

# Inventors

DIGEST

## TALK TOME

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INSPIRE AND INFORM

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LATEST ADDS TO NATIONAL  
INVENTORS HALL OF FAME

**Dayton Gems**  
OHIO CITY HAS RICH  
INVENTING HISTORY

**Roy Morejon**  
Art of the Kickstart

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UNITED STATES  
PATENT AND TRADEMARK OFFICE



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vaxadigital.com

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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.



[SaveTheInventor.com](http://SaveTheInventor.com)



# 7 NEWS FLASH HONORED BY National Inventors Hall of Fame

*Latest class includes two essential contributors to COVID-19 vaccines*

**TWO SCIENTISTS** who laid the groundwork for the COVID-19 vaccines brought to fruition by Pfizer-BioNTech and Moderna are among the seven 2022 National Inventors Hall of Fame® inductees.

In partnership with the USPTO, the NIHF will honor the Inductees on May 5, 2022, at “The Greatest Celebration of American Innovation”® at The Anthem in Washington, D.C. Those seven will join the 22 inductees announced in 2020 for a class of 29.



Katalin Karikó

**Katalin Karikó**, a biochemist, and immunologist **Drew Weissman** did the fundamental research for the mRNA COVID-19 vaccines developed by Pfizer-BioNTech and Moderna. The mRNA vaccines have been crucial in the fight against the COVID-19 respiratory disease caused by SARS-CoV 2, a new coronavirus discovered in 2019. Nearly 1 billion mRNA vaccine doses have been administered worldwide since December 2020.



Drew Weissman

**Marian Croak** has worked on advancing Voice over Internet Protocol (VoIP) technologies, converting voice data into digital signals that can be easily transmitted via the internet. Her work has allowed VoIP to become a practical reality by enabling reliability and high quality. VoIP technology is vital for remote work and conferencing, as well as personal communications.

**Lonnie Johnson** is the inventor of the Super Soaker® water blaster, which became a best-selling toy that generated over \$1 billion in sales. The engineer’s longtime research focuses on energy technology. His work today includes advances in rechargeable battery technology and thermodynamic technology to convert thermal energy to electrical energy.

**Patricia Bath**, an ophthalmologist, invented a new device and technique to remove cataracts known as laserphaco. Different than phacoemulsification that uses ultrasound, it could perform all steps of cataract removal—including making the surgical incision, destroying the lens and vacuuming out the fractured pieces. She died in 2019.

**Carl Benz**, a German engineer, was the first to design a car around the internal combustion engine rather than adding an engine to an existing wagon or carriage—a key insight in auto evolution. By integrating the engine, chassis and drive into a single entity, Benz set the standard for all future automotive design and engineering. He died in 1929.

**James Buchanan Eads** created a series of inventions during the 1800s that improved transportation and the military defense of the Mississippi River region. His widespread innovations were crucial to river salvage, the success of the Union Navy during the Civil War, and infrastructure and engineering that enabled major advances in commerce. He died in 1887.

**MORE INFORMATION:** [invent.org/induction](https://invent.org/induction)

## MAGIC MOMENT

# A Scary Patent Story

*Skeleton meant to scare criminals had a Halloween feel to it*

**IT WAS AN INVENTION IDEA** straight from a Halloween movie: a skeleton with glowing red eyes and a presumably eerie voice, designed to elicit photographically recorded confessions from criminals. But Helen Adelaide Shelby's concept was never put to use, as examiner concerns at the then-United States Patent Office foreshadowed possible issues that were later confirmed by a U.S. Supreme Court justice named Felix Frankfurter.

Hot dog! This story has all the makings of a USPTO classic.

Shelby, of Oakland, California, titled her 1927 patent application "Apparatus For Obtaining Criminal Confessions And Photographically Recording Them." Her written description:

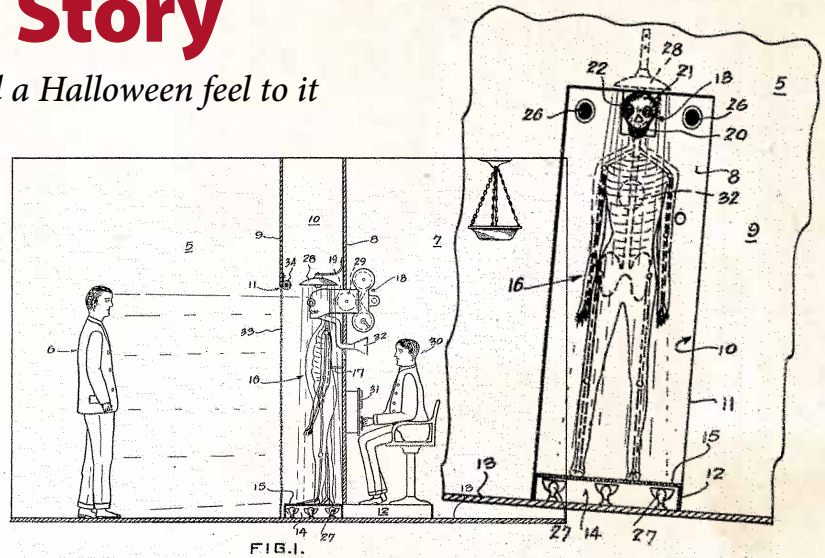
"The present invention relates to a new and useful apparatus for obtaining confessions from culprits, or those suspected of the commission of crimes, and photographically recording these confessions, in the form of sound waves, in conjunction with their pictures, depicting their every expression and emotion, to be preserved for later reproduction as evidence against them."

The suspect, isolated in a small, dark room, would be asked questions from an unseen interrogator whose voice was coming from the skeleton's mouth through a megaphone.

Shelby explained in her application, "It is a well-known fact in criminal practice that confessions obtained initially from those suspected of crimes through ordinary channels are almost invariably later retracted." Her premise was that the apparent presence of a ghastly figure would scare suspects into making a permanent confession—i.e., that the spirit would move them.

Not surprisingly, the detailed and illustrated 44-page USPTO case file shows plenty of back-and-forth between Shelby and examiners. Most notable is an examiner's notation to delete the entire fifth paragraph of her original description, which read:

"In practice, my system of obtaining the confessions of criminals is a legitimate and humane one, freed from



all possibility of a charge of intimidation being afterward made against the authorities, since the criminal, his surroundings, and his evidence and movements to the minutest detail are faithfully photographically recorded, to be later reproduced at his trial."

Many other claims in the application were questioned or outright rejected. One examiner wrote: "Claims 11 through 14 are rejected as not defining invention. Recording a confession uttered by a suspect simultaneously with taking his picture while he views a "skeleton" or other object would not amount to invention. The recording process is the same whoever the subject is or under what conditions it is recorded. Frightening the subject is not a patentable process."

Shelby was granted U.S. Patent No. 1,749,090 on March 4, 1930.

There is no evidence that her skeleton contraption was ever constructed, but it might not have mattered because of the iffy nature of her concept. Ultimately in 1961, Justice Frankfurter wrote in *Rogers v. Richmond* that even if a confession were true or reliable, it should be excluded from admission in evidence if involuntary or coerced.

Little is known about Shelby. Research shows she sold and leased properties in Oakland, San Francisco and Santa Cruz, California. She died in 1947, but her one patented invention lives on in creative spirit.

# Ex parte, Explained

*How inventors can appeal a rejected patent application*

**A**N INVENTOR who disagrees with a USPTO patent examiner's decision to reject claims in his or her patent application still has options.

If the examiner issues a second or a final rejection, the applicant may seek review by the Patent Trial and Appeal Board (PTAB) in a proceeding called an *ex parte* appeal.

**The purpose of *ex parte* is to demonstrate to a three-judge panel that the examiner erred in rejecting the claimed invention and that the rejection should be reversed.**

In an *ex parte* appeal, an applicant seeks to demonstrate to a three-judge panel that the examiner erred in rejecting the claimed invention and that the rejection should be reversed. In this way, the PTAB functions as a quality control check on examination to ensure that examiners make correct patent-ability decisions.

First, the patent applicant—referred to as an “appellant” before the PTAB—must file a Notice of Appeal and pay an appeal fee, both within a specified period. Within two months of filing a Notice of Appeal, the appellant must file an Appeal Brief—a legal document that explains why the appellant believes the patent examiner erred in rejecting the claimed invention.

(The USPTO provides resources for preparing an *ex parte* appeal brief, including a Word template to serve as a starting point for the brief and general guidance on writing the required sections featured in the template with examples.)

After the Appeal Brief is filed, the examiner will respond to the arguments in the Appeal Brief in what is called an Examiner's Answer. The examiner will also consider whether to maintain, modify, or withdraw each rejection. Further, the examiner may include a new ground of rejection against some or all of the pending claims. Lastly, the examiner will provide notice that the appellant must pay an appeal forwarding fee within two months from the date of the answer to maintain the appeal.

The appellant may file a Reply Brief within two months from the date of the Examiner's Answer. The appellant may address arguments presented in the Examiner's Answer and/or address any new ground of rejection. The appellant may not introduce new evidence or arguments in the Reply Brief.

If an oral hearing is requested, the USPTO will notify the appellant of a hearing date and give the appellant 20 minutes to present his or her case to the three-judge panel assigned to the appeal.

After all briefings have been submitted—and after an oral hearing, if requested—the three-judge panel will consider all arguments and evidence of record and decide whether the examiner erred in rejecting each claim on appeal. The judges then will issue a written decision.

More information about *ex parte* appeals is available at [uspto.gov/patents/ptab/appeals](https://www.uspto.gov/patents/ptab/appeals).



## WHAT'S NEXT

### PTAB INVENTOR HOUR WEBINARS:

These Thursday events are for independent inventors and those new to Patent Trial and Appeal Board (PTAB) practice. The sessions cover PTAB proceeding basics—i.e., *ex parte* appeals and America Invents Act (AIA) trials—and other useful information for practicing before the board such as oral hearing protocols, statistics, and more.

The next Inventor Hour webinar is from noon to 1 p.m. ET on October 28; another follows on November 18. Presentation materials and recordings are posted after the webinars.

You can email questions in advance of or during the webinars to [PTABInventorHour@uspto.gov](mailto:PTABInventorHour@uspto.gov).

**MORE INFORMATION:** [uspto.gov/patents/patent-trial-and-appeal-board/inventor-hour-webinars](https://www.uspto.gov/patents/patent-trial-and-appeal-board/inventor-hour-webinars)

Visit [uspto.gov/events](https://www.uspto.gov/events) for many other opportunities to attend free virtual events and/or training.

## TRADING CARD

## NO. 14

## Stephanie Kwolek

**W**HEN STEPHANIE KWOLEK was offered a job as a chemist at DuPont in 1946, she was unsure of her career path. She was also interested in teaching and had a passion for medicine but could not afford to pursue the latter at the time.

World War II, which ended a year earlier, interrupted the careers of millions of men in the United States. So the recent graduate of the Carnegie Institute of Technology, with a chemistry degree, took advantage of this rare opportunity for women and accepted the position.

DuPont was already known for its groundbreaking research. DuPont chemist Wallace Carothers had discovered nylon, the world's first synthetic fiber, in 1939; the first nylon stockings went on sale in New York City in May 1940.

Kwolek had been interested in fabrics since she was a little girl in New Kensington, Pennsylvania. She remembered designing costumes for her paper dolls, later making actual clothes from fabric on her mother's sewing machine.

DuPont's robust creative environment appealed to her, as well as the fact that her male bosses allowed her to experiment on her own with polymer research. "They left me alone. ... It appealed to the creative person in me," she told the Science Institute—so much that she chose to abandon her long-held goal to be a doctor. That decision became important in American history. It is especially noteworthy as we celebrate National Chemistry Week October 17-23.

In 1964, amid talk of a possible gas shortage, DuPont challenged its researchers to look for a high-performance fiber to replace steel wire in tires. The premise was that this would improve fuel economy.

"I was assigned to look for this super strong, super stiff but lightweight fiber," Kwolek said.

During her analysis of long molecule chains at low temperatures, she observed how polyamide molecules line up to form liquid crystalline polymer solutions of exceptional strength and stiffness.

She discovered the technology for spinning fibers with these special characteristics and invented poly-paraphenylene terephthalamide, a polymer material that is five times stronger than steel on an equal-weight basis.

Since 1971, the materials have been marketed under the brand name Kevlar®, best known as the life-saving material in bulletproof vests. Kevlar materials work by catching a bullet in a multi-layered web of woven fabrics. The fibers absorb the impact and disperse it to other fibers in the weave. Other layers absorb additional energy.

The material is used in hundreds of products—among them brake pads; helmets; skis; boats; in aeronautics; even as suspension bridge reinforcement. Kwolek's low-temperature methods for preparing polymers led to the elastic Lycra®, Spandex, and Nomex® brands of products, consisting of synthetic fibers and used in fire protection and electrical insulation.

Kwolek led polymer research at DuPont until her retirement in 1986. She was inducted into the National Inventors Hall of Fame in 1994 and received the National Medal of Technology in 1999, among many other honors.

She was an active participant in programs that introduce children to science until her death in 2014 at 90.

After being named a Lemelson-MIT Lifetime Achievement Award winner in 1999, she said in an interview with the organization: "When I grew up, I was not exposed to science ... I tell young people to reach for the stars. And I can't think of a greater high that you could possibly get than by inventing something."

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





## Godiva News Was Such Sweet Sorrow

With pandemic cautions reducing the number of trick-or-treaters, there are fewer excuses to buy Halloween chocolate these days. And now it has gotten a little more difficult to buy our sweet indulgence in person.

Premier chocolate maker Godiva quietly announced in January that it was shutting down all 128 of its brick-and-mortar stores in North America. As recently as 2019, the chocolatier was reportedly talking about opening 2,000 cafes worldwide by 2023.

Godiva cited consumers' long-shifting buying habits from in person to online, accelerated by Covid-19. It was a bummer for those of you who live near a tony mall or a major metropolitan city; the mere experience of walking into these stores was a delightful luxury assault on the eyes and senses.

Putting one of these chocolates in your mouth remains an almost indescribably delicious experience for chocolate freaks who are often indifferent to the price tag.

In 2016, The Penny Saver conducted a small, informal poll that ranked the five most expensive milk chocolates in terms of cents per ounce. Godiva (99 cents per ounce) was the winner, with no need for a recount.

"At almost a full dollar per ounce, this was far and away the priciest chocolate we tasted. But as it turns out, you get what you pay for. This bar was the favorite of five out of our nine participants. ... This bar seemed to bring all the sweetness and creaminess of straightforward, cheap milk chocolate like Hershey's to an elevated level with a greater depth of flavor. Everyone loved its texture, describing it as creamy, melty and smooth."

No one person invented chocolate. Its origins reportedly date to the ancient Mayans, even earlier to the ancient Olmecs of southern Mexico.

As for the solid chocolate form, that is largely attributed to Englishman and Candy Hall of Famer Joseph Fry—who in the 1950s added more cocoa butter, rather than hot water, to cocoa powder and sugar. In 1875, Daniel Peter and Henri Nestle added condensed milk to solid chocolate, creating a milk chocolate bar.

Of course, you can still buy Godiva online. Me, I'd rather load up on Reese's cups from the supermarket and pretend this is the year trick-or-treaters will return to my front porch in vintage numbers.

Yeah. They'll be here. That's the ticket.

—Reid

(reid.creager@inventorsdigest.com)

# Inventors

DIGEST

**EDITOR-IN-CHIEF**  
REID CREAGER

**ART DIRECTOR**  
CARRIE BOYD

**CONTRIBUTORS**  
STEVE BRACHMANN  
ELIZABETH BREEDLOVE  
DON DEBELAK  
ALYSON DUTCH  
JACK LANDER  
JEREMY LOSAW  
EDIE TOLCHIN

**GRAPHIC DESIGNER**  
JORGE ZEGARRA

INVENTORS DIGEST LLC

**PUBLISHER**  
LOUIS FOREMAN

**WEBSITE ADMINISTRATOR**  
ELIZABETH BREEDLOVE

**FINANCIAL CONTROLLER**  
DEBBIE MUENCH

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Ad rates, subscriptions & editorial content:  
520 Elliot Street  
Charlotte, NC 28202  
info@InventorsDigest.com  
www.InventorsDigest.com  
reid.creager@inventorsdigest.com

## 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):*

I had a great time watching Jack Lander when he appeared on the USPTO's Invention-Con spectacular in August. I expected him to have some unconventional advice for inventors, and he did not disappoint!

One thing he mentioned was how *Inventors Digest* is a good place for people to find inventor groups. But I did not find these in the magazine. Can you help? —STEVEN BROWN, MIDLAND, TEXAS

*For years, Inventors Digest ran a two-page list of inventors groups before determining that 1) readers would be better served by having fresh content*

*in that space each month; 2) a lot of the groups either moved or disbanded, and did not respond to requests to update their information; and 3) we could still attempt to serve this inventor need by listing these organizations on the Inventors Digest website (go to Resources on the homepage, then Inventor Organizations). You will find a list of groups there, but the same cautions apply: We can only update them periodically and are dependent upon those groups for keeping us current. —Editor*

### CONTACT US

#### Letters:

*Inventors Digest*  
520 Elliot Street  
Charlotte, NC 28202

#### Online:

Via [inventorsdigest.com](http://inventorsdigest.com), comment below the Leave a Reply notation at the bottom of stories. Or, send emails or other inquiries to [info@inventorsdigest.com](mailto:info@inventorsdigest.com).



## A BASEBALL CARD ERA ENDING

For about three-quarters of a century, Topps Chewing Gum Co. has been synonymous with the fun of opening a pack of baseball cards in hopes of finding your favorite player. That era is about to end as the importance of intellectual property rights is underscored in yet another arena.

It was widely reported on August 20 that Major League Baseball and Fanatics, a sports apparel and memorabilia company, struck a deal for the latter to become the exclusive provider of baseball trading cards starting in 2023. Topps, which has four years remaining on its deal with MLB, has been producing baseball cards since 1951.

Fanatics also made deals with

the National Football League and National Basketball Association to become those sports' exclusive card issuer. All three sports' player unions will have a stake in the deals, which was a key provision.

The *Wall Street Journal* reported that according to Major League Baseball Players Association executive director Tony Clark, the new deal is more than 10 times bigger than any previous agreement. Clark also wrote that the deal, as well as other agreements the MLBPA has reached, will total almost \$2 billion through 2045.

The rights for card companies to use player images and likenesses, as well as team and league logos, are paramount in these agreements. (This was not always the case. In 1970, when Topps could not strike a deal with the NBA to use team logos, some of its cards featured players who had their jerseys on backwards so no licensing violation was committed.)

Fanatics struck during a time of wild growth in baseball card values. In part due to the increasing number of people staying at home during the pandemic and rediscovering cards, Topps sales are up 78 percent since last year. Target stores stopped carrying new card issues when fights broke out among customers seeking to buy and flip new product.

The deal was apparently in the works for months without Topps' knowledge. The *Journal* reported that MLB Commissioner Rob Manfred—whose dubious place in baseball history is secured after he penalized no players in a devastating cheating scandal—got an earful from Topps Chairman Michael Eisner.

Collectors have reason to worry about MLB creating what amounts to an in-house card company and what that will mean for the product. But for now, Fanatics has hit an IP home run.

—Reid Creager

# BRIGHT IDEAS

## TLTD

PINKIE-FRIENDLY  
PHONE GRIP ACCESSORY  
[gettltd.com](http://gettltd.com)

TLTD bills itself as the first mobile phone accessory of its kind designed specifically for people with “smartphone pinkie,” a condition suffered by millions who rest their phone on their little finger to use their mobile with one hand. The accessory sticks to the back of any phone or case.

Unlike its predecessors, TLTD doesn’t tie down the back fingers. A soft silicon cushion helps support the bottom finger, allowing users to comfortably tilt back the phone and rest it on the stronger back fingers.

Because TLTD sits at the bottom of the phone, it allows users to enjoy the benefits of wireless charging and doesn’t block personalized cases. It even helps extend reach for selfies.

TLTD retails for \$12.95.



**“It doesn’t matter if you try and try and try again, and fail.**

**It does matter if you try and fail, and fail to try again.”**—CHARLES F. KETTERING

## TOSY Flying Duo

360 LED FLYING DISC  
AND PATENTED BOOMERANG  
[flyingduo.tosy.com](http://flyingduo.tosy.com)

This disc features adjustable lights powered by 360 LEDs and meets professional ultimate standards. (The makers are in the process of getting official approval from USA Ultimate.) The light will flash to alert players if the disc is not thrown within 10 seconds.

TOSY bills itself as the world’s first and only round-shaped boomerang with a launcher for exact return. It features six different timer modes and six different brightness levels.

The disc includes automatic light sensors, is USB-C rechargeable, and is 100 percent waterproof and floatable.

The TOSY Flying Duo has a retail price of \$120. Shipping to crowdfunding Rewards backers is set for December.





## RocketFire

### FAST FIRE STARTER

[rocketfirtorch.com](http://rocketfirtorch.com)

With the slogan “Zero to sirloin in just seconds,” RocketFire™ contains the thrust to light charcoal and wood fires within seconds at the touch of a button. There is no lighter fluid, no matches, no kindling, no liquids.

The tri-tip RocketFire torch can be fueled by a standard CGA600 camping-style propane canister. Use Map/Pro gas for a little extra boost.

This stainless steel tip spreads flames by creating a 60-degree tri-flame spread. Placed at the center of a charcoal bed, the fire projects outward in concentric circles, lighting the entire bed evenly.

RocketFire will retail for \$129. It is to be shipped to crowdfunding Rewards backers in January.

## POSSIBLE DELAYS

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

## Noku Canvas

### MODULAR, SELF-WATERING WALL PLANT SYSTEM

[shirinoku.com](http://shirinoku.com)

With the Noku Canvas, you can use plants as part of a design element on the walls of your home. The product comes with a simple wall-mount unit that you can either screw into your wall or stick on, using the fully removable adhesive patches provided.

The device waters your plants using a passive wicking hydroponics system. Water is drawn up the wick via capillary action, the same mechanism that roots and stems use. The plant naturally draws water from the reservoir when it needs it.

Just fill up the reservoir every three weeks. A water gauge allows you to monitor the water level at a glance.

The Noku Canvas will retail for about \$55, with March 2022 shipping scheduled for crowdfunding Rewards backers.





# Dayton Gems

OHIO CITY MADE ITS MARK WITH HISTORIC INVENTIONS AND INVENTORS **BY REID CREAGER**

**I**N THE 1982 Pretenders song “My City Was Gone,” lead singer Chrissie Hynde laments how her native Ohio oversaw the destruction of farms and countryside splendor to literally pave the way for parking lots and malls.

Other aspects of progress in the Buckeye State are more inspiring.

A three-hour drive southwest of Hynde’s Akron birthplace lands you in Dayton, Ohio—a little-known source of important inventions and inventors for more than a century despite being only the sixth-largest city in the state. In fact, Dayton.com says the city “was known as the invention capital of the United States in the early 1900s.”

Let’s take off with the most renowned of all inventive inventors to call Dayton home.

Hawk on North Carolina’s Outer Banks on Dec. 17, 1903.

North Carolina license plates say “First in Flight.” The Wright Brothers National Museum and the Wright Brothers National Memorial are in North Carolina.

But the John W. Berry Sr. Wright Brothers National Museum in Dayton says it has the most Wright artifacts on display in the world, including the 1905 Wright Flyer III—which the brothers considered their most important aircraft. There is also a Wright Brothers Memorial Park in Dayton, and an airport named after them.

## Levitt Luzern Custer

This Dayton-area aviator and inventor was a friend of Orville Wright who helped design the instrument panel for one of Wright’s planes, according to [americantreasuretour.com](http://americantreasuretour.com). Turns out that Custer alone could have been the subject of a story in this space, given his 20-some patented inventions.

Custer was posthumously inducted into the International Association of Amusement Parks and Attractions Hall of Fame in 2018.

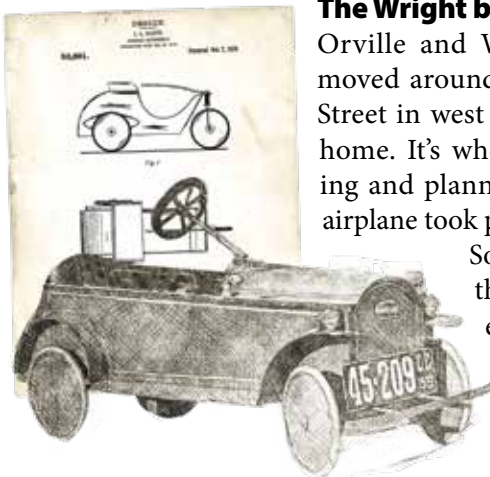
The IAAPA cited his Custer Park Car—a small, battery-powered automobile that could traverse almost any terrain—as well as the Water Cycle, the first paddle boat ride. The IAAPA said: “Custer’s influence remains in every

Levitt Luzern Custer’s Custer Park Car was a small, battery-operated automobile that could traverse almost any terrain.

## The Wright brothers

Orville and Wilbur Wright’s family moved around a bit, but 7 Hawthorn Street in west Dayton was considered home. It’s where much of the thinking and planning for the world’s first airplane took place.

So Dayton refers to itself as the “Birthplace of Flight,” even though the Wright brothers made the first controlled, powered aircraft flights at Kitty



go-kart, turnpike, and paddle boat ride to the delight of thrill seekers to this day.”

But some of his interests literally aimed higher. His first major invention was the Statoscope, used to register the rise and fall of hot-air balloons and planes and utilized by the U.S. military. Custer’s aviation training machine, which simulated flight conditions, was used to prepare pilots for World War II.

He is probably best known for inventing a motorized wheelchair, in 1919. Custer’s last stand as a patentee was a gasoline motorized wheelchair in 1942.

### **Charles F. Kettering**

Not only could Kettering have been the sole subject of a story, he could have been the subject of a book or movie. (In fact, he was the subject of some books and even wrote a couple.)

A suburb of Dayton was named for Kettering when it was incorporated as a city in 1955. He was the cover subject of the Jan. 9, 1933, issue of *Time* magazine. He is a member of the National Inventors Hall of Fame, having received 186 U.S. patents.

By the time of the *Time* recognition, Kettering had secured his place in invention history by creating the first electric ignition system in cars, in 1912, after forming the Dayton Engineering Laboratories Co.

Kettering was director of research at General Motors (1920-47) when the *Time* cover story referred to the “tall lank man who has been found to resemble both Ichabod Crane and Abraham Lincoln” as “GM’s visionary magician ... Forgiven and forgotten is his classic blunder of ten years ago, the air-cooled Chevrolet motor which cost GM 31 cool millions.”

Kettering wore failure as a badge of honor. One of his most famous quotes was, “Failures are finger posts on the road to achievement.”

Achievement had been his since early in his career, and he made sure of it: After graduating Ohio State University in 1904, he reportedly threw away his diploma so he would not consider his education finished. In Kettering’s first job leading the research laboratory at National Cash Register—where his personality got him



**Charles F. Kettering was the cover subject of the Jan. 9, 1933, issue of *Time* magazine and a member of the National Inventors Hall of Fame, having received 186 U.S. patents.**

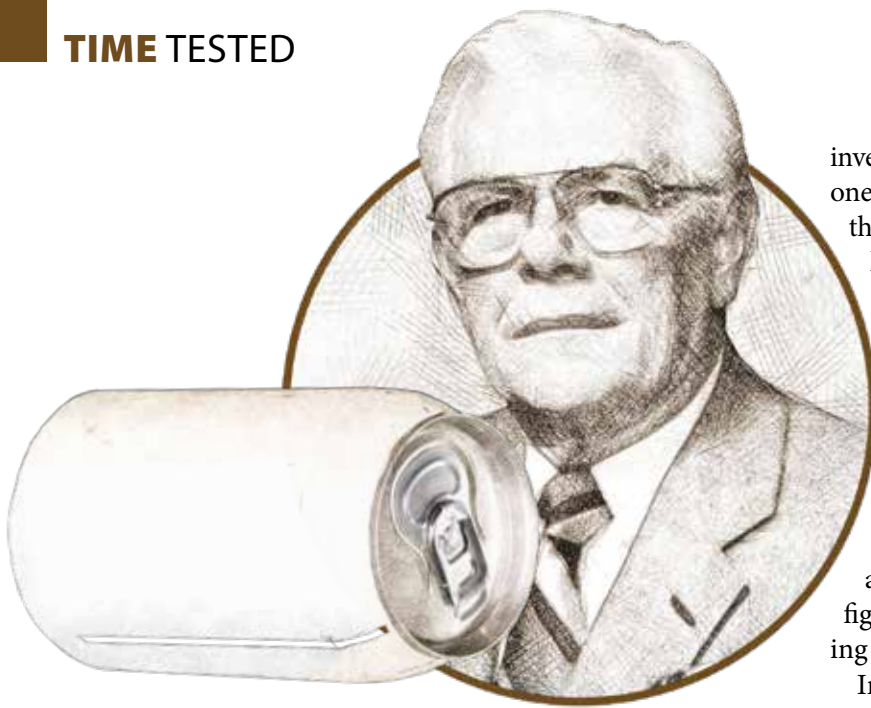
fired many times—he invented an easy credit approval system that led to credit cards, as well as the electric cash register in 1906.

In 1918, Kettering designed an aerial torpedo that could carry 300 lbs. of high explosives at 50 mph, considered the first aerial missile. Among his many other patents included one for a portable lighting system and an incubator for premature babies.

(He also may be the inventor of some of the best quotes: “My interest is in the future, because I am going to spend the rest of my life there.” And “I notice the harder I work, the luckier I get.”)

### **Ermal Frazee**

Summer of '42. Frazee, part of a group of engineers and tool designers working 12-hour days to fill orders related to World War II, was among about 25 workers who went to a picnic one Friday night at Dayton’s Triangle Park.



## Ermal Frazee's pull-tab can invention resulted from a picnic where nobody remembered to bring a bottle opener.

As a 2000 *Dayton Daily News* story recalled, nobody remembered to bring a bottle opener for the beer. The less-than-ideal solution was to hook a bottle top to the edge of a car bumper and pull.

The group enjoyed the evening discussing a variety of topics—among them the fact that there should be a way to open bottles and cans without having to use an opener.

Frazee, who became owner of Dayton Reliable Tool Co. in 1949, eventually came up with a first version that used a lever to pierce a hole in the can. But this resulted in sharp edges. Later he created the familiar pull-tab version, which had a ring attached at the rivet for pulling.

He received U.S. Patent No. 3,349,949 for his pull-top can design in 1963 and marketed his invention to Alcoa. Published reports said he left an estate worth \$41 million after he died in 1989.

Some reports—including Frazee's obituary in the *New York Times*—say the picnic that led to the ring-tab

invention occurred in 1959. But Bernard Wahrer, one of the picnickers, reminisced in a letter to the *Daily News*: "Now more than half a century later, every time I pull the tab on a can of beer and hear a click and a hiss, I think of Ermal Frazee and the party at the Triangle parking lot under that lone light in the late summer of 1942."

### James Ritty

While running a Dayton saloon in the late 1800s, Ritty noticed he wasn't making as much money as it seemed he was. He figured some of his employees could be stealing from the cash register.

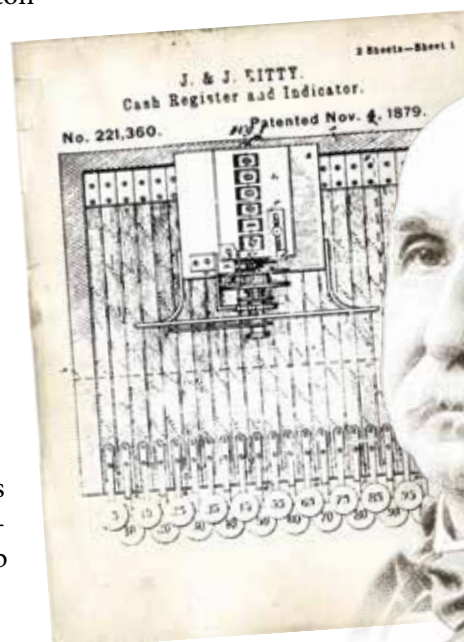
In 1878, Ritty was on a steamboat trip in Europe when he noticed a mechanism that counted the revolutions of the ship's propeller. He wondered whether something like this could be made to count cash transactions.

With the help of his brother, John, came U.S. Patent No. 221,360 for a mechanical cash register. One of the most important later features was a bell that would sound when a sale was rung up, so that the bar owner or person in charge would be alerted to a sale in real time. Their invention landed them, posthumously, in the National Inventors Hall of Fame in 2011.

### Vincent G. Apple

Apple is possibly the least-known impactful inventor in U.S. history. He wanted it that way.

Saloonkeeper James Ritty invented a mechanical cash register after he suspected some employees were stealing from him.



Little has been written about Apple; some stories about Dayton inventors don't even mention him. But the Vincent G. Apple Papers reveal numerous patents, patent applications, engineering drawings, journals, legal agreements and more involving the founder of the Franklin Electric Co., Apple Dayton Electric and Manufacturing Company and the Vincent G. Apple Laboratories at Dayton. The records are in English, Cyrillic, German, French and Swedish.

Apple had a Dayton-record 350 patents when he died at 58 in 1932. According to [daytonhistorybooks.com](http://daytonhistorybooks.com), he had another approximately 130 applications pending when he died and was working on 265 other inventions upon which his heirs and legal representatives could file applications for patents.

Had he patented all his inventions, his total patents could have reached 1,500. (Thomas Edison, who lived to 84, had 1,093 U.S. patents.) In 1931, the year before his death, Apple had more patents issued to him than any other inventor.

He founded the Franklin Electric Co. at 18. In 1903, before he turned 30, his magneto ignition system was used by the Wright brothers in their flyers at Kitty Hawk.

The flywheel magneto, per the Dayton History Books account, was the first of its kind in the United States: "It was not patented nor introduced to the public but was privately offered to Henry Ford. The cost price, however, was considered too high by Mr. Ford, but in 1908 Ford began to manufacture his own magnetos, using Apple's designs, at a price presumably below the cost Apple had refused to cut.

"Years later when a former Ford employee instituted an infringement suit against Ford for using the flywheel magneto on Model T. Fords, Henry Ford and his staff went to Dayton, Ohio, to secure from Vincent Apple the blueprints of the model built years before by Mr. Apple.

"An original model, embodying the principle incorporated in the Ford flywheel magneto is now in Smithsonian Institution along with the model of other inventions of Apple."

The account references Apple's "extreme reticence and reluctance to appear in the limelight. Many would have welcomed the publicity of (the

Ford) visit ... but Apple refrained for the fact that he could be one of the world's two most prolific inventors yet die unknown, except to those who knew the inside history of such electrical devices and the automobile."

### John H. Balsley

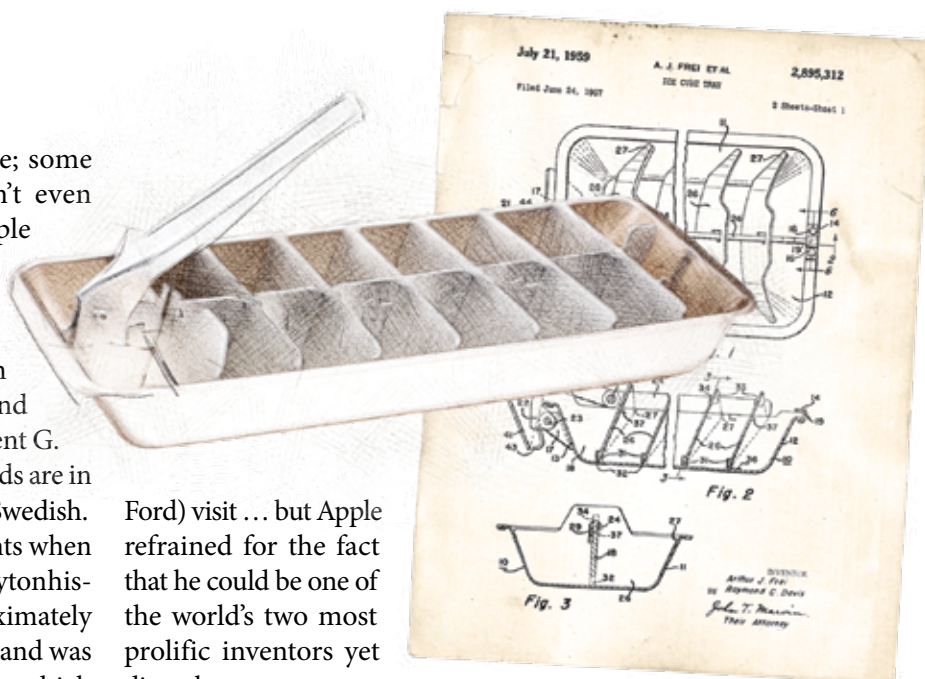
Balsley, a Dayton carpenter, patented the folding stepladder in 1862 (U.S. Patent No. 34,100). He also made stepladders safer by making flat steps instead of round rungs on which to stand.

### Arthur J. Frei

While working at Frigidaire, Frei developed 23 patents on the ice cube tray.

U.S. Patent No. 2,895,312, issued in 1959 to Frei and Raymond C. Davis, had a stated purpose to "minimize effort on the part of a housewife." The tray included a quick-release lever so the user did not have to run hot water over the metal tray.

Cool. As the song goes: "Way to go, Ohio." 🍷



A quick-release lever was a primary component in Arthur J. Frei's many innovations involving the ice cube tray.

## INVENTOR ARCHIVES: OCTOBER

**October 4, 1949:** The patent for an **antibiotic for typhoid** was granted to Harry M. Crooks Jr., Mildred C. Rebstock, John Controulis and Quentin R. Bartz of Parke, Davis & Co. in Detroit (U.S. Patent No. 2,483,885).

According to the Mayo Clinic, antibiotic therapy is the only effective treatment for typhoid fever. Typhoid is very rare, with fewer than 20,000 cases per year in the United States.

In 1976, Warner-Lambert took over Parke-Davis. Pfizer acquired Warner-Lambert in 2000.



# THE GENIUS AND SCIENCE OF TESLA'S, EDISON'S INNOVATIVE PASSIONS **BY JACK LANDER**

Two of America's most prolific inventors, Nikola Tesla and Thomas Edison, determined the voltage (120) and cyclic rate (60 cycles or 60 Hz using today's designation) that is standard in the United States today and in many parts of the world.

During the time Edison worked to perfect the light bulb, he and other experimenters used low voltages obtained from batteries. To drive enough current through the glass bulb to light up the filament, Edison had to use wires nearly as thick as coat hanger wire. The expansion rate of the glass was much less than that of the wire, and as the glass cooled and contracted around the wire, it cracked.

Somehow, he learned that he could deliver the same amount of energy to the filament by raising

It worked. The glass didn't crack. We don't know exactly what voltage he raised to, but it seems logical that it was about 100 volts.

But the delivered voltage drops due to the normal resistance in the wire between the generating source and the receiving home. So, the generating station set its voltage at 110 to compensate for the drop. Later, when alternating current (AC) became the favored supply, the voltage was raised to 120 to assure delivery of 110.

But the voltage drop in transmission lines could only be solved by the construction of many power plants to serve a limited radius of about 1 mile. The alternative would have been to increase the diameter of the transmission wires, which was impractical and uneconomic.

## Tesla's prescience

Contrary to popular belief, Nicola Tesla did not invent alternating current. The true inventor remains uncertain.

Check the internet and you'll see that several Hungarians, a Russian and an American are mentioned as contributors. But many inventors were experimenting with electricity in the last half of the 1800s. We may never have a definite answer.

In any case, there was no practical need for AC at that time. However, Tesla knew the future of electric power depended on AC being transformed to extremely high voltages, to be carried over wires for hundreds of miles.

But more than lighting was at stake. He was granted 40 patents on two-phase and three-phase versions of alternating current and its practical applications. His main claim to fame was the AC motor, which improved the nature of manufacturing globally.

Now machines could be located anywhere on the manufacturing floor, rather than being bound to a belt driven by a common shaft. Such versatility led to the assembly line, as exemplified by Henry Ford.

(Because I mentioned "phase," it would seem like a good idea to explain it. With single-phase AC, there is an interval between peaks of current in which no power flows. Three-phase AC is like having two other generators squeeze power into those blank spaces between alternations. It's much more efficient for operating motors.

We only receive single-phase current in our homes, but it is split off from the standard three phases—thereby enabling multiple uses for a versatile form of power.)

## The nuts and volts of it

Whether DC or AC, electrical power is measured in watts, which are determined by multiplying volts times amps (force times amount). For example, 10 amps of current delivered by 120 volts yields 1,200 watts.

But AC can be transformed. We can step up the voltage to 1,200 volts and the amperage drops to 1 amp. Or we can step up the voltage to 12,000 volts at 0.1 amp and still deliver the same 1,200 watts.

**What is not well known is that AC current radiates a magnetic field. About 6 percent of power is lost due to such radiation. These days, we're talking about going back to DC for long-distance power transmission.**

By increasing the voltage and reducing the current (amperage), electricity can be transmitted over wires of a relatively small diameter for hundreds of miles. From an ecological standpoint, AC is much kinder to the environment and the conservation of resources.

But is AC power transmission still the best approach?

What is not well known is that AC current radiates a magnetic field. About 6 percent of power is lost due to such radiation. These days, we're talking about going back to DC for long-distance power transmission.

What? Yes, you read me correctly.

Such DC starts with AC to transform the voltage up to 66,000 volts or higher. The AC is then rectified into DC and transmitted a long distance with significantly less loss than AC.

Also, DC transmission requires only two wires, whereas AC requires three. That means a 33 percent cost reduction in wire and labor.

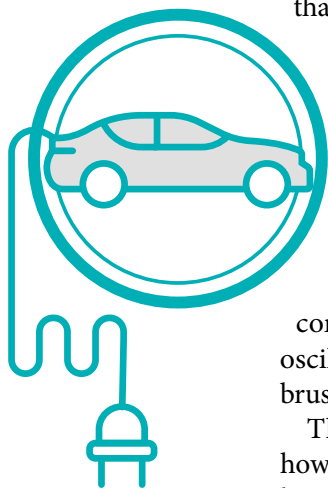
At the receiving end, the DC is converted to AC again and transformed down to 240 volts—three-phase AC for our homes and businesses. Our homes are fed 240 volts, which is split into two 120-volt sections, but the 240 volts are available for stoves, air conditioners, etc.

## A forever buzz

Other than concern for Earth, why is our basic understanding of electricity important to us as inventors?

It may not have a direct effect on anything you invent today. But the future is increasingly dependent on electronics.

I recently watched a video on YouTube about the Tesla automobile motor and transmission. I was astonished to discover that the most



powerful model features a three-phase AC motor that generates more than 500 horsepower. And it is a fraction of the size of a gasoline motor.

So, from powerful motors in our cars to the flea power of our electric toothbrushes, electricity is in our everyday lives—indirectly if not directly.

Speaking of the electric toothbrush, I use the type that is powered by two AA batteries. The DC of the batteries is converted to AC by a solid-state chip that oscillates at a constant frequency, keeping the brushing action at a constant frequency.

The rotation frequency of a DC motor, however, depends on the load imposed on it. A heavy load slows the motor. An AC motor runs at the frequency of its supply. If you invent a toy or any small appliance that needs speed control, a similar chip could be produced.

I would be remiss if I didn't tell you that Tesla and Edison feuded for years over DC vs. AC. Edison went so far as to electrocute an elephant to scare people away from the "dangerous" AC.

He also killed many smaller animals with his horrific crusade.

In the end, it became clear that AC was not merely superior but the only practical form of electricity that could serve the country at large. But both men were responsible for lighting up the world and making its appliances and machinery efficient servants of our wants and needs. That's the essence of what invention—improving on improvements.

In closing, always remember that you can "Power Up" your computer with a "Flick of the Switch," but if you plug into "High Voltage" you might discover that "This House is on Fire." (All are albums or songs by AC/DC, the Australian rock band.)

**Jack Lander**, a near legend in the inventing community, has been writing for *Inventors Digest* for 26 years. His latest book is *Marketing Your Invention—A Complete Guide to Licensing, Producing and Selling Your Invention*. You can reach him at [jack@inventor-mentor.com](mailto:jack@inventor-mentor.com).



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# Tricks of the Trades

TRADE MAGAZINES, ONLINE AND IN PRINT, ARE AN INVENTOR'S KEY RESOURCE **BY DON DEBELAK**



**T**RADE MAGAZINES, which are targeted to suppliers in an industry, are a resource full of helpful information for inventors.

Experienced inventors know the importance of having a knowledge of the industry and lots of contacts that can help you find the right licensing connection. Trade magazines are an inventor's best resource for knowing an industry and learning what contacts might be able to help you. They offer these benefits:

- They cover trade shows where inventors can meet industry people, including successful inventors in the field; see what new products are being introduced; and learn which companies are possible licensing candidates. Retail store representatives and distributors also attend trade shows.
- They typically have industry directories, either their own list or a list of trade show directories. Trade show directories are very useful because they have contact names at various companies. If you want to license an idea, you are far better off starting with a contact name than just sending a general information package to the company addressed to New Product Submissions or some other similar title.
- Industry articles frequently interview and quote industry people. If you create a contact list of these people, you will have contacts you can talk to about your idea—both to get feedback on your product's market opportunities and to learn about competitors who may be vying for the same market space.
- News articles frequently detail a company's new product strategies. This helps inventors first learn which companies might be a good fit for their product; it also helps them target their presentation to a company's objectives. In any industry, only some companies are

willing to license products. Inventors should target those companies, using key contact names as an entry point.

- Trade magazines and associated trade shows often feature contract manufacturers that service the industry. I've found that using an industry contract manufacturer is the best way to get cost-effective pricing. So if you have a plastic toy, for instance, any number of manufacturing companies will be able to produce the product. But one that specializes in toy manufacturing will know about consumer product safety requirements, industry requirements regarding packaging and labeling, and other industry requirements of which inventors might not be aware.
- Trade magazines also list smaller regional and even state associations where you can attend meetings and meet people who might be able to help you. Smaller local and regional groups are the best starting point for inventors because people who attend those meetings typically have more time to talk to inventors. Often, they have a social hour before or after the meeting.

Trade magazines often target a very narrow audience or a specific industry. These three web sites are examples: The Toy Book ([toybook.com](http://toybook.com)); IHA ([housewares.org/members/journals](http://housewares.org/members/journals)); and Truth Hardware ([truth.com/industry-news/publications.cfm](http://truth.com/industry-news/publications.cfm)). 📖

**Don Debelak** is the founder of One Stop Invention Shop, which offers marketing and patenting assistance to inventors. He is also the author of several marketing books, including Entrepreneur magazine's *Bringing Your Product to Market*. Debelak can be reached at (612) 414-4118 or [dondebelak34@msn.com](mailto:dondebelak34@msn.com).





# Facebook Groups

USING IT TO MARKET YOUR INVENTION BUSINESS  
AND BUILD A COMMUNITY **BY ELIZABETH BREEDLOVE**

**IF YOU NEED** a way to garner excitement, increase engagement and build a community around your business, starting a Facebook Group may be your answer. In fact, Facebook Groups are a great way to generate engagement and leads.

Facebook Groups are places for people to virtually gather to discuss shared interests. Anyone can easily create one related to any topic or niche.

## How to create one

Decide on a topic or subject for your Facebook Group. Remember, you're not trying to create a new advertising channel. So the topic of your group shouldn't be your business, product or invention. However, it should be adjacent to your project or industry.

For example, if your business sells dog training products, you could create a group about training dogs. If you develop new smart home products, you could create a group about setting up and managing a smart home.

Once you've decided on a topic or subject, you're ready to name your group and write a group description. Again, it's OK to mention your product or business, but remember that your group isn't specifically about what you're selling.

Now you're ready to create your group. From your Facebook news feed, click over to the Groups tab on the left side of the page, then click Create New Group. You'll be prompted to name your group, choose whether the group is public or private, invite people to join the

**Remember, you're not trying to create a new advertising channel. So the topic of your group shouldn't be your business, product or invention.**



group, and add a description, rules and any other relevant information.

You'll likely want to keep the group private, which gives you more control over it.

### Increasing engagement and growing

Once your group is set up and you've invited some members, it's go time! Here are some strategies.

- **Create a welcoming environment for new members.** If you can, create posts welcoming new members once a week or so. Tag them by name to keep it personal and encourage them to introduce themselves. You can also create a group rule recommending that new members introduce themselves.
- **Encourage other group members to share photos, videos and stories.** If your group members share stories and images of them using your product, even better.
- **Ask open-ended questions.** Avoid posting questions that can be answered with a simple "yes" or "no," encouraging discussion with your posts and questions. Questions like these start a discussion that group members can continue.
- **Consider using Facebook's Polls feature on your group members.** Also, provide a second question for them to elaborate on in the comments. For example, you could use a poll to ask, "How many rooms in your home use smart technology?" Then in the comments, you could encourage group members to explain more about how they use smart technology in their homes.
- **Make sure you answer questions, too!** Set the tone for how you want others to interact with your group by the way you interact with it yourself. Like posts, comment on them and create posts as well.
- **Give your group insider access to your business.** Show members behind-the-scenes looks at what you do on a day-to-day basis. If you're working on an invention, ask for feedback. Get opinions on which features they would find most useful or what their top use cases are, then use this to guide your product development.
- **Set up themed days if you are lacking content.** For example, you could designate

Mondays as Meme Mondays where you share memes related to your subject matter, or encourage group members to post photos every Friday.

- **Encourage self-promotion from time to time.** Most groups have a rule against self-promotion to keep the group from becoming spammy. However, you could occasionally designate a set time for group members to promote themselves or their businesses. Your group members will appreciate this opportunity to share a bit more about themselves, and it will foster an atmosphere of support that will help your group grow into more of a community.
- **Use Featured Posts to keep important content pinned to the top of your group.** This is the perfect place to keep announcements about the group or even announcements about your business. Take advantage of this feature of Facebook Groups to share the information you most want your group members to know and remember.
- **Encourage members to invite people they know.** Organic growth is the best way to grow a solid community using Facebook Groups. Look for opportunities to encourage or even incentivize your group members to invite others and help grow your group into a bigger, engaged community.
- **Find and join some other groups in your niche and see how they operate.** Take note of what works, what doesn't, what you like and what you'd do differently, then begin implementing it in your own group.

If you have the time to devote to growing and monitoring it, a Facebook Group provides a great opportunity to build a business using social media. With a bit of strategy and effort, you can build an engaged community around your own niche or topic. 📌



**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.



# Catching That **Buzz**

HIGH-TECH DEVICE LOCATES MOSQUITOES IN A ROOM  
SO USERS CAN ELIMINATE THEM **BY JEREMY LOSAW**

**N**AVAD BENEDEK will never forget those relentlessly clammy nights in his native Israel with mosquito nets on his windows.

Growing up in a Tel Aviv area village—where daily weather forecasts include the likelihood of high mosquito activity—his bedtime ritual seldom wavered. “Every night, before I went to bed, my father came into my room, looked for mosquitoes ... killed them, and then I would go to sleep.

“Years later, I always thought: ‘How come nobody ever did something that combined technology with mosquitoes?’”

Although science and commerce have brought us mosquito-repellant bracelets, ultrasonic repellants and more, Benedek saw the rise of autonomous cars, AI and machine learning and realized those principles could be applied to mosquito identification.

So five years ago, he and his business partner—serial entrepreneur Saar Wilf—cofounded Bzigo, a high-tech mosquito locating device.

Bzigo uses a camera paired with a computer vision algorithm to scan a room and identify the presence of a mosquito. When it finds one, it draws a circle of light around the area with a laser pointer so the user can eliminate it.

Bzigo can be used with or without the accompanying app that will send alerts to a smartphone when a mosquito is found in the room. It is scheduled to become available in 2022 via the company website.

## **Refining the prototype**

Mosquitoes aren’t just annoying; they can be deadly. They kill approximately 1 million people per year, mostly through the spread of diseases like malaria, dengue and yellow fever.

Benedek and Wilf found that identifying mosquitoes in a room can be equally annoying, and difficult. The initial prototypes used sonar for detection, but after nine months of development the difficulties with that technique were too great to overcome.

“It worked in a certain way, but not up to the distance or accuracy that we wanted,” said Benedek, an MBA magna cum laude recipient from Tel Aviv University in 2012. He could detect a mosquito in the room, but it was difficult to pinpoint exactly where.

He pivoted to using computer vision, and the product started to take shape. By using cameras and powerful processors, he could detect the presence of a mosquito as well as its location.

However, it took a lot of training of the detection algorithm to detect mosquitos and

**“We had to experiment with different kinds of environments, in the same way an autonomous car needs to be able to cope with different types of roads.” —NAVAD BENEDEK**





distinguish them from stains, dust, pinholes and other things that could trick the system and create a false positive.

“We had not only to experiment with different types of mosquitoes ... we had to experiment with different kinds of environments, in the same way an autonomous car needs to be able to cope with different types of roads,” Benedek said.

After years of work, the system came together to be both accurate and reliable.

### A public swarm

Benedek has pursued patents worldwide to protect the extensive development work that has been done on the device.

Not only did this protect the technology in the device, it helped find investors for the product. Benedek said investors want to see there is a barrier to prevent other firms from coming in and using the same technology before they commit funding.

Bzigo was officially launched at the 2020 Consumer Electronics Show. Reaction was immense.

“We had 200 people at least coming to us saying it was their dream to invent something like this,” Benedek said, adding that some people were literally crying because someone had developed a device to help with this problem. The launch was a conduit to start building pre-orders.

Benedek is focused on the manufacturing of Bzigo in anticipation of shipping units in 2022. It is an immense challenge to keep costs low for



a device like this, which requires special optics and high-powered processors that are not inexpensive. The worldwide chip shortage makes the challenge even greater, resulting in extended lead times for many components.

Although the technology is well suited for industrial and agricultural applications that could handle a higher-cost product and save some sourcing headaches, Benedek wants to help people in their homes first. This was his initial dream for the product, and he is willing to take the more challenging path to do it that way. 🦋

*Details: [bzigo.com](https://bzigo.com)*

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



# The Gift of **Grab**

COUPLE'S SIMPLE SHOWER WALL ATTACHMENT COLLECTS CLUMPS OF HAIR **BY EDITH G. TOLCHIN**

**H**AIR, HAIR, EVERYWHERE! This can be a problem when it clings to your shower or bathtub walls, or clogs drains.

HairyGrabster® is a simple, new “Why didn’t I think of that?” invention to solve this problem. The inventors are Patricia J. Watne and Andrew T. Watne from Orland Park, Illinois.

**Edith G. Tolchin (EGT):** How did you come up with the idea? How does it work?

**Patricia J. Watne (PJW):** One day Andy came to me, looking very concerned. He was sure our oldest daughter needed to see a doctor. “Look at all the hair she lost in the shower!”

He had no idea people with longer hair lose so much hair in the shower, or that there was no way to manage and contain the shed hair. I explained to him that many people resort to using the shower wall to collect the wet hair from their hands, while others ball it up or just let it go down the drain. As we discussed the issue further, we realized this was a problem we could solve. The seed of HairyGrabster was planted.

To use a HairyGrabster, you attach it to the shower wall with the suction cups on the back. Once you have hair tangled on your hand, you simply swipe both sides of the hand on HairyGrabster. The hair is quickly and easily removed from the hand and held neatly in place.

**EGT:** Have you ever invented before?

**PJW:** HairyGrabster is the first product either of us has conceived and brought into production. We’ve had other ideas before but none that we’ve attempted to license or manufacture.

Andy started his career in bond trading at the Chicago Board of Trade before transitioning into IT project management.

I have always worked in sales and design in the floral industry. I am part of the fourth generation of my family’s 100-year-old retail flower business.

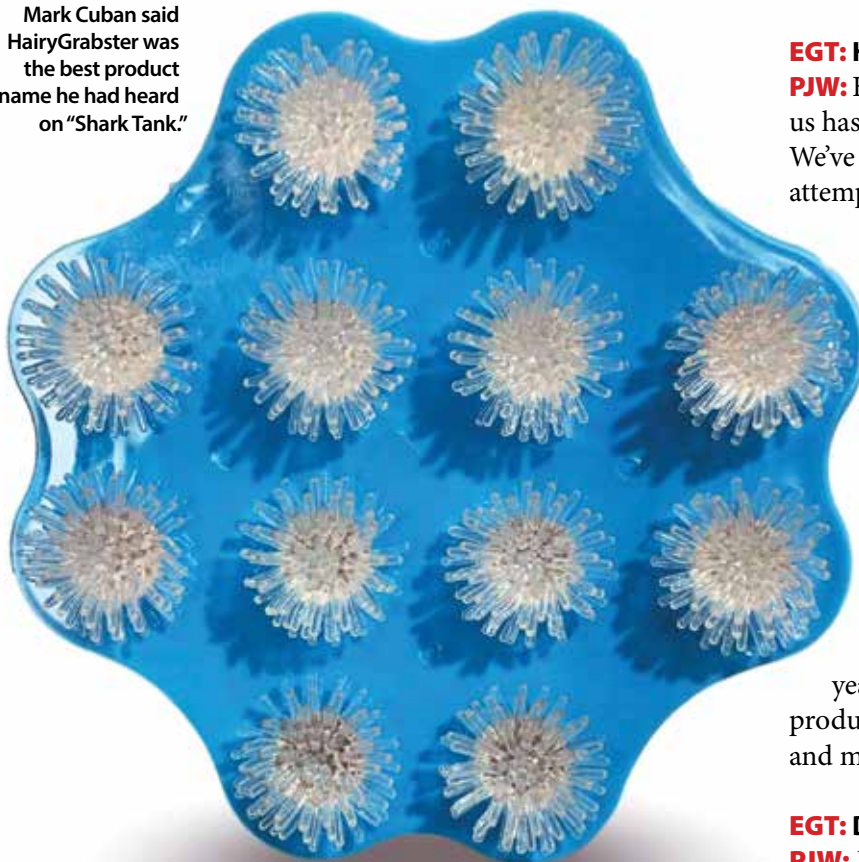
**EGT:** Had you tried crowdfunding before “Shark Tank”?

**PJW:** Going into “Shark Tank,” we were completely self-funded. We have bootstrapped the company over the past four years, using our money from our savings for product development, patent, manufacturing and marketing.

**EGT:** Did you get a deal on “Shark Tank”?

**PJW:** In our discussion with the Sharks, they

Mark Cuban said HairyGrabster was the best product name he had heard on “Shark Tank.”



**“There are so many amazing inventors willing to share their successes, failures, and lessons learned!” —PATRICIA J. WATNE**



felt we were too early and our sales too low for them to get involved.

Daymond John told us he got it and understood that we wouldn't miss the chance to present in the “Tank,” but we were too early for him. Mark Cuban said that “HairyGrabster” was the best product name he had heard in the “Tank,” and he shared helpful marketing ideas with us. Barbara Corcoran had a lot of questions about our sales. In the end, we did not receive any offers from any Sharks.

**EGT: Where are you selling the HairyGrabster?**

**PJW:** We sell HairyGrabster on our website, as well as Amazon and Walmart.com. We have participated in Zulily sale events and have them available in local salons and gift shops.

**EGT: How is the HairyGrabster packaged, and who designed it?**

**PJW:** Andy and I went on a lot of “dates” walking aisles at stores to look at packaging. We explored the pros and cons of clamshell packaging and poly bags with cardboard headers before making the decision to use a cardboard box.

Being a new concept, the box provided the most space to illustrate and explain both the problem and our solution. We sought out boxes that told their product's story well for inspiration and worked to emulate the best parts of what we found.

**EGT: Are you manufacturing in the United States or overseas?**

**PJW:** We are manufacturing overseas. Between the difficulty in molding our product and the smaller order quantities we had to start with, we were not able to find a U.S. company to manufacture HairyGrabster. Most were reluctant to even give us a quote. We would love to bring our manufacturing back on shore at some point.

**EGT: Have you had challenges with any phase of product development?**

**PJW:** We have faced challenges in every phase of product development!

The first CAD engineer we worked with took one look at our prototype and told us the product could not be manufactured as designed. Taking his advice, we changed our design to be more “injection mold friendly.”

When we 3D printed the new design, the product didn't work—at all. We didn't know what to do next.

We were referred to a new CAD engineer who assured us our first design could be manufactured. He quickly created new designs, referred us to a patent attorney, and began sending out for U.S. manufacturing quotes. Every answer we received was “no quote.”

We then looked overseas. We found a manufacturer and received a sample. It worked great and we paid for the mold. Soon after, we discovered our project had not been run through the company, and the salesman had taken off with our money.

Time to regroup once again. Eventually, we found an overseas manufacturing partner. Being extra cautious, we didn't send all our drawings at once. We made sure they could produce the difficult portion (the bristles) and after that part was made, we sent the backplate. We had all the parts shipped to us and assembled the first lot ourselves.

Now that we have established a sense of trust, we have them manufacture, assemble and box each piece.

**EGT: Who manages your quality control and PR?**

**PJW:** We manage everything in house. Andy handles quality control in the evenings, checking

the suction cups and bristles for any damage or malformation. I oversee our PR, communications, social media, orders, and all other day-to-day operations.

We are currently in the process of contracting with a marketing company to expand our reach and messaging.

**EGT: Do you plan on introducing any new items to your product line?**

**PJW:** We will be adding a butterfly-shaped HairyGrabster in the next few months. We are finalizing colors now.

We have several other shapes we would like to eventually add as well. We are also exploring further uses for HairyGrabster.

**EGT: What advice do you have for novice inventors on developing a household product?**

**PJW:** First, join inventors groups. Participate in the events, read the newsletters, network with other members. There are so many amazing

inventors willing to share their successes, failures, and lessons learned!


Second, once you've identified a household problem and developed the solution, research. Research patents for similar products; see if other solutions exist on the market; look at online forums for people complaining about the problem; ballpark your production cost, identify the likely retail price.

As you gauge market size, demand, cost and profit, you're better equipped to decide whether to invest your time, effort and money in product development. You can also weigh bringing the product to market yourself versus licensing. 📌

*Details: hairygrabster.com*

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





## The Opinionated Editor

### Edith G. Tolchin

Editor • Copywriter • Journalist • Author

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## INVENTION-RELATED PODCASTS TAKE INSPIRATION AND EDUCATION TO NEW CHANNELS **BY REID CREAGER**

**A** **TARGETED RED LIGHT** therapy device. Cutlery built into a tumbler. A portable blackout curtain.

Roy Morejon hasn't seen everything in product innovation as host of Enventys Partners' Art of the Kickstart since 2015, but he's game. His podcast interviews with inventors offer insight into their experiences with crowdfunding and other aspects of the creative and entrepreneurial journey.

Inventing-related podcasts have exploded with the popularity of the format in general.

According to Ginni Media, a "one-stop-shop" podcasting studio, there was a 42 percent increase in exposure for podcasting from 2006 to 2020. Podcast listeners total an estimated 116 million this year, with more than 2 million podcasts.

The increase in smart speaker ownership—up 22 percent between 2020 and 2021, according to digital marketer Convince & Convert—presents

more opportunities to listen to podcasts at home. And the COVID pandemic's presumed longstanding presence all but ensures in-home products and activities will remain strong indefinitely.

In terms of attracting audiences, the podcasting format is a natural fit for fledgling and accomplished inventors seeking real-life reassurance and cautionary tales from those who have been there and sold that.

"As the leading crowdfunding marketing agency in the world, it made sense for Enventys Partners to enter the podcasting space, and Art of the Kickstart was a natural entry point," Morejon said. "For me, speaking with creators has always been the best part of working in the crowdfunding space."

"Hearing how they've overcome challenges, what surprised them about the industry and learning more about the ideas they've brought to life is thrilling."

Roy Morejon, host of Enventys Partners' Art of the Kickstart, says, "Hearing how (inventors have) overcome challenges, what surprised them about the industry and learning more about the ideas they've brought to life is thrilling."



**A O  
T K** ART OF THE  
**KICKSTART**  
PRODUCED BY ENVENTYSPARTNERS

### **Tell me a story**

Gabby Goodwin was starting to feel sorry for her mother.

In a June 30 Stroke of Genius® podcast, the 14-year-old from Columbia, South Carolina, recalled when she was little how her mom would arrange her hair for 15 or 20 minutes every day before school.

“She would drop me off at school and then I would look all pretty and nice, and she would pick me up after school and I would look a hot mess,” she said.

“My twists were undone because my barrettes kept falling out. And she was not only wasting time in the morning but also wasting a lot of money, just going inside the store and seeing her pile up the barrettes over and over again.”

Gabby and her mother, Rozalynn Goodwin, have been an inventing team for seven years. They created GaBBY Bows, the first patented, double-faced, double-snap barrettes—now a big commercial hit.

Jessica Landacre, executive director of the Intellectual Property Owners Association,

**“Podcasts are a vehicle to connect directly with your audience. Unlike other forms of media, video or blogs, podcasting is highly intimate.”** —GINNI SARASWATI



said Gabby's story exemplifies how the IPO Education Foundation's podcasts use storytelling to connect with the audience.

"It allows the listener to tap into their own imagination and go on a journey with our guest to share a moment in time. Trust and believability must be established to keep the listener tuned in."

The IPOEF started Stroke of Genius in 2018 and began focusing on underrepresented communities this year. It has ranked in the top 10 under Education podcasts on Apple.

Landacre notes that the podcasts aren't just interviews; they are more like presentations.

"Techniques like different textures of voices and music help to maintain the attention of the listener and bring the story to life. We try to be creative in our delivery and include details that engage the listener and create a connection.

"Humor goes a long way. Conventional interviews can do these things as well, but we believe podcasts are more effective because of the flexibility of the format."

The Gabby podcast delivered its share of laughs—courtesy of an enthusiastic, bright, witty girl who is well ahead of her years.

When explaining the early challenges she and her mother had in finding backers for her invention, she said: "I've gotten told 'no' so many times.

"I've gotten big 'no's, little 'no's, small 'no's, tall 'no's, short 'no's, fat 'no's, skinny 'no's, all different types of 'no's." She says that for her, NO stands for Next Opportunity.

### Relatable and intimate

The most successful podcasts exude a comfort level between everyone who is being heard, in an informative context. A host who makes a connection with the inventors' goals adds to the value and memory of the experience.

## WHO INVENTED PODCASTING?



A podcast (combining the words iPod and broadcast) is a spoken-word audio file available for streaming online or downloadable to personal devices.

Many sources credit software developer Dave Winer and Adam Curry (a former MTV video jockey who calls himself the Podfather) as co-inventors of the podcast in 2004, when they coded a program that enabled them to download internet radio broadcasts to their iPods.

*The Guardian* says the podcast was invented by Christopher Lydon in 2003, with help from Winer.

Others say it's impossible to know who invented podcasts because the rapid evolution of technology blurs the lines a bit.

OSSA Podcast Network wrote: "You could argue the dawn of podcasting began in the early '90s, although it was referred to as 'internet radio' at the time. In 1993, Carl Malamud launched the first internet talk show called Internet Talk Radio. The show was available as individual audio files interviewing computer experts each week.

"This was the first revolution of traditional radio broadcasting, where users grabbed individual files and listened at their leisure rather than tuning in to hear whatever was being broadcasted at that time by major radio networks."

**80 million** Americans in 2021 are weekly podcast listeners. There are now 10 million more weekly podcast listeners than the 69 million Netflix account owners in the United States.





In June, Enventys Partners' Morejon interviewed the cofounders of the Sleepout Curtain—a patented, portable blackout curtain that blocks light with a goal of providing a more restful sleep and the myriad health benefits associated with it. He told Hannah Brennen and Mark Coombs that because he gets up at 4 a.m. or 5 a.m. every day and sleep is crucial for him, he uses products such as a smart ring to track sleep, a cooling pad, and a gravity blanket.

This kind of relatability is a key driver of the format. It lends itself to more of a conversation than being talked at.

Ginni Saraswati has long been attracted to this. A veteran Australian FM radio host, she launched her own podcast, *The Ginni Show*, in 2016. It was nominated for Best Comedy Podcast at the Australian Podcast Awards. She now runs New York City-based Ginni Media, a podcast and content production company with team members in more than 14 countries producing for Fortune 500 companies and entrepreneurs.

"Podcasts are a vehicle to connect directly with your audience," Saraswati said. "Unlike

**"Narrative nonfiction podcasts, when done right, are the audio version of a long-form magazine article. The listeners get in-depth learning about a subject through great storytelling."** —MEGAN NADOLSKI



other forms of media, video or blogs, podcasting is highly intimate.

“People listen to podcasts on their own time, by themselves and on headphones usually. This means podcast hosts are literally in their audience’s ear.

“Inventors seeking to market their products have a vision, a creation and a hope to impact the world in a positive way.”

## World impacts

The enormous range of invention-themed podcasts is another major draw for the format.

Although successful product stories are a linchpin—Morejon notes an Art of the Kickstart podcast involving the OYO Nova Gym, for which Enventys Partners raised more than \$4.4 million in crowdfunding to make it the most funded fitness product ever on Kickstarter—podcasts about world-changing innovation and intellectual property’s increasing impact are among the compelling listens.

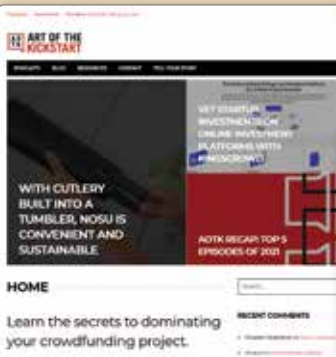
Saraswati mentioned podcasts such as How I Built This, which “take you through a founder or creator’s journey of how their idea and vision impacted the world with what they created and the movements they built.”

Megan Nadolski hosts and produces the Stroke of Genius podcasts. She recalls her interview with 2018 Nobel Prize winner Tasuku Honjo, who established a new principle for cancer therapy using humans’ immune systems.

“It was not only a privilege to talk to such a brilliant mind, it was truly a learning experience,” she said. “He explained immunotherapy in such a simple way, one that was easy for everyone to understand. And that was surprising to me, given the very specific focus of his work.”

**57 percent** of Americans have listened to a podcast. This is up from 55 percent in 2020, 51 percent in 2019 and 44 percent in 2018.

## TOP INVENTION PODCASTS



**ART OF THE KICKSTART**  
artofthekickstart.com

**STROKE OF GENIUS**  
ipoef.org/podcast/



**INVENTION STORIES**  
inventionstories.com

**HIGH, LOW AND NO SHOW**  
hajasandhallro.podbean.com



**PATENTING FOR INVENTORS**  
diamentpatentlaw.com/podcast/

**INVENTION**  
iheart.com/podcast/105-invention-30252394/



# 5 **With** Travis Chappell

HOST OF HIGH-RATED PODCAST CREATES NETWORKING SOFTWARE

**T**RAVIS CHAPPELL was making a nice living in his early 20s in door-to-door sales when he heard a podcast by John Lee Dumas, a storied entrepreneur and dominant player in the podcast industry. Before long, he was on his way to visit Dumas at his house in Puerto Rico.

Chappell decided he wanted to go into podcasting, with an exclusive focus on professional networking. After four years and almost 700 episodes, his Build Your Network is consistently in the top 25 business podcasts in iTunes. The podcast is now his primary tool for building his own network.

He is also the founder of Guestio, software that connects high-level guests with high-level content creators. Chappell responded to these five questions from *Inventors Digest*.

**Tell us a little about John Lee Dumas and that trip to Puerto Rico.**

John was one of the first podcasters I listened to, and I respected the multi million dollar podcast empire he was able to build from nothing. When I saw that he was hosting a small, private mastermind at his house in Puerto Rico, I knew I had to make the trip. It was a big deal for me at the time because the investment was not small, but I was able to create a real relationship with him there that continued through the years, and now he is an investor and partner in Guestio.

**Does it take a certain personality type to be able to network well? If not, what is required?**

I think most would assume that extroverts make better networkers, but what I've found is quite the opposite. Introverts tend to be better networkers from what I can tell because networking isn't about going a mile wide and an inch deep. It's about quality. Most expert networkers are usually pretty quiet around others. They tend to ask good questions and then listen intently to the responses. They tend to build deeper relationships centered around trust. That doesn't mean you can't be a good networker if you're an extrovert. It simply means that in some contexts, you should focus on active listening, adding value, and building deeper relationships with a few people instead of building shallow relationships with hundreds.

**What is the main myth about networking that you would like to dispel?**

The main myth is that networking and building friendships are two different activities. This is what people get wrong. It's not about the business cards, the cocktail parties, and the nametags. Think of it the same way as you would think about hanging out with your friends.

Travis Chappell's Build Your Network, consistently in the top 25 business podcasts in iTunes, is his primary tool for building his own network. His Guestio software connects high-level guests with high-level content creators.



Don't think about prospecting or selling. Think about common interests and connections. Don't think about what's in it for you. Think about how you can help the other person. Don't think short term and transactional. Think long term and relational. The most well-connected people I know have just been treating people extremely well and adding value to the lives of others for so long that people can't help but continue to connect them to everyone else they know.

### **What is the most inspirational conversation you had on one of your shows?**

This question always makes me feel like I'm picking between my children, but if I have to pick one, I'd say I really enjoyed my conversation with Tom Bilyeu (co-founder of billion-dollar brand Quest Nutrition). I respect Tom and his awesome wife, Lisa, so much for so many reasons, so when I got to interview him at his house in Beverly Hills, I got to ask some questions that I had personally been wondering about for a long time. I left feeling inspired and invigorated just being around the two of them.

### **How did you come up with Guestio?**

I've been a podcaster for over four years now and have produced over 650 episodes. I was always trying to level up the quality of guests that I was interviewing on my show. But the higher up you go, the more difficult it becomes to book talent. I just thought there had to be a better tool to be able to make the process easier and make the talent more accessible to people who traditionally didn't have access to them. It's as simple as browsing our marketplace for guests that fit your show, booking them through their profile, and messaging them on the platform to schedule an interview. You can also book them for Facebook, IG, or Youtube Lives, virtual speaking events, Miniviews, mastermind or company Q&As, or even media/blog interviews like this one.



Millionaire podcaster  
John Lee Dumas inspired  
Travis Chappell.

From  
**2020** to  
**2021** the  
percentage



ages 55-plus who listen to podcasts monthly increased by 18 percent. More than one-quarter of all 55-plus consumers in the United States are listening to podcasts each month.

Nadolski said that podcast resonated with her not just for the information but for its feel.

"Narrative nonfiction podcasts, when done right, are the audio version of a long-form magazine article. The listeners get in-depth learning about a subject through great storytelling.

What's different about a podcast is, it's a very personal experience."

One of Landacre's favorite Stroke of Genius podcasts is "Patents in a Pandemic," which views COVID-19 through the lens of intellectual property.

"Experts discuss how intellectual property incentivized the innovation that is being leveraged to fight COVID and protect us during the pandemic. It shines a light on how companies are collaborating to solve the problem.

"I am very proud of this episode, and I hope we changed some minds about the value of IP to our lives. I am also proud to share how IPO member companies from all industries have come together to fight this crisis." 🎧

# Be the Spider

TO SPIN THE PERFECT WEB, KNOW WHO YOUR TARGET MARKET IS AND WHERE IT GATHERS **BY ALYSON DUTCH**

**A**FTER AN arduous day of gardening one Sunday, I cozied up on my chaise lounge to stare up into a warm summer sky and noticed a few spider webs on the eaves of my house. There were two—one filled with flutter-winged flies, the other noticeably bare.

I wondered: Why was one a veritable spider smorgasbord and the other a paltry vacuum? Was a friendly neighborhood spider competition in play? Was Web No. 1 placed in a spot where the wind pushed? Did one spider spin a stickier web? Did it have something to do with a scent advantage that one arachnoid had over the other?

I closed my eyes to stop my brain from being too engaged when it dawned on me. The full web was nearest to the outdoor lights, a spot impossible to resist at night if you are a spider's favorite food: flies.

Huh! What a smart spider.

Nature is often surprisingly technical. Some species have thrived and others died as a result of many fascinating adaptations.

It occurred to me that the advantages of building a good web that caught lots of food was the same as a smart marketer.

## Get stuck on stickiness

Marketing is any activity one does to get a product off the shelf (physical or virtual) and into the hands of someone who will buy it.

In the online world, you may have heard the word “stickiness,” which means getting a potential buyer to stay on your site long enough to trust you and eventually buy something. It's the same for any product—whether you're selling wholesale at Walmart or you have created a business-to-business service.

In the case of the smarty pants spider, he spun his web next to a light and captured a lot of food. In marketing terms, this is where it all starts:

determining where your target market gathers.

As a product launch specialist, I see entrepreneurs always aching over what types of marketing they should do. There are so many choices.

If you don't have a plan or a marketing person to do this for you, it can be a head scratcher. But really, it is incredibly simple—and this applies no matter what kind or product you have created, what time we live in, despite how technical or analog it is, whether it's a service or a hard good.

Who are your customers, and where are they?

The spider has a simple life. He thinks only of survival, how to eat and how not to die. We are not that different; marketing your product to the right audience is the only thing that will bring you sales so you can eat.

No sales, no business—no matter how fantastic your product. The not-dying part is up to you and your sense of adventure.

So, how intelligent are spiders? Well, it turns out they know enough to spin a sticky web next to a light that attracts their favorite food. That's pretty smart.

As for you, it's best to know about your customers' habits—much more than their age, geography and income. You want to know enough to make extrapolations about them. This is known as psychographic information.

## Deep diving results

My company recently made an in-depth customer profile presentation to a client, providing a deep dive into who was perusing the client's site and purchasing the product. We looked at all the data from Google Analytics to see where these people came from, which pages they were attracted to, when they were there, how long they remained, where the traffic came from and more.

Then, we looked at Sprouts Social to see who was perusing the client's social media, what types



## It's best to know about your customers' habits—much more than their age, geography and income.

of posts got the highest engagement, and which produced the most clicks onto the website.

We also looked at Mailchimp to see which kinds of emails were converting into sales, when they were sent, and what subject lines were performing.

Lastly, we went down the rabbit hole into Shopify. We exported the entire list of those who made a purchase and Googled every one of them. We found that these particular customers are in partnership with high net worth individuals. They sit on boards. A particularly noticeable group live in the metropolitan Philadelphia area, as evidenced by comments from the wife of a Philadelphia Eagles player who seems to be speaking to her friends about the brand.

A total surprise: A good chunk were in Dubai. Many of them had marketing jobs and were on the site weekdays between 10 and 12:30, a bit on Sundays at noon, and Wednesdays after 5 p.m. The first pages they landed on, exited from and from where they went to the checkout page were the brand's pet products.

Layering all that together, our company was able to create an intelligent marketing plan.

We knew which type of product should be on the header site sliders, what time we should serve up social posts and send emails, what part of the country from which we should buy ads.

One thing we found that was an incredible anomaly: It turned out that the most traffic came from publicity.

Ironically, before this research began, the entrepreneur had declared that she didn't want to market the dog products any longer and also wanted no more publicity. The hard evidence showed that the dog products were the No. 1 place perusers were going on the site.

Go figure.

### Much research is free

By the way, most of this information was 100 percent free. Anyone with a website needs to be sure that Google Analytics is attached to it. GA recently launched something called GA4, so have it installed.

If you're doing social, you need a reporting system and posting automator. Sprouts Social is a good one.

Automated email marketing is important for certain types of customers. Mailchimp is OK, but our company likes Infusionsoft (now called Keap) much better.

Whatever you do, be like a spider. Do your homework on your customer, and I promise the marketing puzzle will unravel into clarity very easily. 🕸

**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.



# Cellular Pathways

HOW TECHNOLOGY EVOLVED INTO AN EASY MEANS OF CONNECTIVITY—AND PROTOTYPING **BY JEREMY LOSAW**

**T**HE INTERNET OF THINGS is driven by connectivity. For IoT devices to work, they have to get to the internet so they can send and receive data.

In the early days of IoT, this meant plugging the device into an ethernet port. In today's world of wireless technology, WiFi and Bluetooth are *de rigueur*.

However, cellular networks provide a tried-and-true way for connected devices to connect to the wider world. The technology has advanced to the point where it is easy and economical to include cellular technology in prototypes and end products.

Here is an overview of cellular technology and pathways for prototyping.

## What is cellular?

Like WiFi and Bluetooth, cellular is a protocol that allows data to be transmitted wirelessly. Cellular provides long-distance, high-bandwidth data transmission—but at the expense of high power consumption.

Smartphones use cellular technology for voice, text and data. You will notice that the battery dies quickly if streaming data over cellular.

However, cellular has many advantages. Instead of having to be in close proximity to a router that requires fixed credentials to connect, cellular devices use SIM cards (short for Subscriber Identity Module) that allow the cell tower to know the identity of the device that is connected to it and be able to track and bill its usage accordingly. So long as you have a valid

SIM card, you can connect to compatible cell towers within 20 to 40 miles and keep your data streaming even if the device is in motion.

## History

Cellular technology and cell phones' roots go back decades. Those of a certain age may remember that the Zack Morris character used a Motorola DynaTAC in some episodes of "Saved by the Bell" in the late 1980s.

The first cellular phone call was made on April 3, 1973, when Motorola engineer Martin Cooper made a call to AT&T rival Joel Engel while walking down the street in New York City (see April 2021 *Inventors Digest* story). This troll of epic proportions was the beginning of a technological journey that has changed the way people and machines communicate.

It took a bit longer for standalone cellular IoT devices to evolve. Decades were spent working on machine-to-machine communication where industrial machines would report their states to a central control panel or database.

This was done exclusively through wired connections until 1995, when Siemens adapted a version of its cellular phone circuitry that allowed remote machines and vehicles to communicate wirelessly via the cellular network. Still, it took another couple decades for the technology to mature enough to make it into the hands of desktop developers.

In 2015, Particle Technologies launched a Kickstarter campaign for its cellular-based development kit called the Electron, which gave developers a cellular IoT module with 2G or 3G power for just \$40. This was the forerunner to the tapestry of options that exist for prototypers today.

A valid SIM card lets you connect to compatible cell towers within 20 to 40 miles and keep your data streaming even if the device is in motion.





## Cellular technology means you don't have to be in close proximity to a router that requires fixed credentials to connect.

The release of the smartphone in the 2000s also provided another way for devices to communicate cellularly without having a cellular chip on the device itself.

Smartphones merged multiple wireless technologies into a single device. Then-IoT devices could then use low-cost Bluetooth circuitry to transmit short-range data to the phone, and let the phone push the data to a database via WiFi or cellular networks if WiFi is not available.

### The network alphabet

When you listen to cell phone commercials you hear shorthand names for the networks like 3G, 4G, 5G, and LTE, but they never explain what these terms mean.

The G designator in the name stands for the generation of the technology. Each successive generation has brought an increase in features and data speed.

The first generation, 1G, was voice only. When 2G was introduced in 1991, it added support for text messaging. 3G increased the data speed from 64kbs to 2MBs, and 4G offered the potential to increase speeds to 100X that of 3G.

LTE stands for “Long Term Evolution,” a name for a subtechnology used so that 4G can achieve the speeds it touted. The latest generation, 5G,

will allow for greater bandwidth for streaming video and speeds as high as 10 Gbps. But it is not yet available in all areas.

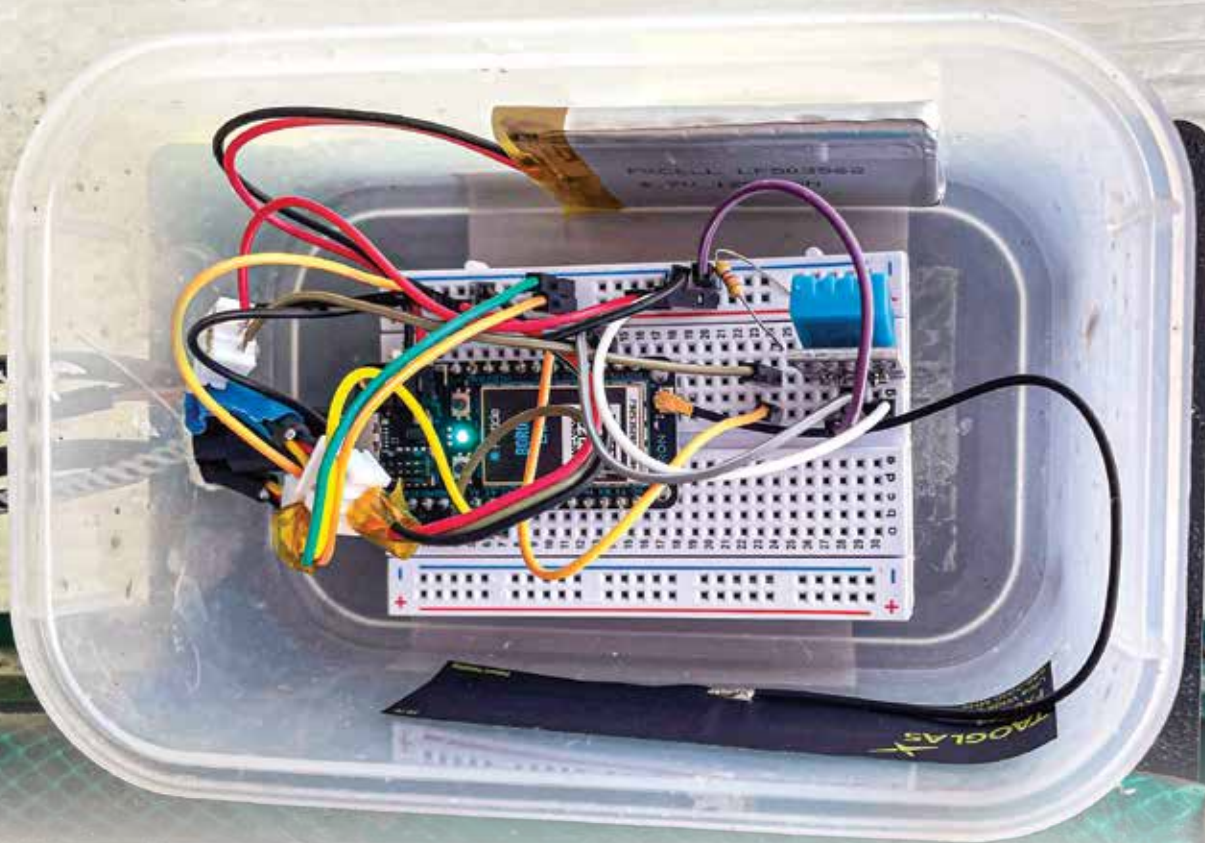
IoT devices can use these same networks, but there are also two bespoke sub networks inside these cellular generations that are specifically designed for IoT applications—called LTE-M and NB-IoT. These were designed starting with the 4G specification to allow IoT devices to operate with less power and better coverage, especially indoors.

The NB in NB-IoT stands for narrow band, which keeps power consumption lower. This is perfect for IoT devices that mostly need to just transfer or receive relatively small amounts of data and not stream video. Fortunately, all of this is baked into developer IoT devices and are features that do not require a decision point or consideration for prototyping.

### Prototyping

Many great options exist for building a cellular-based prototype, and most are well under \$100.

Note there are often recurring monthly costs to support the use of cellular devices. Pushing too much data will incur fees, just like using too much data on a cell phone plan will, so you need to be careful about the code you write to keep from incurring additional costs.



The writer upgraded the monitoring of his greenhouse conditions with a Boron cellular device. This allows the monitoring of temperature, humidity, light levels and pressure in the cooling system without having to worry about WiFi outages.

There are two main ways to prototype with cellular.

You can start with a device that has cellular on the board already, or you can add a “hat” to an existing device like an Arduino. If you are starting fresh, it is best to choose a microcontroller that has cellular built in. My two favorites for this are the Particle Boron and the Arduino MKR GSM 1400.

The Particle Boron is a generational step forward from the Particle Electron that was mentioned earlier. It was designed to use the Adafruit Feather footprint, which allows it to easily interface with Feather-based sensors and actuators. It can be programmed wirelessly using Particle’s web-based programming platform and works with many Arduino libraries and code samples. Particle also offers free data for 100K data operations per month and support for up to 100 devices, which is compelling for prototypers.

The Arduino MKR GSM 1400 is also a great option in this same category. It offers the familiarity with the Arduino platform that is so comfortable to many prototypers, plus the power of cellular. It integrates with Arduino’s cloud platform, Arduino Cloud IoT, so you can

visualize data quickly and easily. You get 10MB free data for up to 90 days, and then it costs \$1.50 per month for 5MB of data thereafter.

If you already have code working on a development device and just want to add cell connectivity, there are add-on modules called hats or shields that can be used to do this.

Both Adafruit and Sparkfun have cellular shields for Arduinos that plug directly on top of an Arduino form factor and have easy-to-use libraries to get you up and running. The Adafruit FONA has 3G power, and the SparkFun LTE CAT M1/NB-IoT Shield takes advantage of the lower power draw of NB-IoT.

Blues.io is a relatively new player in the cellular field but has a robust offering of cellular hats for different formats. Its Notebook line includes boards that are compatible with Arduino, Raspberry Pi and Feather footprints and can support LiPo or alkaline batteries, or solar power input.

No matter which pathway, it should be relatively easy to add cellular connectivity to your electronic prototype so you can leverage the power of unthe-thered and reliable wireless connectivity. ☺

# Building an Innovation Station

BUSINESS THOUGHT LEADER TELLS HOW TO CREATE AN INVENTIVE CULTURE THROUGHOUT A COMPANY

**T**HE COMPETITIVE spiral in business seems to escalate infinitely. If there aren't other companies that do exactly what yours does, they are competitors by virtue of some similar product, service, or business processes.

How do you gain and maintain an edge in this environment, creating extra value for your company and the customers it serves? You must strive to out-innovate others in everything you do.

In "Built to Innovate," Ben M. Bensaou, professor and former dean of executive education at INSEAD and business innovation thought leader, explains that this requires more than creative and breakthrough processes in a company. It requires a collective innovative mind-set—a kind of internally wired DNA—that is present in every employee from the corner offices to the mailroom.

The book details how to drive innovating in product design and creative use of technology—as well as business activities such as business model redesign, customer service, distribution, finance, talent development, and sales. These are strategic and philosophical cornerstones at some of the world's most successful companies.

Bensaou outlines a seven-step process for accomplishing these crucial goals. His book has received high praise from accomplished innovators and thought leaders worldwide.

"For a science-based company like Bayer, it is crucial to enable innovation and bring it to market," said Bayer AG CEO Werner Baumann. "This is possible only if we encourage our employees and leverage their innovative potential."

"In his inspiring book 'Built to Innovate,' Ben M. Bensaou provides not only useful insights but also clear examples of how to simultaneously lead innovation and transformation in a high-performance business."

From Dr. Jon Arsen Chilingirian, Ph.D., professor of health care management at Heller School at Brandeis University, and director of the MD-MBA and EMBA Physician Programs at Tufts University School of Medicine:

"With fresh eyes, Ben M. Bensaou peers backstage into some of the world's most innovative companies to reveal a number of elegant and original concepts and tools. His carefully crafted stories and well-researched cases will teach leaders how to create a culture of innovation, and reward anyone interested in the science and practice of innovating."

"Built to Innovate" shows how to maximize the innovation that is latent and bursting within all of us. 🧠



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Best wishes, Jack Lander



# Question Asked, Question Answered

IP PANEL SAYS FEDERAL CIRCUIT IS KILLING SOFTWARE PATENTS

BY STEVE BRACHMANN

*All Eye on Washington stories initially appeared on IPWatchdog.com.*

**O**N DAY 2 of the recent IPWatchdog LIVE IP conference in Dallas, a lively morning panel was convened on the subject of “Is the Federal Circuit Killing Software Patents?”

One of the panelists said: “We could easily answer this question ‘yes’ and be done with the session.”

Robert Stoll’s comment elicited no small amount of laughter, and full agreement. The co-chair of the IP Group at Faegre Drinker and former United States Patent and Trademark Office commissioner of patents talked with other panel members about how disastrous jurisprudence on Section 101 subject matter eligibility could be addressed at the United States Court of Appeals for the Federal Circuit.

Also on the panel were Russ Slifer, principal at Schwegman Lundberg & Woessner and former deputy director at the USPTO; Raymond Millien, CEO at Harness Dickey; and Benjamin Cappel, partner at AddyHart P.C.

## Makeup of judges has changed

Though the federal circuit was established in the early 1980s with a mission of having patent law decided uniformly by judges with scientific backgrounds, Slifer noted a 1984 article by Judge Richard Posner that pointed out how—with any court specialized in its subject matter jurisdiction—it

becomes easier for one of two opposing viewpoints on legal doctrine to win out than in the regional circuit courts.

Slifer said the federal circuit was staffed with circuit judges fulfilling the scientific mission of the court through its first 20 years but that several federal circuit appointees in the past 15 years have had different backgrounds than earlier judges. They often wind up on panel decisions that have tended to limit patent rights in software and other sectors.

Millien did not mince words in discussing the problematic nature of Section 101 jurisprudence on software, specifically in the context of autonomous driving:

“I’m going to say something controversial: All of the hardware needed for autonomous driving has already been invented. What is preventing us from having a truly autonomous car? Software.

“How else can all of that data be processed so the car knows whether an obstruction is a pothole or a 3-year old? We’ve all been doing that since we first started driving at the age of 16 and it takes a millisecond in the brain. We cannot solve that problem without software, but once someone solves that problem, it’s (ruled) an abstract idea (and therefore considered unpatentable).”

Millien noted a recent article he wrote for IPWatchdog in which he provided data showing that 63 percent of U.S. utility patents issued in the first half of 2021 were software related. By comparison, fewer than 50 percent of European Patent Organisation patents and just over 40 percent of Chinese patents granted during that period of time were software related.



**“What is preventing us from having a truly autonomous car? Software.”**

—RAYMOND MILLIEN, CEO AT HARNESS DICKEY



Although the Supreme Court in *Alice v. CLS Bank*—the 2014 decision that has so beleaguered the patent eligibility of software—cautioned that the holding should be interpreted narrowly “lest it swallow all of patent law,” Slifer felt that such consumption had been reached by 2018 with the federal circuit’s Section 101 decision in *ChargePoint v. SemaConnect*. Even with the makeup of the federal circuit at issue given the panel-dependent nature of Section 101 analysis in many cases, Slifer said there is more hope for a legislative rollback of judicially created subject matter exceptions through Congress than by replacing federal circuit judges.

### Swaying public opinion

Cappel indicated he couldn’t understand why the federal circuit was analyzing issues under Section 101 that are obviously more appropriate under a Section 103 analysis. (*Editor’s note:* Section 101 of the Patent Act indicates that patents are to be granted on “any new and useful process, machine, manufacture, or composition of matter.” Under Section 103, a patentable invention must be a non-obvious improvement over prior art. So a rejection under this section means the examiner considers the invention at issue to be obvious.)

“But these judges are smart people, and they’re obviously doing it for a reason,” Cappel said. “We can’t expect to explain Section 101 to them and have them go, ‘Oh, now I get it.’”

He said that although members of the patent bar could advocate for meaningful change through Congress, Supreme Court decisions or by swaying public opinion, he didn’t think

such change could be addressed directly at the federal circuit.

The panelists discussed that one of the biggest issues in swaying public opinion is getting people to understand the actual real-life implications of detrimental software patent policy without getting bogged down in technical and legal details that cannot engage with much of the public.

“The public cares about independent inventors,” Cappel said. “This is why people love ‘Shark Tank.’ You see the little guy who works 9 to 5, has a great idea, and he goes on to be successful enough to take care of his family. We need to point out that’s the guy who got screwed.”

Millien was succinct in conveying the public relations problem for fixing software patent policy in a pro-inventor and pro-consumer way.

“I know we’re in an IP field and we talk about IP rights, but here’s a concept for all of us highly paid people to understand: Property doesn’t have rights; people have rights.”

Instead of talking in raw numbers, like pointing out that more than \$300 billion has been invested into autonomous vehicle startup, Millien urged the audience to educate others that large investment helps inventors feed their families and support their children.

“We may represent X company or Y company, but we have to remember the people behind these companies,” he said. 🐾

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



## IoT Corner

Satellite launch company **Rocket Lab** announced a five-launch contract with French IoT company Kinéis. The launches will send 25 satellites into orbit to build an IoT constellation that will improve Kinéis's connectivity services.

The satellites, to be launched with Rocket Lab's Electron rockets, are slated to launch in 2023. The new constellation will enhance Kinéis's satellite-based IoT services, such as global ship tracking, and help expand the number of devices it can support from 20,000 to millions.

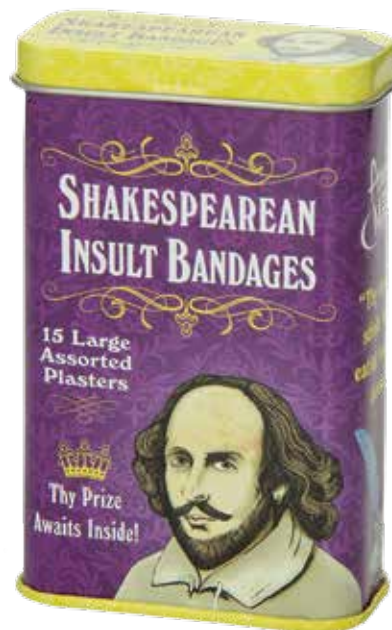
Rocket Lab's launch business generated \$24.1 million in the first half of 2021. Its space systems unit made \$5.4 million..

—Jeremy Losaw



## Wunderkinds

Eleven-year-old **Maryam Muzamir** was eating with her family at a seafood restaurant in her native Kuantan, Malaysia, when she noticed how much food was being wasted—particularly shells. She formulated a new form of live-stock feed made of ground shrimp and sea snail shells, calling it YAM 2.0, and won three awards at the 2021 International Invention Innovation Competition in Toronto, Canada. In winning the gold medal, the Canadian Special Award and Best Young Inventor Award, she beat more than 600 other participants from over 70 countries. She was the youngest winner in the competition.



## What IS that?

If you know an actor or classic literature aficionado, maybe these fun little barbs will help take the sting out of life's boo-boos. Of course, if you know a politician or anyone associated with a reality TV show, these will probably go over their head. Thou cream-faced loon!

## \$97 billion

Expected global revenue in food delivery by 2024. Revenue in this sector has doubled between 2017 and 2020, in large part due to the pandemic. Invent and innovate accordingly.

## WHAT DO YOU KNOW?

- 1 Root beer, invented in 1866, was introduced at the 1876 U.S. Centennial Exposition with which other products?
  - A) Mustard and the washing machine
  - B) Ketchup and the telephone
  - C) Coca-Cola and Pepsi
  - D) Headache powder and Levis

- 2 Which sports event name was trademarked first—the Final Four, or the Super Bowl?

- 3 **True or false:** The taste of Halloween candy can be legally copied or reverse engineered.

- 4 **True or false:** Anson Williams, who played Potsie on the TV series "Happy Days," was granted a patent for a hot flash remedy.

- 5 The nicotine patch, space shuttle and impact water sprinkler were all introduced and/or invented in which metro area?

- A) Los Angeles
- B) Phoenix
- C) Milwaukee
- D) Houston



**ANSWERS:** 1.B. 2. Final Four, 1977; Super Bowl, 1969. 3. True. But imitating a candy's shape or logo can constitute a trademark violation. 4. True; U.S. Patent No. 8,053,004B2, in 2011. It contains mint oils in a towelette. Williams spoke at the 2014 U.S. Patent and Trademark Office's National Trademark Expo. 5. A.

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