handle and the Hands-Free Comfort Leash. The LifeHandle Base Sling works to transfer the weight of what you hold, pull, or lift from your arms and delivers it to the core of your body.

The All-Purpose Handle allows the user to easily hold children, bags, or other heavy items with one arm, and can also be used as leverage

to lift heavy packages or boxes. The Hands-Free Leash is suitable for dogs of any breed, size, or age, and is designed to distribute a dog's pull force across your core and minimize that force with the built-in shock absorber—all while keeping both hands free.

Some noteworthy advantages include the slim, straightforward design; the ease of putting it on and taking it off; and the variety of attachments currently available and those in development that help users “Handle Life with LifeHandle.”

EGT: Can you carry a child with LifeHandle?

JW: Yes, you can hold children with the LifeHandle Sling and the All-Purpose Handle. The caregiver simply holds the child in their arms and then grabs the handle to transfer the weight. This allows an adult caregiver to hold any size baby or child up to 50 pounds more comfortably.

EGT: What led to this invention?

JW: The idea for LifeHandle was formed when I was comforting my

The LifeHandle Base Sling works to transfer the weight of what you hold, pull, or lift from your arms and delivers it to the core of your body.



Joe Wold developed his first sling-and-handle prototype using a guitar strap and some jump rope.



newborn baby one night and was experiencing arm and shoulder pain due to a recent car accident. I investigated several options to take the strain off my shoulder, and nothing seemed to fit.

My best option was a wrap, which would wake up my baby when it was removed. I realized that I needed something more versatile, and developed the first sling-and-handle prototype using a guitar strap and some jump rope.

I quickly determined that the sling and handle needed to be strong enough to hold a child and easily adjustable for quick release. Shortly after, while walking our dog with my daughter, I thought of making the leash accessory hands-free so that I could care for her and know that our dog would not run off.

EGT: Was it difficult perfecting your prototype?

JW: It was a labor-intensive process. We went through well over 100 iterations of sling design and accessory tooling. We also tested with hundreds of different body types to be sure the sling was comfortable for adults as they engage in the variety of uses LifeHandle can be adapted to assist with.

EGT: Tell us about your patent process.

JW: The idea for LifeHandle and its development took much of my attention. However, I had the opportunity to learn a bit about patent law with my prior inventions and knew it was an important step in the process.

We worked with a reputable law firm and reviewed the design, the attachments, and how it would be used. We have applied for patents for all the LifeHandle products.

EGT: Have you done any crowdfunding?

JW: We organized a Kickstarter campaign

toward the end of 2020. It was a great experience. We successfully closed the campaign, selling over 100 units and raising over \$10,000 in 30 days right before Christmas.

EGT: Where is the product manufactured and what safety testing are you conducting?

JW: All LifeHandle products are manufactured overseas with high-quality materials, rigorously safety tested with a third-party consumer safety company. We also perform in-house checks as the products are packaged and prepared for shipping to our customers.

EGT: Where are you selling?

JW: We are currently only selling LifeHandle products on our website. However, we are in the initial stages to have LifeHandle products offered in stores and are hopeful that happens soon.

EGT: Have you had any manufacturing or product development difficulties?

JW: We have been very fortunate to not have experienced any show-stopping manufacturing or product development difficulties. Issues that have come up have been minor, and we have worked through them.

At present, the whole country is dealing with shipping delays. While we are not immune to this, we planned ahead and have plenty of inventory. ☺

Details: mylifehandle.com

Edith G Tolchin has written for *Inventors Digest* since 2000. She is an editor (opinionatededitor.com/testimonials), writer (edietolchin.com), and has specialized in China manufacturing since 1990 (egtglobaltrading.com).



Frustration Gets the Brush-Off

IMPROBABLE INVENTING TEAM LAUNCHES WEBSITE WITH
CAR WHEEL CLEANING BRUSH/LUG NUT CLEANER **BY REID CREAGER**

BATMAN AND ROBIN would have loved this invention for the Batmobile.

Scott Voelker and Jonathan Batchelor, known for their inventing derring-do, are sometimes referred to as the Dynamic Duo. It's an unlikely pairing: The two are from different generations, and Voelker's office is in Miami while Batchelor's is in Stockholm, Sweden.

But they know unacceptable math when they see it. Tired of spending 50 percent of their car-washing time on 5 percent of the surface—the wheels—they invented the WoollyWormit Wheel Brush Car Detailing Kit, the first product launched on the company website in December as well as on Amazon.

"People love this brush," Voelker said. "We were actually pleasantly surprised to receive such a strong following almost immediately."

The product combines a patented, flexible wheel cleaning brush that does not scratch wheels, with an integrated lug nut cleaner. The 13-inch-long, flexible Chenille micro-fiber-covered brush fits in and between wheel spokes and openings to clean deep inside wheel barrels, and bends to reach and clean behind spokes. It's also rigid enough for scrubbing inside

the wheels of automobiles, pickup trucks, vans and motorcycles.

The wheel cleaner brush and rim cleaner prevent scratching and damage to surfaces, spokes and corners, with no pointed metal tips or twisted wire bodies to scratch the car paint. And unlike with bristle brushes, there is no splatter.

WoollyWormit's patented design lets the user clean with or without the handle. (Using the handle increase reach by 4.3 inches.) The product also has a removable and replaceable cover.

Designed to safely and effectively clean about 90 percent of the passenger car wheels on the market, tens of thousands of the brushes have been sold in the United States—and now internationally.

Chemistry wins out

Voelker and Batchelor have decades of combined experience in sales, marketing, product development and more. Their paths first crossed in the real estate business, and they started a sales team together. Seven or eight years ago, they decided to pursue their dream of owning their own business.

Despite coming from different generations (Batchelor was in his 20s, Voelker in his 50s), and from different continents, they managed to find ways to complement each other's strengths and weaknesses. They have a chemistry that has always worked well for them.

So in February 2015, they formed their company, Black Tie Brands in Miami.

Jonathan Batchelor (left) and Scott Voelker are from two different generations and two different countries.



"It can actually be exciting for us when we get aggravated doing something ... when the little light bulb comes on." —SCOTT VOELKER

“After thinking about our backgrounds, our sense of adventure and an innate desire to have some fun, Jon and I decided it would be pretty cool to start a business that basically invents products that can change the world, Voelker said. “Well, we know we would not actually change the world, but we were confident that some of our ideas could at least change how many of us spend our time working on some simple, time-consuming and often tedious tasks.”

The product innovations and concepts are an eclectic mix of consumer items from cleaning products, tools and artwork mounting hardware to watercraft accessories and more.



Grateful for doubters

Voelker said he and his partner aren't just about inventing products.

“We're about finding better solutions for things that we personally don't like to do or could not do well. We found, counterintuitively to others, that it can actually be exciting for us when we get aggravated doing something—as sometimes that frustration is exactly when the little light bulb comes on and we find ourselves saying, “There's got to be a better way.’ And that's when we go to work.”

The two men, energetic to start with, grew more determined when people questioned the risky decision to leave their careers behind.

“Many people thought we were crazy and that we'd never get any patents,” Voelker said. “After we received four utility patents for four of our very first products, the doubters started to fade away. We actually started looking like we knew what we're doing.”

He said Black Tie Brands has been granted 10 utility patents, with an 11th likely on its way.

Help from consultant, via ID

The two got help launching their products from VenturSource President David Fussell, an inventor and manufacturing expert with more than 30 years' experience in all phases of invention

production. Fussell is a longtime advertiser and supporter of *Inventors Digest*.

“David, Jon and I hit it off well immediately,” Voelker said. “It was through a little advertisement I saw in your magazine that I reached out to David to see if he would work with us as a consultant.

“I have been a subscriber to your publication for a couple years, and I truly look forward to getting every issue. I get about 20 magazines a month for various interests I have, but the one I look most forward to getting, and reading cover to cover, is *Inventors Digest*.”

With more products on the way and plenty of ideas on the drawing board, the duo is excited about the business's future.

“Even though there are always challenges, we have always been very fortunate with our great team and the effort and commitment to innovation and quality by everyone involved. It's been a great ride,” Voelker said. 🐛

Details: WoollyWormit.com

WoollyWormit combines a patented, flexible wheel cleaning brush that does not scratch wheels, with an integrated lug nut cleaner. Users can clean with or without the handle.

WALT DISNEY

WAS

THE SOARING HIGHS AND
DISSONANT LOWS OF THE
MUSIC CD PLAYER, LAUNCHED
40 YEARS AGO **BY REID CREAGER**

WAS WALT DISNEY in over his head—and ours? When the EPCOT Center opened on October 1, 1982, his Experimental Prototype Community of Tomorrow vision was praised and questioned by a curious public.

His personal vision—at that point the most expensive private construction project in world history—was an actual city that would feature the best of urban planning and new technologies.

EPCOT dominated the world news that day, overshadowing another major announcement that was no Mickey Mouse event: Sony launched the first CD music player, the CDP-101. The invention, which revolutionized the entertainment industry, was one of those rare collaborations among two competitive Goliaths.

Gloeilampenfabrieken?

Although CD players could be purchased for the first time 40 years ago (for about \$900), their roots go back to when Richard Nixon was scrambling for a dignified way to leave the White House.

In 1974, after a 30cm video disc project called LaserVision went floppy, Philips Corp. combined optical readout and digital encoding techniques to adapt the analog laser disc for digital audio applications. Dutch multinational conglomerate N.V. Philips' Gloeilampenfabrieken revealed an 11.5 cm Optical Disk and Compact Disk Audio Player to the media in Eindhoven, Holland, in

March 1979—widely regarded as the year of the player's invention.

Sony, which had developed similar technology, agreed to collaborate with Philips on a CD music player for the public. According to Sony, Sony, CBS/Sony, Philips and Polygram (a Philips recording label) announced in Tokyo on August 31, 1982, they had jointly developed the world's first CD system and would begin domestic sales that fall.

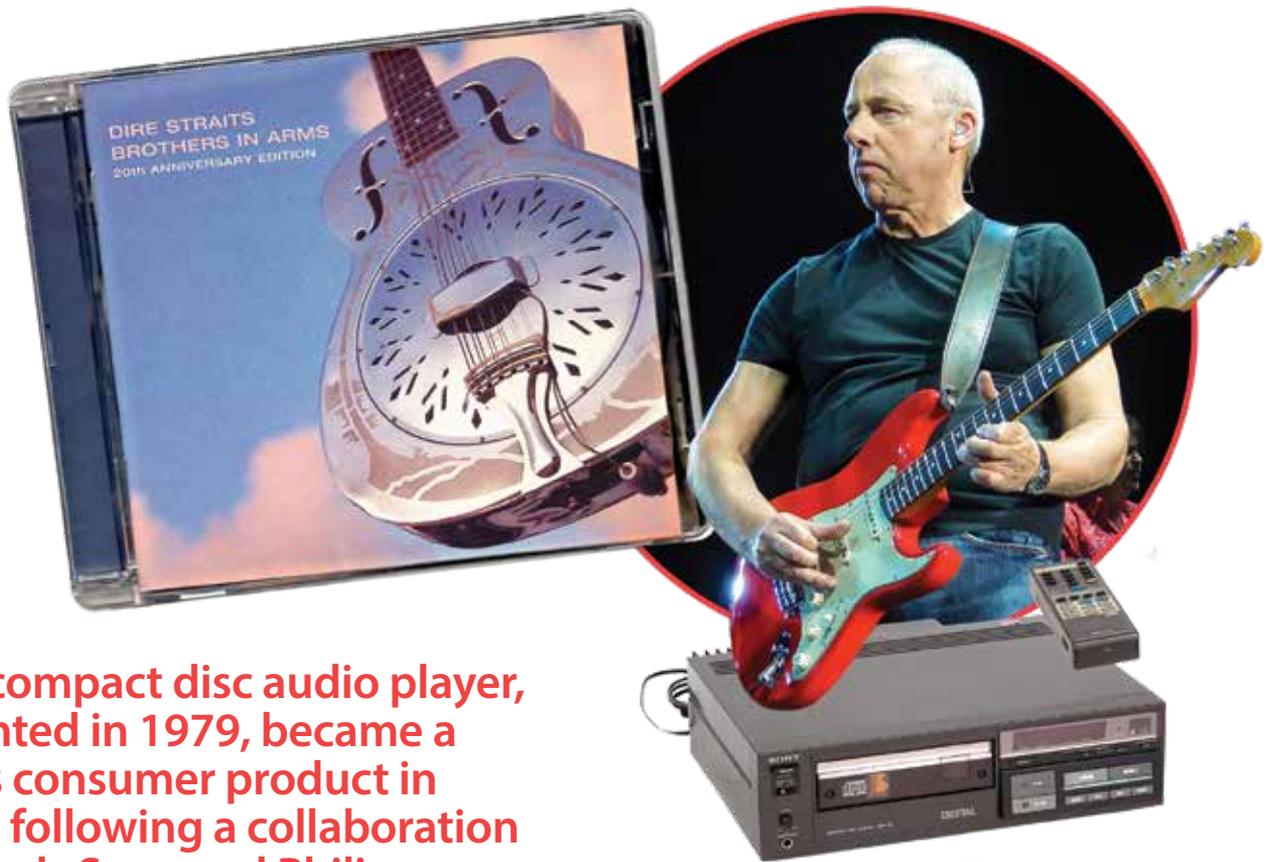
Hans B. Peek, a longtime Philips engineer who participated in the development of the CD, wrote in a detailed story for which Philips provided a link: "Sony was an ideal partner for Philips. It not only had an excellent position in products related to digital recording of audio on magnetic tape, but also had developed a prototype optical digital audio player and disc."

On October 1, 1982, Sony launched the CDP-101. (The Philips CD100 was launched a month later.) By now, according to Philips, the final diameter of the disks was 12 cm; the initially proposed resolution of 14 bits was increased to 16 bits.

Audio capacity of CDs was 74 to 80 minutes, with the reason for that duration subject to a couple of fun theories.

One was that legendary conductor Herbert Von Karajan, who reportedly agreed to endorse the CD at the press conference where Sony and





The compact disc audio player, invented in 1979, became a mass consumer product in 1982 following a collaboration by rivals Sony and Philips.

Mark Knopfler and Dire Straits made "Brothers In Arms" a groundbreaking CD in 1985. The Sony CDP-101 pushed "Play" on a new musical world.

Philips announced the prototype, would only do so if the format would allow listeners to hear all of Beethoven's Ninth Symphony without interruption.

(When he heard his first CD, he said, "Everything else is gaslight." In fact, the oft-unreliable Wikipedia says "Karajan's 1981 Deutsche Grammophon recording of An Alpine

Symphony with the Berlin Philharmonic became the first work ever to be pressed on the compact disc format." There is no attribution for that claim.)

Another story says Norio Ohga, a former opera singer who was named Sony's president in 1982, loved that particular Beethoven work so much that he (or his wife, or the wife of Sony Chairman Akio Morita) insisted it be able to fit onto a CD in its entirety.

So Beethoven's Ninth, which was his last, may have led to an important first.

MUSIC CD MIX

- According to the BBC, the best-selling CD ever is the Eagles' 1976 "Their Greatest Hits" album, which sold more than 38 million copies as of 2019.
- There is debate whether the first music CD made in the world was ABBA's "The Visitors" or Billy Joel's "52nd Street," because of when those albums were produced as opposed to when they were first sold.
- If all the CDs in the world were piled up, they would circle the Earth six times.
- Paul McCartney recalled the first time George Martin showed him a CD. "George said, 'This will change the world.' He told us it was indestructible. 'You can't smash it. Look!' And—whack—it broke in half."



Easy, easy money

As with any major new technological entry designed for the masses, the CD system had its doubting Thomases. One such Tom was named Jerry. The chairman of A&M Records, Jerry Moss said the format would "confuse and confound the customer."

A BBC program, "Tomorrow's World," had introduced British audiences to the CD in 1981. The presenter, Kieran Prendiville, doubted there was a market for that kind of disc.

There was. "The 12-cm CD player was light and compact," the Sony website says, "offering

a one-touch selection function, was compact, lightweight and utilized a medium that was almost permanently durable. The CD system represented a fresh wind of change for the recession-ridden audio equipment industry.”

According to Sony President Ohga, “In demonstrations, Sony had positioned the disc vertically in the player, but it was actually easier to insert the disc horizontally.” The CDP-101 reflected that change.

It wasn't long before CD players were ubiquitous via five-CD changer players, miniature boom box versions, portable one-CD players, and standard equipment in all types of vehicles. The format it largely replaced—cassettes—was smaller, but CD players enabled users to skip directly to the song they wanted to hear.

In May 1985, Dire Straits made an album that will forever be linked to the early days of the CD. Mark Knopfler, the group's frontman, wanted to record “Brothers in Arms” on state-of-the-art digital equipment, so Philips sponsored Dire Straits' world tour and featured the group in TV commercials with Knopfler's slogan: “I want the best. How about you?”

The CD became a lifestyle statement showing upward mobility. Profits spiraled for record companies and their performers.

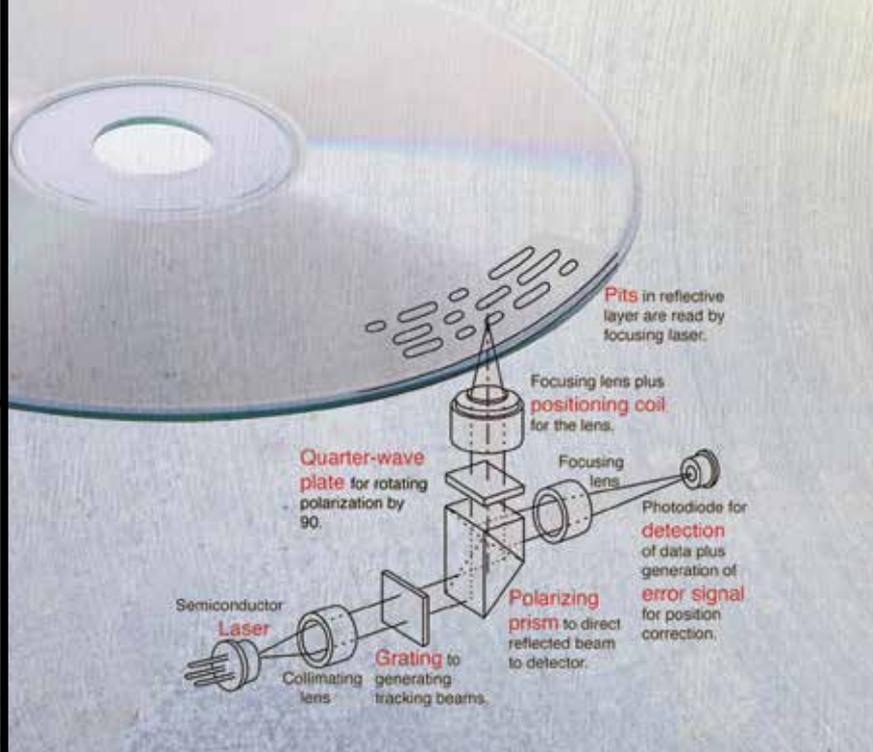
The British daily newspaper *The Guardian* reported in 2015 that annual worldwide sales of CDs topped \$1 billion in 1992 and \$2 billion in 1996.

A big reason was that the CD was cheaper than vinyl to manufacture, transport and rack in stores—while selling for up to twice as much. It was almost “Money for Nothing.”

But the phonograph, invented in 1877, had eventually been overtaken as the music-listening device of choice after a nearly century-long run. Its primary successor, the 8-track tape, met a similar fate. Ditto cassettes.

How could anyone assume that a new, prominent format for listening to music would not evolve yet again?

The Guardian wrote: The CD format “was so popular and so profitable that the music industry couldn't imagine life without it. Until it had to.”



HOW DOES A CD PLAYER WORK?

THE FOLLOWING CONDENSED EXPLANATION ORIGINATED AT HACKADAY.COM.

A CD player has surprisingly few moving parts. It is contained in a combined laser and sensor module which is mounted on a sliding actuator usually driven via a worm drive by a small motor.

An infra-red laser diode shines into a prism which directs its light downwards at right angles through a lens towards a spinning CD. The lens has a focus mechanism, usually a set of coils and a magnet, allowing it to float on a magnetic field. Light is reflected back from the CD and passes directly upwards through the prism to land on an array of four photodiodes.

At ideal tracking and focus, the reflected light should be concentrated in the center of the array. So by monitoring the current produced by each photodiode the player can adjust the focus, disc speed, and linear position of the laser module to keep everything on the track and retrieving a clean data stream at the right data rate.

The analogue signal from the diode array contains the data stream produced as the beam traverses the pits and lands on the CD, and a one-bit front-end simply digitizes these into bits. These bits are assembled into data frames that have been encoded in a form designed to maximize the recoverability of the stream by encoding each byte of data into a 14-bit word intended to reduce the instantaneous bandwidth of the stream by avoiding single logic ones and zeros.

This decoding is performed using a look-up table, resulting in a 16-bit data stream with Reed-Solomon error correction applied. The error correction step is performed, and the result is fed to a DAC (digital-to-analog converter) to produce the audio signal.

There are many variations and enhancements to the system that have been created by various manufacturers over the years, but at its heart the CD player remains a surprisingly simple device.



In the past 40 years, primary means for listening to recorded music have evolved from cassette tapes to CDs to file-sharing, digital music stores and streaming.

The F-word

It wasn't like the industry wasn't playing with new means to listen to music. The compact CD minidisc and digital audio tape entered the fray, only to find their 15 minutes of fame shorter than Carrot Top's.

The music CD's descent began slowly. The main culprit was the F-word.

As the end of the 20th century neared, file-sharing crept onto the sonic scene. Teenagers in particular gravitated toward ways of illegally downloading digital files and not having to spend \$15, \$20 and more on a CD.

MP3s gained popularity. A compressed digital audio file that originally appeared in the form of a small pocket knife, the player stores music files on a memory chip.

Napster, short-lived though it was, was a big file-sharing force in its early years of 1999 and 2000. Apple's iTunes gave people the chance to legally buy individual songs and listen to them

forever on their computers and phones instead of having to buy entire CDs, as well as the ability to store them on your computer. Then came the 2001 launch of the iPod and its MP3 capacity, making it the most popular MP3 player in the world.

The Fat Lady was beginning to sing, regardless of the format on which she was heard.

The decline of the CD and its players didn't happen overnight, reaching an all-time high of \$2.45 billion in sales in 2000 as many remained wary or unaware of how to illegally download music files and resistant to changing their habits. But file-sharing—and later, streaming services—exact an unavoidable toll.

CD, DOA?

It has been widely reported that by 2007, more than 200 billion CDs had been bought and sold worldwide. But CD sales began to plunge at the rate of 10 million a year.

Music streaming site Spotify, launched in 2008, offered the chance for people to listen to unlimited music for a monthly subscription fee. About two-thirds of music listeners now use streaming sites with unlimited choices, including Tidal, Amazon Music HD and Qobuz.

Digital music revenues finally passed CD income in 2014. Longtime CD havens such as Best Buy stopped selling the discs in 2018; as of mid-2021, General Motors was no longer selling any regular passenger vehicles with a CD player. Now it's mostly about vehicles that have a Bluetooth or USB connection.

And consider this incredible statistic: By late 2019, vinyl record sales were likely to overtake CD sales in North America, according to dailyhifi.com.

So, is the shine off the CD forever?

Well, many people who amassed big CD music collections are loath to part with them; this is a great time to buy at affordable prices; the format remains highly portable and storable; many of the latter-day CD players sound even better than the originals; and not everyone can access and pay for streaming service subscriptions.

They also said vinyl was dead almost a half-century ago. They also said EPCOT Center would be a utopian city, not the idealistic world's fair that it turned out to be. 🎧

STILL PLAYING NEAR YOU

Five CD players recommended by bestreviews.com as of December 2021:

1. Yamaha CD-S1000BL
2. Denon DCD-600NE
3. Cambridge Audio CXC CD Transport Player
4. Wrcibo Wall Mountable Bluetooth CD Player
5. Bose Wave Music System IV



Yamaha CD-S1000BL



Denon DCD-600NE



Bose Wave Music System IV

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The Long Haul of Marketing

SHOOT DOWN THE ELEPHANT HUNTER MENTALITY;
TARGET A MORE PRACTICED APPROACH **BY ALYSON DUTCH**

SO MANY entrepreneurs fantasize about their product being listed on Oprah’s “O List” and have vivid expectations of a sudden avalanche of sales that may ensue. Those same startups scrape together dollars to hire PR agencies with dreams of being reported about in Tier 1 media outlets, and fire them a couple of months later because they’re not getting the attention they think they deserve.

These entrepreneurs are often obsessed with the concept of “human capital,” often on the hunt for those who will connect them in ways they think will make their company explode—overnight. They spend their money on “collaborators,” “influencers,” “celebrity endorsements,” who they are convinced will be the key to instant success.

I call these people “elephant hunters.”

I define this as those who are focused on bringing down that one huge and rare animal whose tusks may be worth millions, and upon conquering it promises the power of overcoming something mightier than they.

Elephant hunting is not a way to build a business; it’s not a real expectation or an indication of success. Success comes from the long game—building endurance, practicing patience, testing, lots of pivoting, and making sure you have the budget to support marketing, no matter what. You cannot expect to survive without marketing.

Humans follow humans

We’ve all read inspirational stories about entrepreneurial ideas that quickly become wildly popular. These stories sit upon the altars of

entrepreneurs everywhere, but what most don’t realize is their successes were more about a marathon than a sprint.

There is a reason you hear about products that have instant success: It’s news. News is newsworthy because it’s highly unusual and “new.” But instant anything is not where your attention must lie.

If you plan to succeed in business, there is no getting around spending most of your time and money on marketing. One cannot reach customers without letting them know your product exists. Without customers, you have no business.

Why is the long haul so important? People usually do not buy things they have not heard of, and it takes multiple exposures to get them over the line.

Humans want to know that others like something, and this makes it OK for them to spend their money on something. It’s just the way it is.

Even someone like me who launches products for a living is bamboozled by the lure of someone else’s opinion.

I was in New York City recently looking for a great dim sum restaurant. I didn’t just walk down the street and saunter into the first Chinese place I could find. I went to Eater.com, a website of food critics whose particular taste I appreciate, and took their advice.

I do that in every city I visit. I specifically don’t go to Yelp or Tripadvisor, because their opinions are different from mine.

As I search online, if I see the same restaurant a few times, I automatically think, “Oh, it



looks like it is really good.” If I see it once, I will keep reading until I either read something or see photos on Instagram that sound and look tasty, or I’ll keep searching.

What a good publicist does

How long do you think it took to have that restaurant reviewed on Eater.com, Thrillist.com and TimeOut.com? What kind of marketing was required to get those three placements that wooed me to spend my Sunday brunch there? How did they get those reviews, and who was behind making sure those outlets—read by a traveler like me—were posted?

Well, I am that person—a publicist whose job it is to purposely engineer all the tasty stories to tantalize reporters and critics, like the ones at Eater, Thrillist and Time Out who persuaded me to go to this particular spot. There is a lot that happens behind the scenes to get a customer to respond, and I’m going to explain it to you.

That restaurant had to hire a publicist or a publicity agency. Those publicists knew how to write about dim sum in a way that made the restaurant stand out. This is called USP (a unique selling proposition).

They wrote fact sheets and press releases about it. They shot photos of the food and wrote descriptions that made a reader salivate. They interviewed the chef and wrote a biography. They might have even hosted a Dim Sum Sunday Brunch with reporters. They developed press lists of reporters at Eater, Thrillist and TimeOut, and others who have written about Asian cuisine. They pitched lots of different

Why is the long haul so important? People usually do not buy things they have not heard of, and it takes multiple exposures to get them over the line.

stories that pointed back to the restaurant. They may have researched a history of dim sum, developed seasonal angles about certain types of foods only available in the spring or about food-centric celebrations such as the Chinese New Year. They may have touted the accolades of the chef, solicited awards for the restaurant, involved them in local food festivals or hosted a dim sum wine pairing. They pitched stories to local TV shows, food critics, regional magazines, and Food Network Shows.

That is just the tip of the iceberg involving what a publicist does to create awareness.

Just writing these press kit documents took them a month. Pitching was relentless for a minimum of six months. If that restaurant was brand new and had zero reputation, they pitched for years and built up a book of what I call “Oh, yeah, I’ve heard of that” press clips.

Any publicist worth his or her salt makes hundreds of pitches every month, which result in maybe four placements each month. At the end of six months, a publicist should have racked up at least 25 well-placed articles that are read/heard/seen by your customer.



What does that cost? A reputable and nimble agency can usually do that for anywhere from \$5K to \$8K a month. When calculated into an advertising equivalent, you should expect a 350% to 1000%-plus return on your investment.

Evaluate what works

When you invest in marketing, it's important to focus on what's working and do more of that. Here is how:

- Ask your customers how they found you.
- Check—and track—your Google Analytics to see where traffic is coming from.
- Pivot away from things that are not working (and invest more money in things that are).
- Find potential customers by watching your competitors and woo them toward you. If they are eating dim sum at their restaurant, give them a reason to try yours.

There are so many marketing methods to try. Avoid overwhelm by staying focused on who your customer is, and buy marketing where they are. It's better to stretch your budget for

6 months to a year than to spend your entire budget in one expensive place.

If your customers ride trains, buy train station ads. If they're baby boomers, don't market to them online. If they're teenagers, market to them on TikTok. If they are moms, use Mommy Bloggers or Pinterest.

Don't think that just because the internet exists you only need to market online. That's ridiculous. Know thy customer, talk to them where they are, give them what they want, and hit them in as many different places as you can afford. The goal is to see something about your product repeatedly.

And you may want to start running marathons. It will give you a special appreciation for the long haul in your business. 🏃

Alyson Dutch has been a leading consumer packaged goods launch specialist for 30 years. She operates Malibu-based Brown + Dutch Public Relations and Consumer Product Events, and is a widely published author.



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Idea Power From Your Back Pocket

WHEN COMPANIES WANT TO HEAR YOUR NEXT BIG SUGGESTIONS FOR THEM, BE PREPARED **BY APRIL MITCHELL**

“WHAT ELSE YOU GOT?” I was asked with enthusiasm from a potential licensee while on a meeting.

This is something we inventors always want to hear, but how did I get to this point? Let’s back it up a bit and pull back the curtain.

I had built a relationship with this company by pitching several items to it throughout the years. The company had decided to move forward on a couple concepts I had developed; I was on a Zoom meeting with its representatives discussing factory samples of these two products.

It took time to get to this point: There were several months and reiterations of designs. They had a sample and I had a sample of each concept, which they had sent to me.

We went through every detail, trying items to use with them—checking size, sturdiness, angles, and much more while looking at what was perfect and ready, as well as what we could improve. I had the opportunity to give feedback on the factory samples of these two products and propose new versions and extensions to the line as well.

Ready to respond

It was a fantastic meeting. I learned a great deal about the manufacturing process for this company, and we got to build on our relationship.

As we were wrapping up the meeting, I asked, “What can I do on my end to help you?” That’s when the owner responded quickly with “What else you got?”

I was pleasantly surprised to hear this and jumped right into the next perfect product for the company.

We discussed the concept and virtual prototype while they viewed it on the call. We discussed

the possibilities of this next concept and how it would fit in with their product line, what changes they could make, what other product of theirs it would work well with, etc.

They then suggested they should send me a couple of their products for me to see and use and see what I could design to use or work with them that could bring additional value to their product line. I was thrilled about this additional opportunity to work with them on more projects!

Be a step ahead

The two products we reviewed in the meeting will probably be presented to buyers this spring. We are working on getting licensing contracts signed soon for them.

What will come of the third product that was ready in my back pocket? Or the ideas they want me to come up with to use with existing products?

Only time will tell, but at least they know I always have a new idea ready. Be sure to have that next idea in your back pocket. You never know when and where you will be able to pull it out! ☞



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*.



Mining Fertile Minds

TRY THESE FUN WAYS TO MAXIMIZE PROTOTYPING SESSIONS WITH KIDS **BY JEREMY LOSAW**

KELLY REINHART was 6 when she invented the T-Pak, a thigh pack for kids to carry video games. Frank Epperson invented the Popsicle when he was 11.

Some kids are born inventors and problem solvers. Unencumbered by the trappings of adult life and ignorant of the laws of physics or the limitations of manufacturing processes or material properties, their minds are free to dream up the craziest, loveliest inventions.

It is fulfilling as a parent to witness the process of kids inventing things, watching them use their tools and resources to build prototypes of their ideas—which are often very creative and sometimes well made.

I try to encourage and foster the free thinking required to invent. With a 10- and 6-year-old at home, we have had some fun prototyping sessions over the years.

From working with my two kids, I have used a few techniques that I have seen get the most from them. So I am sharing some of these techniques that can be used with children to promote innovation and good prototyping habits.

Perhaps even the adults in the room can learn something.

10 ideas a day

We have heard about great products coming from an idea that someone had in the shower, but there is no need to wait for serendipity. Ideation can be purposeful.

One technique that is great for idea generation for kids and adults is to sit down every day and write down 10

ideas. I learned of this “idea idea” from author and podcaster James Altucher.

This has been a great way for my kids and me to train what Altucher calls the “idea muscle.” Just like working out, it is training for the brain to get better at making connections through repetitive exercise.

I keep it light with my kids. Any idea is above board; it doesn’t have to be a product. It can be places to go, toys they want, plans for a future play date, or crazy “out there”—impossible stuff like adding a second moon to Earth’s orbit.

You can even do this with pre-writers by having them sketch their ideas instead of writing them down. We do it together, then share our ideas to add an element of shared experience.

Sketching

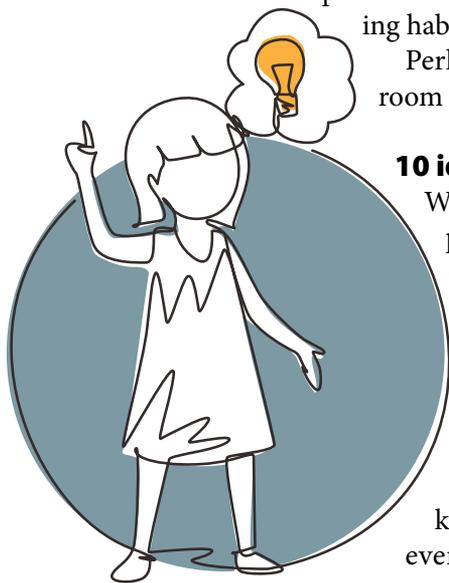
Sketching, an important link between concept and execution, is a great way to get the ideas onto the page.

Kids generally love art and creating things, so it is not hard to engage them to do sketch activities. Some paper and their favorite drawing tools, and you are off and running.

One sketch exercise I like is to pick a found item and have them draw it as best they can. This helps them visualize a real item in 3D space and consider the details of what they are seeing. When putting the items at different heights or far away, you can show them how perspective works and how details look different from different distances.

Another sketch activity I like is a speed drawing challenge. We take a piece of paper and fold it in half twice to make four panels. Then we pick a sketch topic like an animal and set a timer for 60 seconds; the goal is to draw it the best you can in the first quadrant.

For each subsequent quadrant we draw the same thing, but with less time. We go down





It is fulfilling as a parent to witness the process of kids inventing things, watching them use their tools and resources to build prototypes of their ideas.

to 30 seconds, 15 and finally 10. It is a quick and fun activity that gets kids to focus on the main features of an object that distinguish it. It is interesting that you can sketch something fairly representative in a very short time.

Give them tools

Learning a new tool breeds creativity and invention. Adding a tool, whether it be a screwdriver, 3D printer, soldering iron or even software, moves the outer boundaries of what is possible.

There is a saying that if all you have is a hammer, the whole world is a nail. So, by extension, if you have any of the many prototyping tools, the world is an invention waiting to happen.

Adding familiarity with a new tool not only gives kids a specific skill, it gives them more ways to solve problems and inspiration to build and invent new things.

Take stuff apart

What better way to use the new tools kids just learned how to use than to use them to help take something apart?

When you take apart and dissect a physical product, the learning is endless. You see the inner workings, what fasteners are used, the layout of the electronics, the gear trains and all the other accoutrements it takes to make something work. Each product that is offered for sale is often the result of hundreds or thousands of hours of R&D, engineering and manufacturing know-how. If you look closely, those secrets will be revealed.

Obviously, there is a risk to taking apart things that work; they may break or not go back together again. So take every opportunity when you have a broken device to take it apart guilt-free.

If you don't have any broken products, head down to a thrift store and find an old toy or gizmo on the cheap to take apart. You get a bonus point if you can put it back together and get it working again, and 2 bonus points if you harvest the parts to use in your own prototype. 📧

Above left: Tools are an important part of inventing and prototyping, so get tools in kids' hands as soon as they are ready.

Above right: The 10-ideas-a-day exercise resulted in Harper Losaw's rad glasses creation.



What's Blooming?

TIMING IS EVERYTHING WITH PATENTS—AS WELL AS WITH PENDING PATENT OFFICE DIRECTORS **BY LOUIS CARBONNEAU**

WHAT DO the Neelakurinji flower and a patent have in common? Read on to find out, but—spoiler alert—it has to do with blooming.

Let's start with the latest development: United States Patent and Trademark Office director nominee Kathi Vidal answering questions from members of the United States Senate Judiciary Committee. Unfortunately, her testimony was combined with that of a judge with a more controversial track record. So her questioning was rather light, a missed opportunity given how important and impactful this position is.

Nonetheless, she was asked about the current patent eligibility mess. Her response was that “we can work together to build an intellectual property system that is more predictable, reliable and transparent.”

Those are nice things to say, but predictability is in the eye of the beholder.

I am sure that serial infringers also wish the patent system was predictable enough so that they would know in advance that every single patent would be invalidated if asserted against them. So, to me, these guarded statements by candidate Vidal bring very little comfort, as they can easily be read to appease opposite sides at the same time, regardless of their respective agendas.

Mrs. Vidal also said there needs to be “more clarity when it comes to patent eligibility,” whether it “comes via legislation or whether the Supreme Court takes a case.” The way I read this, she sees the eligibility issue as being a problem others need to solve, when we all know that both the Supreme Court and Congress have had numerous opportunities to address this and dropped the ball every single time.

At least her predecessor, Andrei Iancu, took the initiative of implementing guidelines that attempted to bring some clarity to the issue. It is a shame the courts decided not to go along.

In response to a question from Sen. Thom Tillis (R-N.C.) that the Patent Trial and Appeal Board largely remains a “patent death squad,” Mrs. Vidal again kept a neutral stance. She noted her experience on “both sides” of PTAB proceedings and said she would consult with stakeholders and investigate potential reforms.

But she seemed to agree that the PTAB should institute reviews even when it interferes with a first-filed case in an Article III court, which should be a cause for concern for inventors.

According to the US Inventor nonprofit, “Vidal’s clients have filed a combined 2,381 challenges at the PTAB. She has been paid millions of dollars by Apple, Samsung, Microsoft, Cisco, Micron, Netflix, Dell, Roku, and HP. She is attorney-of-record in 14 pending cases at the PTAB, all on behalf of the infringer/petitioner.”

Although I can appreciate the fact that candidates at these hearings are trying to cast an impartial tone and not tip their hand too early, many of us expected a bit more support for strong patent rights.

Therefore, and despite her otherwise exceptional track record as a patent lawyer, we remain a little apprehensive at this stage of what may happen at the PTO for inventors and patent owners if she is confirmed as the new director. Let us hope time proves me wrong.

The patent sweet spot

Let's circle back to that Neelakurinji flower.

Strobilanthes kunthiana, known as Kurinji or Neelakurinji in Malayalam and Tamil, is a shrub found in the shola forests of the Western Ghats mountain range in Kerala, Karnataka and Tamil



Nadu. Its main particularity is that it blossoms only once every 12 years. Which brings us back to patents.

Because of our market presence and track record at Tangible IP, we receive several new portfolios every day that their owners ask us to broker. After reviewing each of those carefully, we select only very few at the end that we believe stand a chance to be monetized in this current market.

Besides the usual attributes that we consider for patent brokerage, one aspect that strikes me regularly is most patents have a small window of opportunity in their 20-year term when they are truly valuable—i.e., in full bloom.

A little bit like with expensive wine, timing is everything and you can end up opening a bottle of your previous nectar too early, before it has had time to develop, or too late when it is past its prime.

By definition, a patent describes something that is new and ahead of where the industry normally sits. If the inventor productizes his or her invention, this usually confers that person a time to market advantage during which period he or she enjoys that perennial exclusivity granted by the government.

These cases are extremely rare in reality. Most inventions are never commercialized by their original owners and for all kind of good reasons—lack of funding, no interest, no entrepreneurial skills, etc. Similarly, it has become increasingly difficult to license a recently issued patent to an operator who will then commercialize it and pay the inventor a per-unit or annual royalty payment.

Though large companies have become extremely agile at integrating technologies from left and right, they are not so great at compensating the innovators behind those. Moreover, it generally takes several years for inventions to mature and become mainstream.

This is why, based on our experience and having tracked hundreds of transactions, we observed that the sweet spot for patents to be transacted during their 20-year lifespan is usually between Year 12 and 17.



Most patents have a small window of opportunity in their 20-year term when they are truly valuable—i.e., in full bloom.

Those crucial few years

Why is that? Actually, it is very simple. It usually takes about a decade for many good inventions to be digested, copied and commercialized by third parties (unless the inventor has done its own commercialization, in which case this window might be shorter).

Because patents transacted on the secondary market sell primarily for their assertion value—i.e., the right to force unlicensed infringers to pay a license fee to the owner—there is really no value to the patents until this is happening. Add to this a couple of years to see some reasonable sales numbers so that one is looking at a sizable pool of accrued damages, and you start to see the blooming evolve.

A patent that is too “young” is also easier prey to invalidity claims, because you are looking at a greater body of prior art that could make it non-novel or simply obvious. So, the earlier the priority date, the better in a sense—all other things being equal.

But beware. The blooming phase will last for a few years, but it is not eternal.

Once you reach a point where there are fewer than three years remaining in a patent family before expiration, you also start losing some potential buyers for your assets. Again, the



reason is simple: Many buyers, especially operating companies, take a buy-and-hold attitude when they acquire patents as they are doing so primarily for defensive purposes.

Obviously, there is little rationale in this case to buying an asset that is about to expire. Others also want to ensure several years during which they can recoup their investment by trading the patents via various patent cross licenses with their competitors and hopefully maintain a relative patent peace in the industry. Again, you cannot do that with patents that are about to lapse.

People will argue that even expired patents have value, as the owner can still go back up to six years (in the United States, at least) to recoup past damages.

Though this is true in theory, there are a few caveats.

First, it still takes most operating companies out of the buyers' pool for the reasons I just mentioned. This in turn, negatively affects demand.

Second, claiming past damages is easier said than done, and many conditions (like marking,

or putting infringers on notice) need to be present to make the patent owner eligible to such past damages. Unfortunately, this is often not the case.

As a result, most patents that are set to expire within a few years, although they may in theory be in their prime, are somehow corked by the passage of time and may not yield the return their owners expect once ready to transact.

The key is for patent owners to be like the precious Neelakurinji flower reaching its apex. Timing is everything.

But do the math. Unlike the flower that can bloom again 12 years later, there is no second chance for patents that last only 20 years! ☹️

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.



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Navigating the Idea Phase

TAKE THESE ACTION STEPS IN THE FORMATIVE STAGES OF YOUR INVENTION PLAN **BY DON DEBELAK**



ALL INVENTIONS start with inspiration about something that needs great improvement, or someone coming up with an idea people would like. The challenge—assuming that your idea does not run into the major obstacle known as prior art—is how to move from the idea to an invention that will work.

Some action steps:

Build your knowledge base. You need a head full of information in order to best proceed. Use all your resources to become a subject-matter expert on anything related to a possible invention, which can reduce bad surprises and major headaches later.

Create your idea. You don't have to follow a prescribed checklist to create your great idea. Now is the time to let all the possibilities percolate before choosing the idea that you think makes the most sense.

Think and understand like an end user. My first invention-related job was with the inventor of the first reclining dental chair. When he came up with the idea, he started by spending whole days in dentist offices watching the dentist work. He kept asking dentists, "Why are you doing that?"

Great inventions most often happen when people understand all aspects of a situation, including how current products work.

Brainstorm. This works best with a group of people—some with technical knowledge and some with knowledge of the end use.

They don't need to know anything about your idea, which for brainstorming is to come up with a better way to do something. No ideas are bad, and you don't want the group to choose the idea anyway. You only want a list of many different ways that can solve the problem.

Join an inventor club. One of the great services offered by inventor clubs is when members critique ideas. Sometimes, clubs do this even for existing products.

This gives inventors exposure to a wide variety of differing technology and tactics for solving problems.

You should participate in inventor clubs if there is one in your area. You can find some at inventorsdigest.com/resources/inventor-organizations. (Be aware that clubs often do not update their information.)

Make your ideas list. Now is the time to think things over, maybe even taking a month to decide what to do.

- Write down the ideas that do what the end-user wants, even if you don't think you can do them. Write them in sequential order, starting with the one you think the end-user will like best.
- Write down the ideas that will be easiest to manufacture in finished form, again listing the easiest one first.
- Write down the ones in order of how much money you think they will cost to make, with the cheapest method first.
- Assemble a list of competitive products in the market and what they cost.

Let this information process in your head for a while. You will start to lean toward some combination of ideas you feel are best.

There is no best way to do this, and each person may decide on different best choices—which is why inventors working in groups of two or three often do best.

But in the end, each person will decide on one best choice. This is the starting point for your invention. 📌

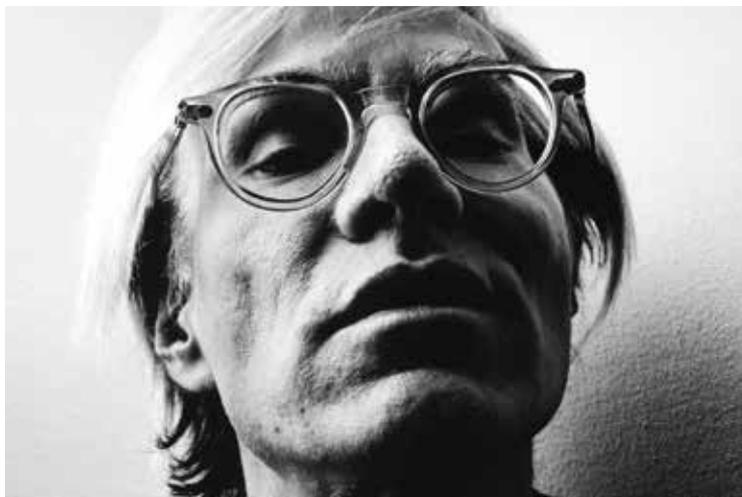
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A ‘Sea Change’ in Copyright Law?

WARHOL FOUNDATION PETITIONS SUPREME COURT OVER RULING INVOLVING WARHOL’S PRINCE SERIES **BY EILEEN MCDERMOTT**



Series works were substantially similar to the Goldsmith Photograph “as a matter of law.”

The petition to the Supreme Court argues that “the Second Circuit’s decision ... creates a circuit split and casts a cloud of legal uncertainty over an entire genre of visual art.”

Dispute’s roots date to 1981

In 1981, Lynn Goldsmith took several photographs of the up-and-coming musical artist Prince Rogers Nelson. In 1984, Goldsmith’s agency, Lynn Goldsmith, Ltd. (LGL) licensed one of the photographs from the 1981 photoshoot to *Vanity Fair* magazine “for use as an artist reference.”

Unbeknownst to Goldsmith and LGL, the artist who used her photo as inspiration was Andy Warhol. Not only did he use her photo for inspiration for the image *Vanity Fair* commissioned, he continued to create an additional 15 works known as the “Prince Series.”

When Goldsmith became aware of the Prince Series in 2016, she notified The Andy Warhol Foundation for the Visual Arts, Inc. (AWF), who is the copyright holder for the Prince Series, that she believed the Prince Series violated her copyrighted photo from the 1981 photoshoot. In 2017, upon receipt of this notification, AWF sued Goldsmith and LGL seeking a declaratory judgment that the Prince Series was non-infringing or, alternatively, that the works “made fair use of Goldsmith’s photograph.”

In response, Goldsmith and LGL countersued for infringement. The United States District Court for the Southern District of New York granted summary judgment to AWF on its assertion of fair use and dismissed Goldsmith and LGL’s counterclaim with prejudice.

On appeal, Goldsmith and LGL argued that the district court “erred in its assessment and



All Eye on Washington stories initially appeared on IPWatchdog.com. IPWatchdog invites potential speakers for its PTAB Masters 2022 series, which begins January 24. Go to ipwatchdog.com/speak/.

THE ANDY WARHOL Foundation has petitioned the U.S. Supreme Court, asking it to review a decision of the U.S. Court of Appeals for the Second Circuit holding that Andy Warhol’s Prince Series did not constitute fair use of Lynn Goldsmith’s photograph.

The Second Circuit held in March that “the district court erred in its assessment and application of the fair-use factors and the works in question do not qualify as fair use.” The Court of Appeals further concluded that the Prince



The petition cites Warhol's famous Campbell's Soup Cans series and his portrayals of Marilyn Monroe and other artists to show how the fair use doctrine has consistently operate to protect those pieces as commentary on consumerism and culture.

application of the four fair-use factors.” Specifically, they argued the district court’s conclusion that the Prince Series is transformative “was grounded in a subjective evaluation of the underlying artistic message of the works rather than an objective assessment of their purpose and character.”

The Second Circuit agreed with Goldsmith and LGL, stating that “the district court’s error in analyzing the first factor was compounded by its analysis of the remaining three factors.”

This finding prompted the appellate court to conduct its own four-factor fair use analysis.

The Second Circuit reasoned that the doctrine of fair use strikes a balance between an artist’s rights to the fruits of his or her own creative labor and “the ability of [other] authors, artists, and the rest of us to express them- or ourselves by reference to the works of others” per the 2006 Second Circuit ruling in *Blanch v. Koons*. The court decided that the district court improperly identified a bright-line rule when it reasoned that any secondary work is necessarily transformative as a matter of law “[i]f looking at the works side-by-side, the secondary work has a different character, a new expression, and employs new aesthetics with [distinct] creative and communicative results.”

The transformative question

The Warhol Foundation’s petition claims this analysis “threatens a sea-change in the law of copyright” because it essentially holds that even when a new work undeniably has a distinct message, it is not necessarily transformative if it retains the essential elements of the source material.

“That approach is unheard of among the courts of appeal, and squarely contravenes this court’s decisions in *Google* and *Campbell*,” says the petition.

Additionally, says the petition, the Second Circuit’s ruling creates a conflict with the Ninth Circuit, which held in *Seltzer v. Green Day, Inc.* that “‘even where’ a new ‘work makes few physical changes to the original,’ it can be transformative if ‘new expressive content or [a new] message is apparent.’”

Well over half the nation’s copyright cases arise in these two circuits, says the petition, and their two now “entirely different frameworks for assessing transformativeness is a recipe for inconsistent results and forum shopping.”

The petition cites Warhol’s famous Campbell’s Soup Cans series and his portrayals of Marilyn Monroe and other artists to show how the fair use doctrine has consistently operated to protect those pieces as commentary on consumerism and culture.

In creating the Prince Series, Warhol used Goldsmith’s photo as source material but cropped it to remove the torso, resized it, altered the angle of Prince’s face. He also changed tones, lighting and detail, the petition explains. Warhol then added color and shading to exaggerate Prince’s features.

The result, the petition argues, “is a flat, impersonal, disembodied, mask-like appearance” that “the district court aptly found ‘transformed’ Goldsmith’s intimate depiction into ‘an iconic, larger-than-life figure,’ stripping Prince of the ‘humanity ... embodie[d] in the photograph’ to comment on the manner in which society encounters and consumes celebrity.”

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.





Agreeing— in Principle

PENDING NEW USPTO DIRECTOR WRITES THAT SHE BACKS THE NOTION OF REVISED PATENT ELIGIBILITY GUIDANCE

BY EILEEN MCDERMOTT



IN WRITTEN answers to senators’ questions for the record submitted by Kathi Vidal, President Joe Biden’s nominee for the next U.S. Patent and Trademark Office director, Vidal said she “support[s] the principle of” former USPTO Director Andrei Iancu’s 2019 Revised Patent Subject Matter Eligibility Guidance for examiners. But she stopped short of wholly endorsing the present guidance or committing to keeping it in place.

Instead, Vidal said she would review the guidance in light of intervening case law and comments on the USPTO’s study on the state of patent eligibility jurisprudence to determine whether updates are needed.

Only Sen. Thom Tillis (R-N.C.) asked Vidal directly about her approach to patent eligibility. The topic also came up in her response to Sen. Chuck Grassley’s (R-Iowa) query about which policies of the previous administration she would keep in place—to which she replied that she would continue reforms made “in patent strength, trademark registry integrity, transparency and inclusiveness.”

As part of that, Vidal said she would “also review and update as appropriate guidance on Section 101 (patent eligibility)” based on the results of a USPTO study some senators requested on the current state of patent eligibility jurisprudence in the United States.

Additionally, Vidal said she would review stakeholder feedback on the Patent Trial and

Appeal Board solicited under Iancu “to determine if prior policies strike the right balance and whether more is needed.”

Avoiding the question?

But in her reply to Tillis’ more direct question on Iancu’s examiner guidance, Vidal punted on addressing whether she actually supports it.

Tillis asked: “As you know, the previous USPTO director issued examiner guidance related to patent eligibility. Do you support that guidance?”

Vidal replied: “Given the uncertainty in the law, USPTO examination guidance was and is necessary to optimize consistent decision-making across art units and examiners. I support the principle of such guidance.”

During her recent hearing with the Senate Judiciary Committee, as well as in her written responses, Vidal acknowledged that today’s jurisprudence on patent eligibility “provides neither clarity nor consistency” and implied that the current examiner guidance is presently consistent with the law. But her written responses raise a question whether her promises to review the guidance in light of intervening jurisprudence—which she admits is chaotic—might roll back some of the benefits Iancu’s changes brought for patent owners.

On the PTAB and Big Tech

All senators who submitted questions for the record asked Vidal about her plans for the PTAB.

Vidal echoed the sentiment of other patent stakeholders who have commented on the topic that, with 10 years of data accumulated since PTAB proceedings were implemented, it may be time to review and potentially revise the procedures:

“For example, I know based on my experiences (representing both patentees and patent challengers), and through common knowledge, that there is a wide disparity in how different courts deal with the parallel proceedings issue (a patent being challenged simultaneously in both the USPTO and in another tribunal such as district court) and related issues.”

Sens. John Kennedy (R-La.) and Marsha Blackburn (R-Tenn.) each asked several questions related to the PTAB and the potential imbalances in the system that may favor Big Tech over small inventors. Kennedy asked whether Vidal agrees with the general proposition that the USPTO examination and PTAB processes favor Big Tech.

Vidal replied that, although litigation of any kind can disadvantage small entities, “the USPTO applies the same statutory requirements during patent examination and in PTAB adjudications for all, regardless of the size of the applicant, patent owner or petitioner.”

She also cited the office’s fee discounts for small and micro entities for patent examination

and maintenance, as well as for PTAB appeals—including the USPTO’s pro bono program for patent prosecution and soon-to-be pilot for PTAB appeals.

As to concerns about serial filings by Big Tech companies, Vidal said “[t]he latter is somewhat ameliorated by the PTAB’s ability to exercise its discretion under *General Plastic Co., Ltd. V. Canon Kabushiki Kaisha* to prevent the filing of multiple challenges against the same patent.”

Regarding a direct question on Andrei Iancu’s examiner guidance, Kathi Vidal punted on addressing whether she actually supports it.

In her reply to Blackburn’s question about whether she has represented Silicon Valley clients in patent matters, she said she has had clients across the spectrum—from Fortune 100 and Silicon Valley companies to underrepresented individuals.

She also noted in response to a question from Sen. Josh Hawley (R-Mo.) that she has never represented Facebook, Twitter, Apple, Google, or Amazon specifically while at Winston & Strawn. ☞

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Best wishes, Jack Lander

IoT Corner

Online retailer and cloud service provider Amazon announced a new robotics platform at AWS re:Invent, its November developer conference.

AWS IoT RoboRunner will allow developers to create applications and workflows to allow fleets of robots to work together. The service, inspired by Amazon's own use of robotics, is already deployed for the company's machines.

The move is intended to help small and large businesses deploy robots quickly and profitably, while positioning Amazon to corner the market on robotics software as it evolves in the next decade. —*Jeremy Losaw*

Wunderkinds

Teenager **Olivia Cairl** was the senior winner in the Best Game category at the 2021 People of Play Young Inventor Challenge for her Fitness BINGO. "I wanted to create a game that would make it fun for kids to be active," Olivia said in her YouTube video. "Over quarantine, kids lost their favorite sports. This led to things like depression, laziness and overeating habits. ... With this game, there are different intensities because you need options when you're choosing your workout." The game, which comes with an elastic resistance band, features three cards (easy, moderate and extreme); the first to complete all exercises wins. Olivia won a \$250 prize package of toys and games.



What IS that?

The **Archie McPhee Handi Squirrel** is a creepy set of five finger puppets. "Is it compatible with the Intel Core i7 processor?" someone wrote in the customer questions and answers. The reply: "You're gonna need Windows 10 for compatibility with at LEAST an AMD 3rd gen 6 core Ryzen 3600 processor for the best interactive experience."

\$500M

Sony's approximate purchase price of **Bruce Springsteen's** recorded music and songwriting catalog—highly coveted intellectual property. ("Hungry Heart" in a Burger King commercial? Please, no.)

WHAT DO YOU KNOW?

1 True or false: Johnny Carson tried to buy rights for an invention that a 92-year-old inventor told him about on "The Tonight Show."

2 Which of these classic toy inventions was originally meant to be used for something else?

- A) Etch-A-Sketch B) Slinky
- C) Barbie D) Silly Putty

3 True or false: Anything you find disclosed in an expired patent can be re-patented.

4 What was invented first—water skiing, or volleyball?

5 "Shark Tank's" Mark Cuban, subject of a November 2020 *Inventors Digest* cover feature, said his "all-time favorite invention" is:

- A) Television B) A cure for hiccups
- C) Basketball D) The wheel



ANSWERS: 1. False. Ernest St. George, a guest in 1983, invented a newsreel camera and a car heater. 2. D. Engineer James Wright, working for the U.S. War Production Board, was trying to create an inexpensive substitute for synthetic rubber. 3. False. Once a patent expires, the invention cannot be re-patented. 4. Water skiing was invented 100 years ago in 1922, volleyball in 1895. 5. B.

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