

Inventors

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DIGEST

Mad Marketing Maven

HOW MADMAN MUNTZ BUILT 3 EMPIRES

Army Salutes Soldier's Invention

SAVING TIME AND MONEY

Big Help for Tiny Babies

BUSINESS MODEL: GIVING BACK

IT DOESN'T TAKE AN
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IS HOT



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EDITOR'S NOTE



New Website Adds To the Conversation

For many of us, there's nothing like the traditional magazine experience—holding the original, glossy physical product in your hands; turning the paper pages; tearing out portions and/or pages to display or save; and having a flexible, portable keepsake that's never susceptible to electronic or battery failure.

A publication that provides both this and a strong internet presence is the best of both worlds. With that in mind, *Inventors Digest* recently updated its website (inventorsdigest.com). We wanted to make our online content more attractive and streamlined, with the goal of inviting even more readers. There's also more content than ever before; we're loading more current articles from each issue and going back through the archives to pull older ones.

This is part of a larger mission: to make the website a central hub for the *Inventors Digest* community and encourage readers to become active participants in national conversations involving invented-related subjects. In the past year, we've covered current national themes ranging from football helmets that address head trauma to wearable technology to crowd-funding. We will continue to report on the hottest trends going forward—while remaining devoted to individual success stories that inspire and define the inde-

pendent inventor, and providing you crucial information related to the multifaceted inventing process as well as the latest in inventing-related news.

In that effort to encourage more input, we plan surveys that will help us learn more about what you want to see on your website. We also want to provide enhanced commenting that will allow discussions about articles and provide an opportunity to interact with our writers.

The new inventorsdigest.com will feature online-only content that will complement the traditional magazine experience, via regular blog postings from the editor and contributions from the inventing community.

We want this to be your magazine—a place where you are always informed and engaged, a place where your voice can be heard. We hope that our updated website helps build on the curiosity, energy and excitement that exemplify the innovative spirit.

—Reid
(reid.creager@inventorsdigest.com)



INGENUITY IS AMERICA'S MOST VALUABLE RESOURCE.

DON'T TREAT IT LIKE A CHEAP COMMODITY.

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

**SAVE THE
AMERICAN
INVENTOR**

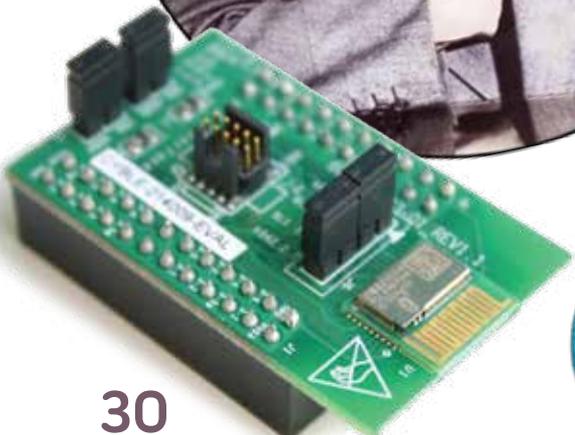
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BRIGHT IDEAS

ORBI Prime

360-DEGREE VIDEOS, IMAGES

orbiprime.com

The ORBI Prime is a 360-degree camera in the form of cool sunglasses, without expensive rigs and mounts. The water-resistant 3D video shades, which are Wi-Fi enabled, have four 1920-by-1080 cameras built into the frame.

The camera has electronic image stabilization and additional stabilization in post-processing based on captured motion data. Its video recording duration is up to 3 hours, with 128GB MicroSD for lots of storage. Files transfer wirelessly to your phone and auto assembly on the app.

ORBI Prime comes with polarized, adaptive lenses, his and hers sizes, and five color combinations. A Micro USB is included for charging and connecting to a desktop.

The retail price is expected to be about \$650, with shipping set for August.



JUNO

SMART MIRROR

thejuno.co

A makeup mirror with autosensing technology, JUNO comes with adjustable “true light” settings—designed to help you find the perfect light to match whatever you have planned for the day so you can flawlessly apply makeup every time—and saves the light settings from your favorite places so you’re always looking and feeling your best.

The four main features: comes preloaded with light settings for office, indoors and evening; a built-in ring light for professional-looking selfies; easy conversion into a reading lamp; and an integrated storage tray. When you pair your iPhone or Android phone with the mirror, the light around the mirror automatically optimizes.

JUNO’s crowdfunding efforts realized well over \$300,000 before the campaign was finished, after starting with a \$15,000 goal. Estimated retail price is \$79; target for shipping is April.



Big Balls

TRAINING GOLF BALLS

bit.ly/BigBallsKS

Big Balls is an easy-to-use, low-tech, oversized golf ball that's engineered to help golfers improve their game via improved putting. Though 30 percent larger than the normal golf ball—55mm in diameter as opposed to 42.67—the balls weigh the same, feel the same and roll the same.

The concept is based on the notion that after practicing with Big Balls, golfers who go back to a standard-size ball will find that the hole subconsciously appears larger. This increases confidence.

The package comes with two oversized balls and a guide of short putting drills. Shipping was to begin in January, with the product retailing at \$30.

“No one wants to die. Even people who want to go to heaven don't want to die to get there. And yet death is the destination we all share. No one has ever escaped it. And that is as it should be, because death is very likely the single best invention of life. It is life's change agent. It clears out the old to make way for the new.”

—STEVE JOBS



Monkey Light Automatic

FULL-VISIBILITY BIKE LIGHTS

monkeylectric.com

LED lights that mount on the wheels of almost any bike, Monkey Lights are clearly visible from all directions. They come in three wildly colorful designs and are fully automatic, turning on when you need them as you ride your bike.

Because the waterproof and dustproof lights detect wheel rotation and light levels, they won't accidentally turn on if they get bumped on a bike rack. For those wanting a power button, the A15 & A30 lights let you choose between Off, On, and Smart-Auto-On.

A stainless steel strap locks the light onto your spokes so you can't forget your lights when you leave home or work, and you can't lose them. The USB-battery capsule pops out for indoor charging that should last for months.

Retail price for the A15 lights will be \$35; the A30 is \$60. Shipping is set for June or July.



Mad MARKETING MAVEN

MADMAN MUNTZ MADE THREE FORTUNES
IN AN UNFORGETTABLE WAY **BY REID CREAGER**

Earl William Muntz drew attention to himself with outlandish marketing gimmicks, risky business deals and his friendships with many Hollywood celebrities. But he also was a keen student of electronics who built a radio at age 8.

Tee Vee Muntz holds no resentment toward her father for the birth name he gave her. “There are a lot of people who, when they hear my name, they go, ‘Oh, my God! I’ve heard about that before but I didn’t believe it,’” she says.

Just part of the legacy of Earl William (Madman) Muntz, an innovator, master marketer and inventor who led a life that stretches the bounds of believability.

Many a baby boomer was affected at least indirectly by Muntz, whose three fortunes came in cars, televisions and car stereo products during a mercurial career that spanned six decades before his death in 1987. His persona as a marketer and salesman was arguably bombastic or brilliant: His signature slogan was “I wanna give ‘em away, but Mrs. Muntz won’t let me. She’s crazy!”

It’s unclear which Mrs. Muntz he was referring to, given the fact that he was married seven times. An unreleased movie about Muntz’s life, “Madman Muntz: American Maverick,” featured the teaser “Seven wives ... Three fortunes ... One of a kind!”

A legendary career begins

Earl Muntz built a radio at age 8, then another for his parents’ car when he was 14. A year later, after the stock market crash of 1929, he dropped out of high school to help out in the family hardware store in Elgin, Illinois.

From then on, his education came via real-life business experiences that were as risky as they were novel.

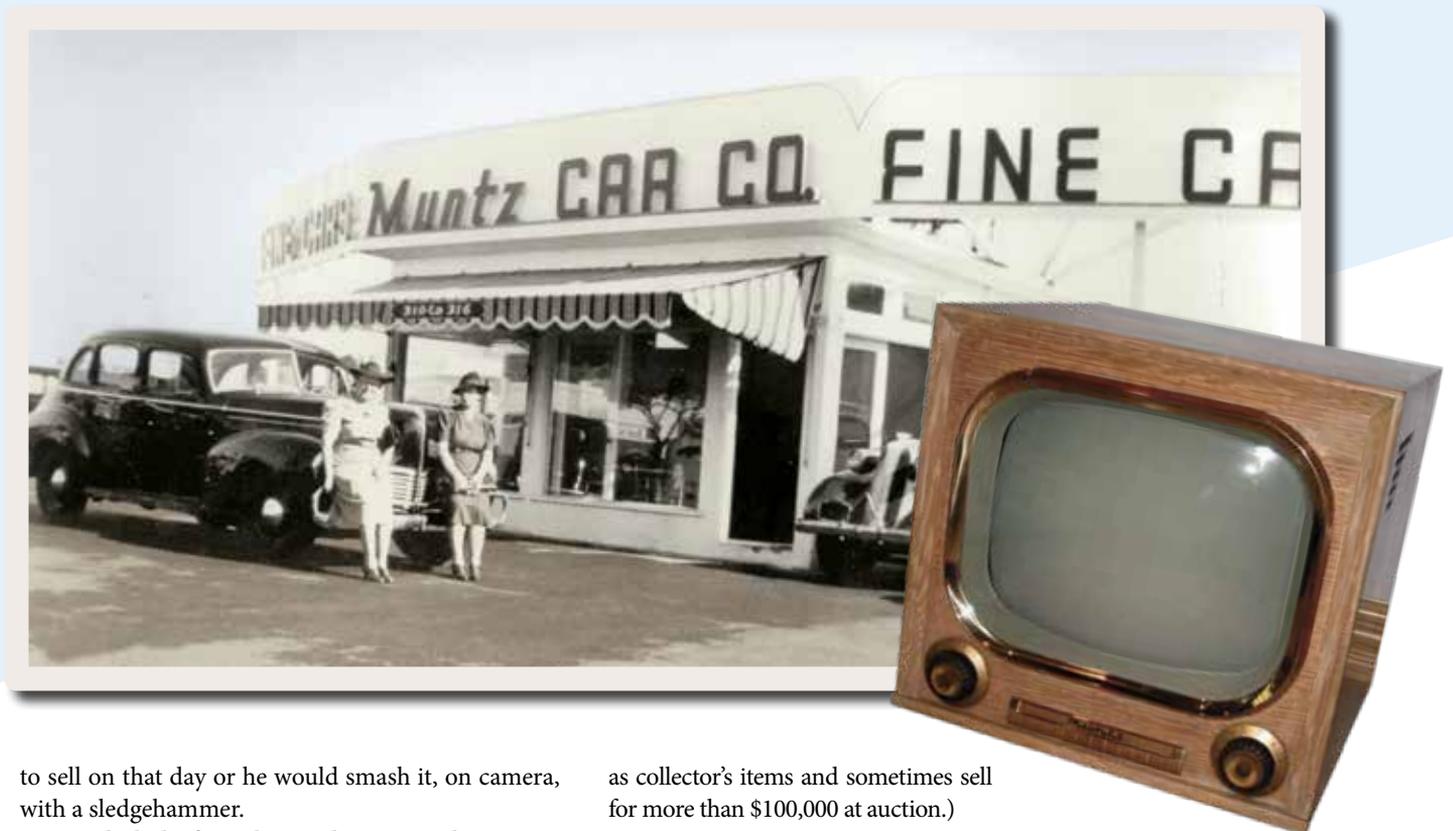
Muntz opened a used-car lot in Elgin at age 20, but he moved to California at age 26 and opened a used-car lot in Glendale after seeing during a vacation that cars there sold for higher prices.

His first big break revealed the instincts of a savvy businessman. He bought 13 new right-handed drive vehicles built for customers in Asia that could not be delivered because of World War II, including a custom-made Lincoln built for Chinese President Chiang Kai-shek. Publicity generated by the unusual cars helped sell all of them—still in their original shipping crates—within two weeks. Muntz soon opened a second lot in Los Angeles, his lot in life coming into focus.

Madman Muntz became a fixture in car sales. According to thetruthaboutcars.com, in 1947 he made \$76 million in sales and for a while was the largest-volume used car dealer in the world.

‘Crazy!’

As his business grew, so did his reputation as a zany pitchman. With radio in its heyday as a major advertising vehicle and television in its infancy, Muntz amazed and amused with commercials that gained public notoriety and were talked about by celebrities. He dressed in wild costumes and performed crazy stunts. His print, billboard and TV persona was a cartoon character in red long johns and a tri-cornered hat. He would tout a “daily special” that had



to sell on that day or he would smash it, on camera, with a sledgehammer.

Even the lack of visuals on radio were no deterrent to his creativity or persistence. At one point his ads ran up to 170 times a day, including one in which he screamed, “Stop staring at your radio!” One survey said that his car lots had become the seventh-most popular attraction in Southern California.

Tee Vee Muntz, now an administrative assistant in faculty support at the Oregon School of Law who goes by the name of Tee, realizes there are so many crazy stories about her father that some people may doubt their veracity. “He was such a big personality that sometimes it’s hard to believe,” she says. “But the majority of what’s out there is true.”

The Madman took advantage of another unique opportunity in 1951. Race car designer Frank Kurtis failed in his bid to market a new two-seat sports car and sold the manufacturing license to Muntz, who retooled the line and called it the Muntz Jet. His modified, blinged-out version made the cover of *Popular Science* and caught the eye of the rich and famous after he turned the car into a four-seater by extending the body; innovated bright and wild paint schemes and added interior options such as alligator and Spanish leatherette (with a full cocktail bar on the armrests), and made engine changes that brought the Jet to a top speed of 125 mph.

But the publicity generated wasn’t reflected in the bottom line. Muntz said Jets cost \$6,500 to build but they wouldn’t sell for that price, so he sold them for \$5,500. By 1954, he lost \$400,000 and was finished as an automaker. (A little more than 100 Muntz Jets still exist

as collector’s items and sometimes sell for more than \$100,000 at auction.)

TV and Muntzing

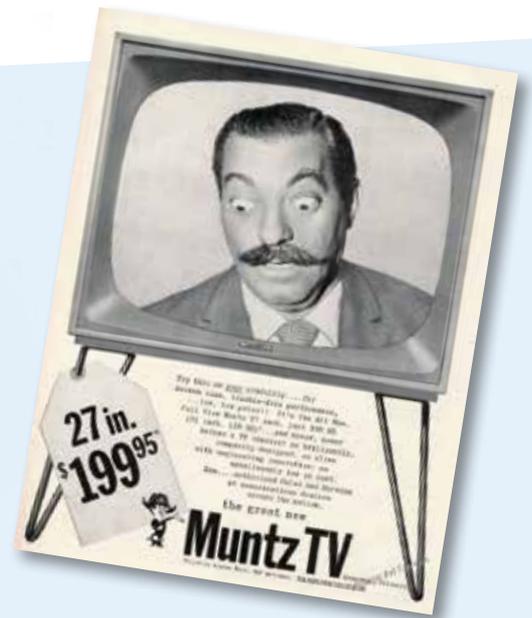
Muntz had the foresight to realize that if any 20th-century consumer commodity could possibly rival the car in popularity, it was television. Many years earlier, in 1946, he began plans to sell TV receivers. Just as he had shown mechanical proficiency with radios as a child, he would take apart various models to maximize the number of functional components while discarding the others.

By many accounts, Muntz would occasionally approach an engineer working on a TV and question the number of circuits being used. Then he would reach into his shirt pocket for a pair of nippers that he always carried and snip off a particular capacitor. If the TV picture and sound still worked, he would snip another one. This minimalistic practice, called Muntzing, is still referred to today.

“The premise was to take as many moving parts out of these things to get the price down and make a profit on it,” says Muntz’s son Jim Muntz of Sebastian, Florida, who worked with his father on various projects and in many capacities.

Muntzing helped develop a chassis that produced a satisfactory monochrome picture with 17 tubes. The sets were reliable because fewer tubes meant less heat generated. Meanwhile, the Muntz media blitz continued as a way to leverage America’s obsession with this revolutionary medium. In one direct mail campaign, he collected thousands of TV knobs and mailed them

At one point, Madman Muntz was the largest-volume used car dealer in the world. He also could see the burgeoning impact of television, having begun plans to sell TV receivers in 1946.



Around the time that the Muntz Jet sports car was peaking as a splashy albeit unprofitable attraction, Muntz TV Inc. grossed \$49.9 million in 1952.

He would tout a “daily special” that had to sell on that day or he would smash it, on camera, with a sledgehammer.

to potential customers with a note: “Call us and we’ll show up with the rest of the set!”

Muntz TV Inc. grossed \$49.9 million in 1952—around the time that the Muntz Jet was peaking as a splashy albeit unprofitable attraction—but could not sustain that success. Partially due to the emergence of color TV, it went bankrupt and closed in 1959.

By this time, Muntz was such a recognizable figure in California that he had become a media star. His visibility resulted in many Hollywood contacts and friendships—the latter including Gene Autry, Phyllis Diller, Bert Lahr and Dick Clark. His high-voltage personality was an attraction for the many beautiful women he met, some of whom he married. They included singer/actress Joan Barton, who once co-starred with John Wayne, and Patricia Stevens, owner of a nationwide chain of finishing schools.

Muntz’s 4-track car stereo system and tapes grabbed a quick foothold in the market, boosted by support from Hollywood stars. But they eventually lost out to the inferior 8-track.

‘More with four’

Marriage wasn’t Muntz’s strong suit. But given his electronics expertise and experience in selling and customizing automobiles, the notion of a viable new stereo format for cars was a marriage made in Hollywood heaven. Car record players of the era were not just limited to the privileged, they suffered more than the occasional (literal) bump in the road.

In September 1961, Muntz formed Muntz Music in Beverly Hills. His stereo car innovation centered around the Fidelipac

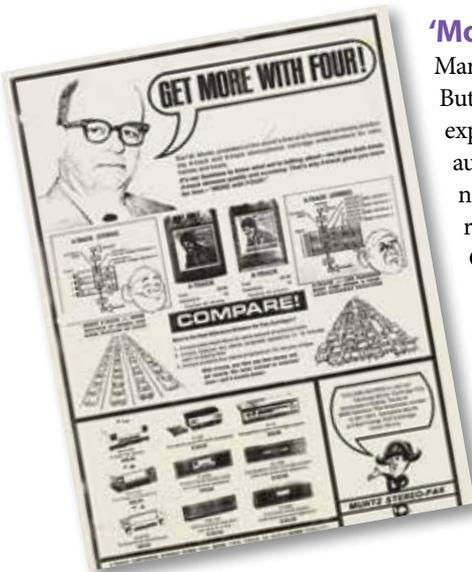
or cart, a magnetic tape sound recording format used by radio stations for music, commercials, jingles and station identification. He had inexpensive Fidelipac players custom made in Japan and licensed music from several record companies to be duplicated on those carts. For better sound quality, his players used the latest mass-produced stereo tape heads that produced four recorded tracks on a standard 1/4-inch tape.

The players were an instant hit in California, where they got maximum public exposure as the car accessory *de rigueur*. According to a promotional section in *Billboard* magazine’s Sept. 17, 1966 edition celebrating the five-year anniversary of the Muntz Stereo-Pak 4-track cartridge system, Sammy Davis Jr. bought the first Muntz Music Model 500 unit in January 1962 for \$225. Other celebrities quickly followed. Wrote recording-history.org: “By 1963 Muntz players were to be found stylishly adorning the underdash regions of Frank Sinatra’s Riviera, Peter Lawford’s Ghia, James Garner’s Jaguar, Red Skelton’s Rolls Royce, and Lawrence Welk’s Dodge convertible, not to mention Barry Goldwater’s ride (make not known).”

In 1964 and 1965, major record labels issued new releases and old favorites on 4-track. Home players were built. Warner Bros./Reprise Records, the latter Sinatra’s own label, took out an ad in *Billboard* in 1966 thanking Muntz for “pioneering and shaping, single-handedly, the development of the Continuous Loop Cartridge into the awesome, burgeoning potential its refinement represents.”

But as Sinatra and the Madman would tell you, some marriages aren’t meant to last.

Ironically, the 4-track was made obsolete by a modification that was of poorer quality. Bill Lear, maker of the Lear Jet, was introduced to the 4-track during a car ride with Muntz. Lear’s company “updated” Muntz’s technology and developed the 8-track, in which eight tracks were squeezed onto the same quarter-inch tape. “This reduced the amount of decibels you could put on that tape,” says Jim Muntz, who



worked closely with his father on the 4-track format.

The result was inferior sound. But because the 8-track format allowed twice as much music on the same length of tape, it caught on as more economical. Lear struck a deal with Ford that made it a built-in option for its new models. Muntz couldn't stop that momentum. His ad in the Sept. 6, 1969 issue of *Billboard* touted the 4-track with a slogan "More with four"—twice as much tape, more fidelity, etc.—and said the 8-track "was like running eight cars down a four-lane highway together."

Production of his 4-tracks ended in 1970. Meanwhile, the 8-track became a ubiquitous, albeit later ridiculed, pop culture symbol that provided an enduring life soundtrack for millions of baby boomers. (Few know that 8-tracks were sold as late as 1988 by Columbia House and RCA record clubs.)

"What surprises me is, even people who are aware of an 8-track and think they know about it, a lot of them don't know what 4-track was," Tee says. Adding to the confusion is the fact that an 8-track and 4-track tape look identical from the front; 4-tracks are identifiable by a Christmas ornament-shaped hole on the upper left side of the back for use in 4-track players (and a select few players that accommodated both formats).

Cellular pioneer

Later, Muntz sold products ranging from giant-screen televisions to cellular phones. He holds four patents, all connected to projection televisions, from 1976 to 1981.

"I went to work for him selling the giant-screen televisions," says Tee Muntz, who had worked in the Muntz car stereo service department in Van Nuys, California, while in high school. "He was the first to build them in the United States. . . . After he passed away, my brother ran the business and I ran it with him for a while.

"We were the largest cellular phone retailers in California when he died, one of the first in the state. We had every other retailer in the San Fernando Valley so (angry) at us it was crazy, because he would sell them at or below cost because of the residual we would receive from the phone company."

Despite his father's reputation as a wild maverick, Jim Muntz says Earl Muntz's most important quality as a businessman may be overlooked. "Personality and drive were two of his strengths, but the biggest was that honesty was everything to him. He understood the value of trust. His word was his bond." ☺



Many baby boomers who grew up with 8-tracks don't know about the 4-track format that came first. The tapes look identical from the front.

2 Critical Steps to getting your NEW PRODUCT "out there"

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Angel Investors May Be Looking for You

OLDER FORM OF BACKING FOR YOUR INVENTION HAS MERIT, BUT PLAN WELL **BY JACK LANDER**

I know, you want to read about angel finance, and that's what I want to write about. But be patient while I tell you a bit about crowdfunding first, because that's what most inventors have recently dreamed of as a promising means to finance their ventures.

The first dedicated crowdfunding platform was in 2000. The process became popular as we now know it around 2008 when Indiegogo began, and 2009 when Kickstarter began. Tales of people throwing money at promising inventions circulated quickly. Obtaining financing from people who didn't expect an arm and a leg in return seemed too good to be true. But as we all know, there is no such thing as free lunch. And while it is possible to raise a substantial amount of money through a crowdfunding campaign, it isn't highly probable.

A few facts: Kickstarter's and Indiegogo's overall campaign success rate is said to be about 35 percent. Of the 172 sites that I counted, some of them have success rates in the 10 percent range. The average amount of money in the success range is about \$15,000. Successful projects start with early funding percentages. Those who achieve 35 percent of their goal in the first week are said to have a better than 90 percent chance of reaching their goals.

Read up on crowdfunding

The main reason for the lackluster success rates is failure to lay effective groundwork. An obvious step is to read a lot about the subject. Amazon.com offers more than 50 books on crowdfunding. Most of the books imply success in their titles and leave us wondering which books to buy. One title, "The Crowdfunding Myth," caught

my eye, and I think I'd start with it in order to counter my inclination to excessive optimism. In any case, if you're serious, I suggest owning and reading at least three books on the subject before even thinking seriously of embarking on a crowdfunding venture.

Another success tactic is to test a venture at a dollar goal that is not ambitious—less than \$10,000 for example—and learn by doing. The universal ingredient for success, however, is a strong social media network. There is a direct correlation between the sites linked to your campaign and its success. But selection of the most appropriate platform is also important. It's easy to find a list of the top 10 crowdfunders using Google. But investigating the merits of the remaining 162 might reveal a source that fits your project better than the more popular sources.

My point in the brief account above is to balance the glamorous and relatively new source of backing with the older form of backing known as angel funding. The term "angel" originated on Broadway. Wealthy individuals invested in plays and often saved the play when the producers ran out of money before opening. Thus, the phrase "You're an angel."

Angels like start-ups

We hear less about angel backing these days, but it's still around. And angels are always interested in projects that have the potential to earn a high return on investment. Most angel funding, however, is devoted to start-ups, not to licensing an inventor's patent. And the angel often is a retired businessperson who will consider investing his or her own money and a limited amount of time

in a start-up in exchange for a percentage of ownership of the business. Angels generally prefer to consider start-ups that are based on a category of product or service with which they have some experience. An angel who sold his or her manufacturing business is not likely to invest in a Broadway play but may be interested in a novel product that shows outstanding promise.

The stereotype of a 50- or 60something who is wealthy, bored after selling a business and seeking to reassert capability via a new venture is reasonable but often misleading. Angels are diverse individuals: young, old, men, women, bold, conservative, doctors, lawyers, tool and die makers, molders, electronic experts, and so on. And just as the princess had to kiss a lot of frogs before finding her prince, the inventor has to connect with a lot of angels before finding the one with whom he or she has a meeting of the minds.

To connect with angels, check out the following angel networks: Fundingpost.com, angelinvestmentnetwork.us, and activecapital.org. These are three sites that pop up early when searching Google for angel investor information. And you can also find individual angels in your state by Googling “angel investor (your state).” I found four such lists for Connecticut, where I live.

Angels generally prefer to consider start-ups that are based on a category of product or service with which they have some experience.

Most were men, but female angels and entrepreneurs are on the increase. The angel’s travel distance can be a deciding factor. Angels usually want your business reasonably close so that periodic visits are not a burden.

Always consider that angels are not dispassionate bankers. They are persons who have had their own success and want further adventure—something refreshing and exciting that they will enjoy seeing build from its embryonic state to an attractive organization. And you must want even more. ☞

Jack Lander, a near legend in the inventing community, has been writing for *Inventors Digest* for 20 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.



SOME CAUTIONS BEFORE CONTACTING ANGELS

You must have more than a great idea. A patent application, a professional prototype and realistic assessment of your product’s or service’s commercial potential are minimum early assets. These are usually financed by you or your friends and family, but don’t promise the farm. Your angel may want 49 percent of your business, and if you give your relatives 20 percent to get started, you’ll end up with only 31 percent. Maybe that’s the only way to start, but a good friendship could be lost.

You’ll need a business plan, but most plan templates are too complicated and too detailed for a small start-up. How to include enough information but still keep your plan simple is asking a lot. So read about small business start-up planning before writing yours. Your initial contact plan should be aimed at a first meeting, not necessarily a deal conclusion. After all, potential angels are betting on you, first, and then on your product or service. Therefore,

any plan that is more than about 10 pages may lose your reader.

Don’t start contacting by winging it. There is a ton of printed guidance out there, and you’re a fool if you rush in without doing your homework. I’d buy this book first if I were thinking about a start-up and angel financing: “The Art of Startup Fund Raising,” by Alejandro Cremades. It boasts a solid five stars based on 129 ratings. If nothing else, such a book will help you when you don’t know what you don’t know.

Take a lesson from “Shark Tank.” The first question the sharks ask is how many you have sold. If you haven’t sold any, the next best thing to sales is the promise of sales. In any event, do not pull estimated sales figures out of the air. The sign of an amateur is to start with the population of the United States and work down to potential customers with a statement like, “If only one person in a hundred

buys my widget, we’ll make a fortune.” That kind of amateurish fiction is bound to turn off every angel you contact. Survey potential customers and sellers of your eventual product, and obtain “I’ll buy it” statements that you can use in your business plan or sell-sheet. For more on this, read my free private paper #38, “Evaluating the Market Potential of Your Invention.”

Be aware that angels will have, and want you to have, a clear exit strategy. Even though they may act fatherly or motherly at times, they don’t want to adopt you. They will typically expect to sell the start-up in five to seven years, having aimed for a compounded return of about 30 percent per year on their investment. That doesn’t mean it will be achieved, but it is a realistic expectation and goal when one considers the high failure rate of start-ups.



Getting Help but Keeping Control

IF YOU PARTNER IN AN INVENTION, GET EXPECTATIONS IN WRITING **BY DON DEBELAK**

Because getting a new product on the market requires many skills that we may not be comfortable with, some inventors benefit from teaming with someone who has complementary talents. But for a partnership to work, you should outline your expectations in an agreement—even if it is a checklist—to share with prospective team members:

1 Responsibilities. Explain clearly what each party is responsible for doing and what each party is financially committing to the project.

2 Decision making. You should state that the final decision is yours but that you will discuss each major decision with the parties and take into account their input.

3 Ownership of the idea, or partnership arrangement. It may be too early to form a company, but you should state how much of the idea is owned by each member of the team. Include a statement that each party's ownership may change if additional members or investors are added.

4 Patent ownership. The simplest way of doing this is starting a company or LLC, then assigning the patent to the company—with each team member owning the percentage discussed in item No. 3. All team members should agree to assign the patent to the company.

5 Profit/revenue sharing. This should be along the lines of percentage of ownership. But you should also discuss taking money out. You may need to take money out of the company, while your partners might want to completely reinvest any profits.

6 Adjustment procedures. Agree that the percentage of ownership can change if a team member's participation changes from the original agreement.

7 Commitment levels. Be clear in what commitment level, in time and money, each member can expect from other members.

8 Product Review. The team should meet every quarter to review the project status and discuss how it will move forward in the next three months.

9 Expected business model after product is launched. In many cases, you might just license the idea—in which case the ownership percentage will stay the same. Other times, you might expect to go into business. If that is what happens, be sure to discuss that people will be paid a salary, agreed to by the partners, based upon the time commitment to the company.

10 Derivative products. You should state that the team is for just the one product and its product improvements, and that any derivative products that might come out of the project belong to you. Or, derivative products could belong to the team.

11 Dispute resolution. You might want a clause that any disputes will be settled with arbitration. Most areas will have services that offer low-cost arbitration or dispute resolution.

This might seem like a lot of items to discuss before starting a team partnership. But my experience is that airing out the possibilities before starting keeps everyone's expectations in line and helps focus members on their responsibilities and commitments—and the team's eventual success. 📦

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





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The Smell of Success?

DIGITAL SCENT SPEAKER CYRANO SEEKS TO THRIVE
IN A DIFFICULT CONSUMER REALM **BY JEREMY LOSAW**

It is hard to design for the nose. The olfactory system is very picky and can easily be overpowered. Air fresheners attempt to provide environments that smell pleasing, but they only dispense one scent and often either fade into the background or feel polluting.

Little wonder that screen-based technology such as movies, TVs and computers have been around for over 100 years yet still only cater to our sense of sight and sound. There have been various ill-fated forays into scent-based movie enhancements such as Smell-O-Vision and scratch-and-sniff cards timed to TV shows, but no one has cracked the code on making scent entertaining. Cambridge, Massachusetts-based start-up Vapor Communications is hoping to change that with its new product, Cyrano.

Cyrano (\$149.95, onotes.com) is a 3-inch-tall digital scent speaker. It has a cylindrical body about the diameter of a pint glass and emits fragrances as commanded by the smartphone app that controls it. The main body holds the electronics and fans to push the fragrances into the environment; the fragrances are housed in a cartridge that clicks into the unit.

Each cartridge is pre-loaded with 12 different fragrance gels that make up an olfactory theme. For example, the Natural Moods cartridge includes scents

such as pine, coconut, lilac and vanilla. The technology allows scents to be dosed individually or mixed by the user to create his or her own “mood melody.” Replacement cartridges—\$19.99 for a pack of three—last about two months.

A big part of Cyrano’s appeal is its ability to control the scent profile through the free smart phone app. The timing of the fragrance release can be programmed through the app. The scent profiles can be sent to other users to share the experience. Cartoon characters named Alex and Cyro are featured in animated content that can be synched up with Cyrano.

Harvard, Paris research

Cyrano is the result of research that started at Harvard University. Harvard engineering professor David Edwards was teaching a class called “How to Create Things and Have Them Matter.” The class was working on virtual placebos, and a few students came up with a device called the scent phone to digitize the delivery of aromas. Edwards is also the founder and director of a nonprofit lab in Paris called Le Laboratoire (lelaboratoire.org/en/); at the end of class he invited a few students to continue their work on the scent phone there.

The research of two students working at Le Laboratoire focused primarily on coffee and scent. Prototypes were

Each cartridge is pre-loaded with 12 different fragrance gels that make up an olfactory theme. The technology allows scents to be dosed individually or mixed by the user.



PHOTOS BY WAYNE CHINNOCK



David Edwards, Rachael Field and Mouli Ramani are behind Cyrano.

made with off-the-shelf microcontrollers such as the Arduino, and they worked with coffee makers Toby's Estate from Australia and Coutume in Paris who gave them espresso powders for experimenting.

In summer 2013, the first iteration of the product, then called the Ophone, debuted at an exhibition at Le Laboratoire. "At that time ... it was very primitive and it did not seem very obvious that there was a big invention here," Edwards recalls.

That fall, he gave a talk at the Wired Conference in London. Edwards and his student and future cofounder, Rachael Field, brought a modified version of the Ophone. They set up a virtual coffee bar where conference-goers could download an app and create their own virtual coffee by mixing scents such as coffee, caramel and chocolate and then text their order to the coffee bar on the premises. "It crashed the app ... and it was amazing," Edwards says. "Everybody was experiencing scent in a different way, and it was confirmation that there was something here."

A bevy of refinements

Later that year, Edwards and Field formed their company, Vapor Communications, around the technology and continued work on the device. Edwards has more than 100 patents in a variety of fields, and it was a no-brainer to file both international and domestic patents to protect the innovation.

Meanwhile, they made more refinements. Field moved away from the Arduino-based prototypes and started designing her own circuit boards to shrink and refine the device. There was also major development on the scent cartridge. Light, sound and scent all travel to our sensory receptors through the air, but scent is the only one that has mass and therefore is more difficult to control. Too much scent can cause an environment that feels polluted; too little for too long of a time desensitizes the nose.

The solution was to hold the scent in a gel. This allows the unit to use very little of the fragrant oils without the

risk of them drying out quickly. It also allowed them to use convective transfer of the scent via three fans

inside the unit without having to use a heating device. This allowed them to change and mix scents quickly.

Advanced prototypes of Cyrano helped the team get outside investment. Edwards had success starting other companies in the health care and food industries, and had private investors in his Rolodex. He was able to raise \$5 million in seed money from investors who had helped him with other ventures. This allowed him to open an office in Cambridge, Massachusetts, which now has five employees.

The investor was also able to introduce the team to an overseas manufacturing group that is making the main body of Cyrano. The manufacturer helped make advanced prototypes to further validate the product and has been doing small prototype runs in the ramp-up to full production in spring 2017.

The scent cartridges are manufactured in the United States. The Cyrano team partnered with International Flavors and Fragrances, a world leader in flavor and scent products and technology. IFF helped Edwards refine the scent gels for the cartridges and is also supplying the scent chemicals that fuel Cyrano.

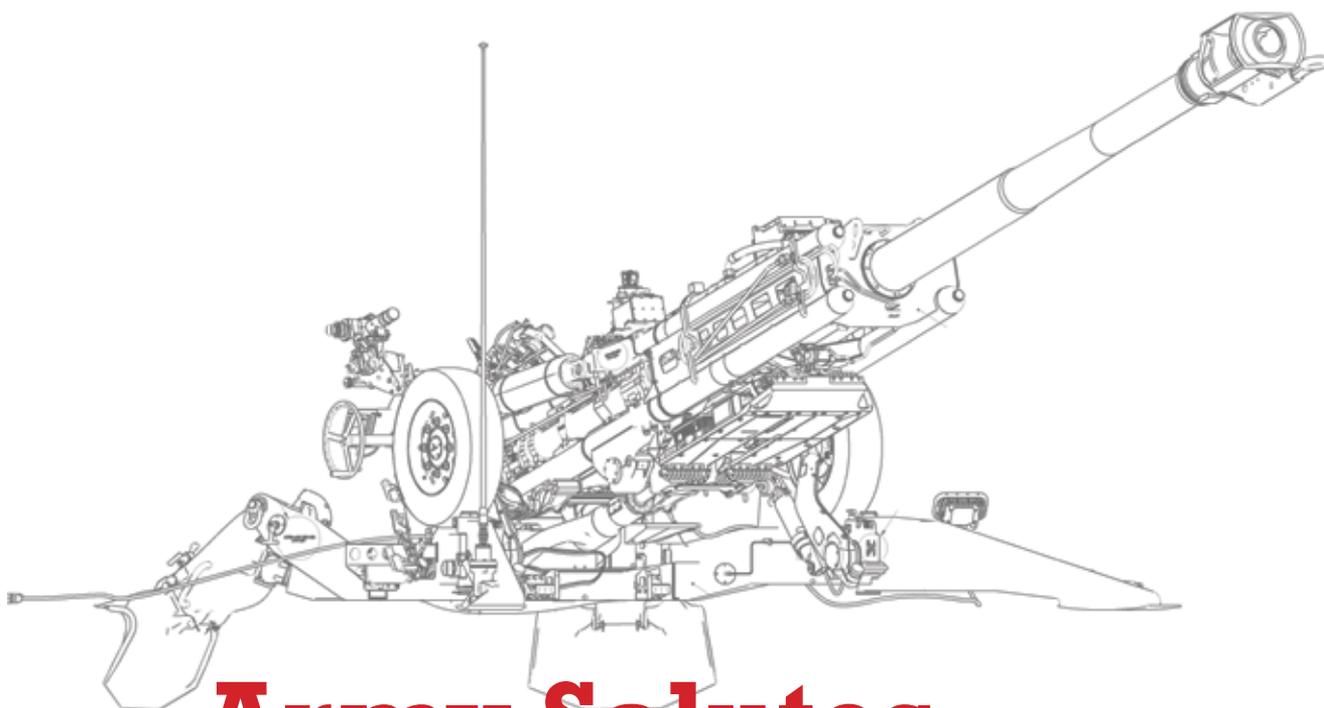
It is an uncertain but exciting time for the Cyrano team, which is taking orders from the website while ramping up production for the official launch in early 2017. Though on-demand scent-producing devices have fallen short in the past, the team hopes to make the Cyrano scent speaker a mainstream product in homes across the country. 📍



A big part of Cyrano's appeal is its ability to control the scent profile through the free phone app.

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/.





Army Salutes Soldier's Invention

DEVICE FOR HOWITZER MAY SAVE TAXPAYERS HUNDREDS OF THOUSANDS OF DOLLARS **BY STAFF SGT. ROBERT R. ADAMS**

Illinois Army National Guard Sgt. Wesley Todd is amazed—and thrilled—to be an inventor.

While working on a light-towed howitzer cannon, Todd invented a device that improves soldier safety and equipment longevity to the extent that it is projected to save taxpayers hundreds of thousands of dollars, perhaps more. The invention—which facilitates the removal of seized muzzle breaks from cannons, thereby eliminating the need for excessive force that can damage equipment—has been approved and is being tested before its possible implementation throughout the U.S. Army.

“I am shocked that the Army is going to adopt something I designed myself,” said Todd, a noncommissioned officer from La Porte, Indiana, with the 333rd Military Police Company in Freeport, Illinois. He is a military technician with the Combined Support Maintenance Shop (CSMS) at North Riverside Armory in North Riverside, Illinois. “It’s an honor to know I improved the Army in a small way.”

No small feat

Maj. Gen. and Adjutant General of the Illinois National Guard Richard J. Hayes said Todd’s invention will affect the Army in more than a small way.

“This soldier’s invention will increase safety and save the entire Army hundreds of thousands of dollars in equipment parts and repair time,” Hayes said. “These are resources that will now be able to be devoted to other U.S. Army priorities.”

“Sgt. Todd and his leadership have set a great example. Sgt. Todd has shown how a single Illinois Army National Guard soldier can improve a process for the entire Army, and his leadership has shown us a great example of how to listen to your soldiers’ ideas and help them implement positive changes. I’m proud to have these soldiers under my command.”

Chief Warrant Officer 2 Steve Murphy, armament supervisor at the North Riverside CSMS, said Todd took it upon himself to design and fabricate the device when he saw soldiers struggling to remove a seized-up muzzle break on a light-towed howitzer. Todd used a computer numerical controlled lathe to make the piece that is 6 inches in diameter, 7 inches in length and weighs about 30 lbs. It bolts onto the end of the muzzle break, sliding into a notch on the muzzle, and then soldiers use a breaker bar by placing it in the hold and applying pressure to loosen the muzzle break.



Far left: Sgt. Wesley Todd of La Porte, Indiana, checks measurements on the device he invented at the machine shop in the Combined Support Maintenance Shop in North Riverside, Illinois. Near left: Sgt. Michael Georgeff of Bourbonnais, Illinois, and Sgt. 1st Class Edgar Gomez of Oak Lawn, Illinois (facing away from camera), use Sgt. Todd's invention and a pry bar to remove the muzzle from a light-towed howitzer.



"I am shocked that the Army is going to adopt something I designed myself. It's an honor to know I improved the Army in a small way."

—SGT. WESLEY TODD

This eliminates the need to use the kind of force that could damage the howitzer tube or its rifling grooves when removing seized muzzle breaks. Just the tube of the light-towed howitzer can cost more than \$265,000.

"It can be very difficult to remove the muzzle break," Murphy said. "They sometimes seize up in varying weather conditions."

No more sledgehammers

Murphy said soldiers normally had to take a sledgehammer to the muzzle break to remove it, which frequently damaged the break and could damage the artillery tube. "Using the device instead of a sledgehammer will keep our soldiers safer while working on the equipment," he said. "The device will make the process much faster."

Sgt. 1st Class Edgar Gomez of Oak Lawn, Illinois with Company B, 634th Brigade Support Battalion in Champaign, Illinois, and an artillery repairman as a military technician in the armament section at

the CSMS in North Riverside, said: "This is a very helpful tool, and I believe it will be very helpful throughout the Army as well. It's awesome that this came from our state, and he is an awesome machinist."

Todd said it was just in another day's work. "Making things is a part of my job. This is by far the most impactful thing I have ever made, though."

Todd has worked as a machinist at the CSMS for three years. He said he normally repairs damaged parts and makes new parts for military vehicles and equipment. "This was the first part that I designed myself and then fabricated. Normally, I fabricate parts from manuals in the shop."

Murphy said: "I have no doubt this device will go on to make a huge impact to the efficiency of removing the muzzle break Army-wide. He is an unbelievable machinist, and I am very proud of him for stepping up when there was a need." 📞

Staff Sgt. Robert R. Adams is with the Illinois National Guard Public Affairs Office.

Big Help for Tiny Babies

BABY BUBBLES UPDATES THE 'ONESIE'; PROCEEDS GO TO FAMILIES WITH PREEMIES **BY EDITH G. TOLCHIN**

I love sourcing and manufacturing baby products because I like challenges. When I began working with China factories in 1990, the sourcing process was either winging it or common sense. For example, if we wanted to make a safe product for a baby, we would not use components such as sharp objects and dangerous dyes.

Eventually, that wasn't enough. After countless product recalls over the years, the United States created the Consumer Product Safety Improvement Act in 2008. This required manufacturers to undergo complex testing for their baby products and comply with other regulations in order to introduce safe products to the market.

Teresa Skrepenski has a new line of safe baby products with a business model you'll all like: giving back—in a big way.

Edith G. Tolchin: What makes Baby Bubbles products so different?

Teresa Skrepenski: Baby Bubbles are a unique twist on the favorite newborn outfit—the “onesie.” They come with removable and interchangeable Velcro patches featuring messages such as “Baby Girl/Boy,” “Daddy’s Girl” and “Tickle Me.” Baby Bubbles ooze adorable, special, clever and cute.

My niece, Ruby, was born prematurely. Baby Bubbles was created as a way to help families with preemie babies. A portion of all proceeds from sales will be donated to help those families. Born weighing 2 lbs., 1 oz. and just 14.5 inches long, Baby Ruby was a fighter who wasn't going to give up. Fortunately, today she is happy and healthy.

Preemies begin their lives in an incubator (bubble), where their environment is controlled and sterile. They're constantly being monitored and are heavily

dependent on IVs, feeding tubes and in some cases a breathing apparatus.

In addition to donating proceeds to families of preemie babies, we encourage and promote young artists by having them not only create patches but also be involved in approving the final product. The patches can be used to teach children their alphabet, colors and numbers, among many other things; and they can be saved as mementos after the child has grown out of his or her onesie.



Teresa Skrepenski was inspired by her niece, Ruby.

EGT: Tell us about your business model.

TS: It is our company's philosophy to give back as much as possible, our highest priority. We partner with organizations to give as much money as possible to families that need it most. Currently we are giving 100 percent of all proceeds because we found an orphanage that we visited in Mexico and felt that we needed to help them. We are currently reviewing what percent we will give moving forward.

There are so many expenses that insurance companies do not cover, so families of preemie babies have to absorb additional costs such as hotel stays, food, rental cars, flights and more.

EGT: Has your personal background helped in creating your business?

TS: When I was a child, my sister and brothers and I had to donate some of our toys before Christmas each year to families who were less fortunate. This really had an impact on me and made me realize at the young age of 5 that there were people in this world who needed help. I later started a scholarship foundation and then created Baby Bubbles.

At 16, I was accepted into a state-funded apprenticeship program in the banking industry, which required that I attend high school and college simultaneously. Once I finished this two-year apprenticeship I earned an occupational proficiency in finance, a high school diploma, and completed two years of



“The patches can be used to teach children their alphabet, colors and numbers, among many other things; and they can be saved as memorabilia after the child has grown out of his or her onesie.” —TERESA SKREPENSKI



The removable and interchangeable Velcro patches have messages with childlike appeal.

targeted financial services experience. Then I earned my associate degree in ethnic studies, followed by a bachelor's degree in international business and a master's degree in public administration.

While earning my bachelor's degree, I studied and worked in England, Sweden, Japan and Jamaica. During my stay in Jamaica, I met with students from a local underprivileged elementary school and quickly realized I could help them. Upon my return to the United States, I contacted a local bookstore to ask if they would donate books to the school in Jamaica if I paid the shipping. I felt so much gratitude that I purchased school supplies in bulk and added them to the box. The school was overjoyed, and I felt like I had made a difference.

EGT: Please share your experience with prototyping.

TS: I think this is the process I enjoyed most. Initially, I created a onesie with snaps that were designed to hold the interchangeable patches in place. Unfortunately, the snaps were so strong that they ripped holes in the onesies. Then I tried creating a clear plastic pocket that was sewn onto the onesie. The idea was to put cute expressions, animals, characters and other cute cutouts in the pocket. This didn't work because the plastic pocket melted in the dryer and the cute cutouts were too small for babies. Finally, we discovered a soft Velcro that was strong enough to hold the patch in place and soft enough for babies.

EGT: Any patents?

TS: We have a provisional patent filed for the patches.

EGT: Is your manufacturing in the USA, or overseas?

TS: We have spent a lot of time looking at manufacturing a product that is soft on a baby's skin, as well as chemical-free. We are working with some wonderful manufacturers who understand our mission and care about the safety of the babies. Currently, we are manufacturing the onesies in the U.S. and the patches are made in Thailand.

As we respond to interest in foreign markets, we know that we will have to go through extensive product testing. We are excited for this next phase and have

seen some interest in both the Japanese and Russian markets.

EGT: Tell us about your experience with Consumer Product Safety Improvement Act testing.

TS: We have a consultant working through the product testing right now.

EGT: How are your products packaged?

TS: I have worked with a graphic designer on my logo, packaging and website. Since the business is mainly online, we spend a lot of time and effort on social media and our website. All onesies are packaged in a clear plastic bag and then in a padded envelope.

EGT: Any new products planned? Do you have a PR campaign?

TS: We will be adding new products in the near future. We are creating organic onesies with playful and inspiring messages.

Our public relations campaign is twofold. We want to educate people about what it means to be a preemie and ways to promote healthy pregnancies via social media.

EGT: What obstacles have you overcome?

TS: Some of the challenges I experienced were in finding a great website builder, locating and securing a top-of-the-line manufacturer with good price points and a great product—and the most important piece, which can be the most difficult is marketing: essentially, getting the word out.

My advice is never to give up and keep moving forward. There are so many great resources out there to help new inventors. ☺

Edie Tolchin has contributed to *Inventors Digest* since 2000. She is the author of *Secrets of Successful Inventing* and owner of EGT Global Trading, which for more than 25 years has helped inventors with product safety issues, sourcing and China manufacturing. Contact Edie at egt@egtglobaltrading.com.





Australian father-and-son team Stuart and Cedar Anderson developed Flow Hive, which harvests honey from pre-constructed beehives without disturbing bees. The crowdfunding campaign raised more than \$12 million.



THE POWER OF PROMISE

CROWDFUNDING HITS FULL STRIDE
AS AN OPTION FOR INVENTORS

BY REID CREAGER

It's not hard to define or even explain crowdfunding, but it's a lot more difficult to pinpoint when it began.

Merriam-Webster's Collegiate Dictionary was a little tardy in adding the term to its pages in 2014, defining crowdfunding as "the practice of soliciting financial contributions from a large number of people, especially from the online community." The entry came two years after President Obama signed the JOBS Act, which allowed companies to get funding through online portals from non-accredited investors (about 97 percent of the U.S. population).

One of the most famous examples of early crowdfunding came in the mid-1880s, when New York World owner Joseph Pulitzer led a campaign to raise \$100,000 to pay for the pedestal on the Statue of Liberty. Kickstarter, one of the major crowdfunding websites, has noted other crowdfunding campaigns dating to the early 1700s. As for online crowdfunding, many sources say that the first recorded successful instance came

when British rock band Marillion funded its reunion tour through online donations from fans in 1997.

Industry statistics say that crowdfunding raised more than \$34 billion in 2015, the last full year for which statistics are available. The three most common types are **equity crowdfunding**, a heavy risk/reward option in which investors get a stake in the company in exchange for investing in the idea; **donation-based crowdfunding**, in which most investors get nothing in return for donating (often tied to charities); and **reward-based or lending crowdfunding**, in which investors get different levels of rewards—often in the form of retail discounts or receiving the product before its general release—based on the amount of their donation.

Savvy innovators realize that although crowdfunding is a multi-billion-dollar industry, it isn't just about raising money. It shows public proof of your invention or concept; provides free publicity and press; can create a community of evangelists; can generate important feedback; could help locate potential partners, and more.



CROWD-PLEASING STORIES

The best crowdfunding success stories aren't necessarily those that involve raising the most money. Successes are often improbable, ambitiously creative, impactful and inspirational.

A wealth of rewards

Flow Hive enabled a young Australian family to escape debt, but more important was the impact on the world environment and current and future beekeepers. Australian father-and-son team Stuart and Cedar Anderson developed a reinvented beehive system that avoids "smoking" the bees and disorienting them. Flow Hive uses simple construction and gravity to harvest honey from pre-constructed beehives without disturbing bees in the hive. Simply twist a knob and the honey falls out, as from a tap.

To the family's astonishment, the product's campaign launched in 2015 raised more than \$12 million—a close second on Indiegogo's list of highest-funded projects. Flow Hive was the fastest to reach \$1 million in funding in the first 24 hours; was the fastest ever to reach \$2 million; and is the highest-funded campaign launched outside of the United States. Up to then, Cedar

Anderson told Indiegogo, the family was "running on a shoestring and just scratching along" to pay the bills. Then, in the middle of the campaign—as the family-dominated company was scrambling to meet the overwhelming demand for Flow Hive and get it shipped to the public—his wife had a baby.

The tumult has been well worth it, and not just for the family: Flow Hive has bigger-picture importance in the context of threatened bee populations. The world's approximately 25,000 species are responsible for pollinating about one-third of the food we eat. In addition, the family hopes that Flow Hive will attract people to the noble art of beekeeping like, well, bees to honey.

"Crowdfunding is amazing because it's allowed us to really maintain the ethics, views and values that are so important to us," Cedar Anderson said.

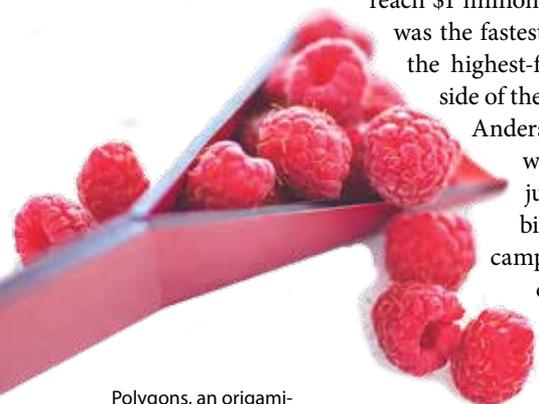


Creative collaboration

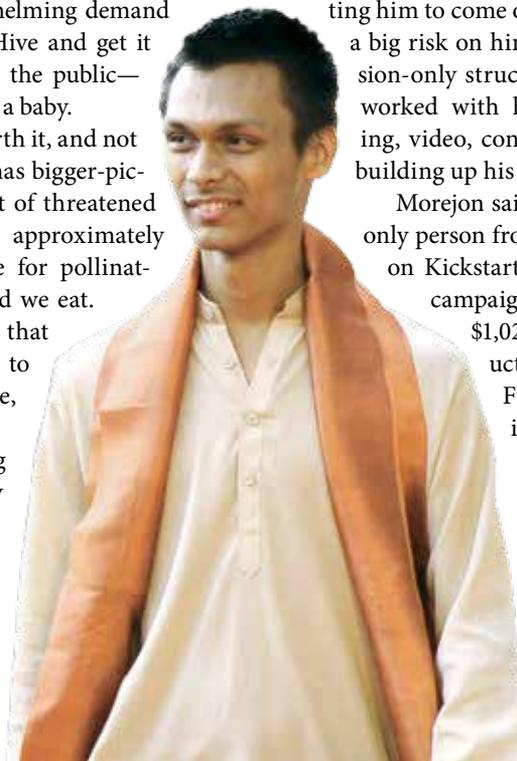
Polygons is a classic risk/reward case study, and not just from the standpoint of the inventor. When Rahul Agarwal approached Command Partners—a Charlotte, North Carolina-based digital marketing company that markets Kickstarter and Indiegogo campaigns—about his idea to reinvent the spoon, management had to get creative about making his dream become reality.

The industrial designer from India "came to us with really no capital whatsoever and was barely able to pay an upfront fee to us," said Roy Morejon, Command Partners president and founder. "Over the year and a half or two years of working with him and helping him with this process, finally getting him to come onboard as a client, we took a big risk on him and just took a commission-only structure with his contract and worked with him on all of the branding, video, concept, design, outreach and building up his database of customers."

Morejon said Agarwal may now be the only person from India to raise \$1 million on Kickstarter after the 2016 Polygons campaign raised a little more than \$1,022,000—not bad for a product that had a goal of \$10,000. Funding reached \$100,000 in the first 24 hours, and Polygons is one of the 30 highest-funded campaigns ever on Kickstarter.



Polygons, an origami-like measuring spoon that lies flat and folds to four different sizes, may have made Rahul Agarwal (right) the first person from India to raise \$1 million on Kickstarter.





An unlikely recipe

How many different approaches are taken for crowdfunding? Lettuce count the ways. Zack (Danger) Brown was anything but specific when he launched a Kickstarter campaign during the 2014 Fourth of July weekend that sought \$10 so he could make a bowl of **Potato Salad**. “Basically I’m just making potato salad,” said the Kickstarter text. “I haven’t decided what kind yet.”

Somehow, the project gained worldwide momentum. Brown added stretch goals that included haikus written for donors, signed jars of mayonnaise and inviting backers to a potato salad party, giving more than 1,000 people a bite of the salad. Nearly 600 of the campaign’s 6,911 backers contributed an ingredient by the time the campaign ended with \$55,492 in contributions.

Another impulse decision during the campaign had a longer-term impact. Brown said that while he was at a bachelor party, he followed a suggestion to add a cookbook to the reward tiers without stopping to think how much work that would require. Last year he finally finished the combined cookbook/memoir that was to be sent free to backers who pledged \$50 or more during the campaign. The book is also available to the general public for \$16.95.

Brown reportedly spent most of the crowdfunding money on a free PotatoStock 2014 festival in Columbus, and made a big contribution to an organization that is working to end hunger and homelessness in Ohio.

Compassion in action

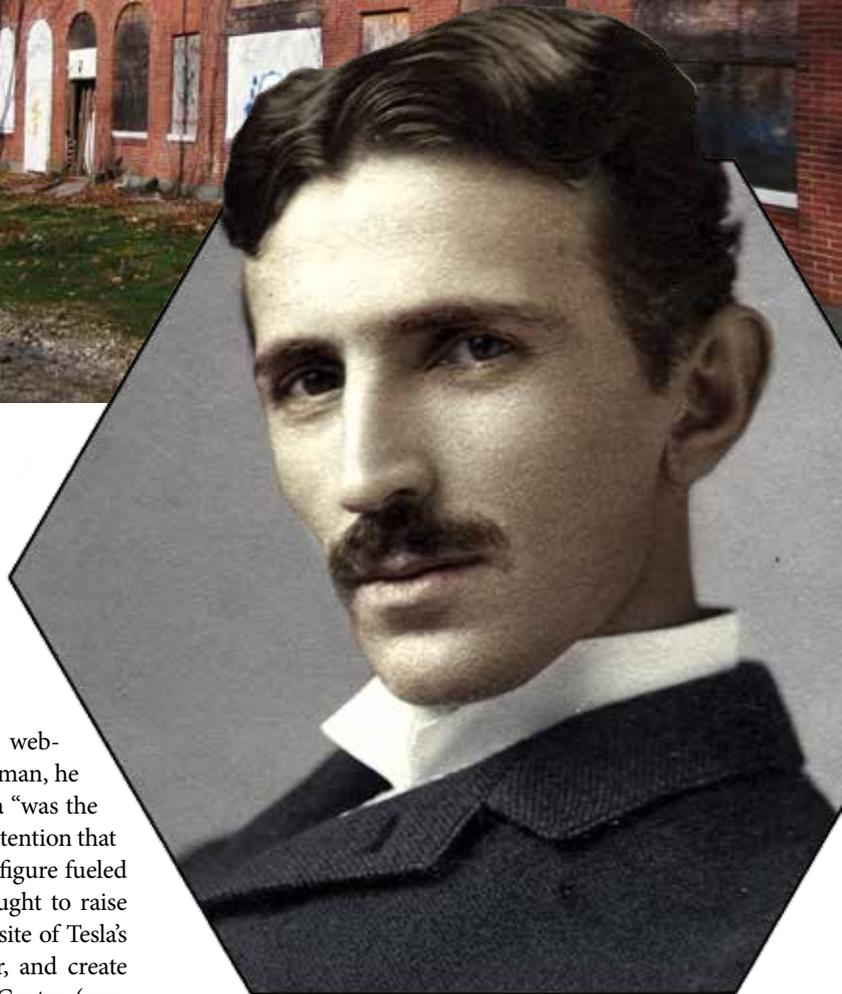
When a video went viral that showed middle-school students bullying and verbally abusing bus monitor Karen Huff Klein to tears, Max Sidorov felt he had to do something. His donations-inspired **“Lets (sic) Give Karen ... A Vacation!”** crowdfunding campaign in 2012 garnered national attention.

Eventually, three videos were shot that showed the abuse of Klein, a widowed, 68-year-old, partially deaf employee of the Greece Central School District in upstate New York for 23 years. The Indiegogo campaign by Sidorov—a Ukrainian immigrant in Toronto who said he was bullied as a child—sought to raise \$5,000 so that the bus monitor could get away for a while. But it topped a half-million dollars in its first few days on its way to amassing just over \$700,000.

Klein’s funded vacation became permanent; the amount of money allowed her to retire later that year. She said she planned to use \$100,000 of the money to establish the Karen Klein Anti-Bullying Foundation.

Klein said she didn’t want to press charges but that the offending students should be punished in some way. They were suspended from school for one year and ordered to perform 50 hours of community service.

Left to right: The Flow Hive system for harvesting honey allows you to simply twist a knob and the honey falls out, as from a tap. Zack (Danger) Brown’s tongue-in-cheek Kickstarter potato salad campaign had a goal of \$10; he raised more than \$55,000. Karen Huff Klein went from bullied bus monitor to celebrity after an Indiegogo campaign raised enough money—more than \$700,000—to allow her to retire.



A 2012 crowdfunding campaign that sought to raise \$850,000 to save the site of Nikola Tesla's incomplete lab, the Wardencllyffe Tower, and create what is now the Tesla Science Center at Wardencllyffe raised more than \$1.3 million.

GIVING TESLA HIS DUE

Rest assured it's a compliment: On the website *The Oatmeal*, created by Matthew Inman, he says inventor and innovator Nikola Tesla "was the greatest geek who ever lived." Inman's contention that Tesla is vastly overlooked as a historical figure fueled a 2012 crowdfunding campaign that sought to raise a highly ambitious \$850,000 to save the site of Tesla's incomplete lab, the Wardencllyffe Tower, and create the Nikola Tesla Wardencllyffe Science Center (now named the Tesla Science Center at Wardencllyffe).

Apparently, at least tens of thousands of others feel strongly about Tesla's impact. The funding goal for **Let's Build a ... Tesla Museum** on Indiegogo was reached in nine days; the grand total was \$1,370,461 on the strength of 33,253 backers. The nonprofit Tesla center purchased the land at the site in May 2013.

Those who donated \$1,000 or more via the crowdfunding campaign were to receive a signed poster

from Tesla's last living relative, William Terbo. There were also rewards, though less tangible, for those who donated a nominal amount.

"Tesla loves the number 3," it says under the Perks section. "And if you donate \$3, Tesla will love you too. If we were alive today he'd totally high-five you and compliment your haircut and/or mustache."

STRATEGY AND PLANNING

Crowdfunding is never one-size-fits all, and it's very nuanced. Strategy and psychology are an important part of the process, especially when setting a funding goal.

"There's a little bit of an art and science to setting the funding goal," said Roy Morejon, president of digital marketing company Command Partners. "For every project it's unique, because every start-up is in a different position in terms of where their product is. Has it been manufactured? Has it been prototyped? What are the steps they need? What is the actual cash they need to push them over the edge and get this product into the market? That's where we discuss and review their assets, their cost per acquisition and the cost to actually manufacture the goods."

From that point, the company will determine how much capital must be raised in order to calculate a funding goal that can be reached in the first day. "We know that if we hit the funding goal on Day 1 that our projection will be much higher, much greater than if we had set the funding goal at a much higher number and waited to get that in Week 1 or Week 2."

This is all part of the psychology. "People want to see that the campaign is successful," Morejon said. "No one wants to be the first one on the dance floor. Once there's a party, they want to join in."

The amount of money needed for start-up capital varies. "There are some companies that we take equity in where we have no upfront fee," he said, "those products that we truly believe in and potentially have a longer-term relationship with those companies. Other companies need capital—whatever it is, up to \$50,000—to not only run the project correctly but advertise it correctly to different online communities."

If you have an invention or innovation that you're considering for crowdfunding, choosing the right platform is essential. Thechanger.org says you also must identify whether you're crowdfunding or crowd-investing, and your main user group. Once the campaign is underway, it's not enough for inventors to sit back and watch; managing is essential. Who will respond to phone calls, emails and more? Who will address issues as they come up? If you go with a company that markets or assists with your crowdfunding, you need to know where they will help and where they won't.

Morejon said that after a crowdfunding campaign is over, "there are companies that we still continue to manage—let's say, social media for them because we've been their voice throughout the entire campaign and built their entire community of brand evangelists. But in terms of structuring their business, that's on them."

5 HIGHEST-EARNING CROWDFUNDING PROJECTS



1 The DAO, \$160 million: The record total was amassed last year. Meant to be a standard-bearer for online currency measures, the Decentralized Autonomous Organization is a venture capital firm. The platform was Ethereum.

2 Star Citizen, \$141 million and counting: As the calendar turned to 2017, Forbes magazine said "one of the most ambitious sci-fi video games of all time" has a "practically unlimited budget thanks to a never-ending army of crowdfunding backers buying virtual spaceships that either don't exist yet, or can't be used in a fully-fledged game." It launched on Kickstarter and later began a crowdfunding campaign on its own site.



3 Elio Motors, \$102 million and counting: A low-cost, high-mileage vehicle with three wheels drives the funding on an independent platform. Elio is the first equity-crowdfunded company to list its shares on public markets.

4 Pebble Time, \$20 million: When Kickstarter's campaign for this ground-breaking smartwatch closed in March 2015, it was the highest-earning crowdfunding effort ever for that platform. No solely Kickstarter-backed campaign has topped it.



5 Prison Architect, \$19 million: Independent distribution platform Steam Early Access led the 2015 crowdfunding, meaning two video games are in the top five richest campaigns.



8 BEST CROWDFUNDING SITES FROM DIGITALTRENDS.COM

1 Kickstarter: Perhaps the best known of all crowdfunding sites, Kickstarter was involved in two of the highest-funded campaigns ever (the Star Citizen video game, at \$141 million and counting, and the Pebble Time smartwatch, at more than \$20 million). The funder's credit card isn't charged until the project meets its goal.

2 Indiegogo: Works much like Kickstarter but also allows for "flexible" funding. The site has less of a focus on physical products versus initiatives. Indiegogo has deals with companies such as Amazon and Brookstone to help them manufacture and bring products to market.

3 GoFundMe: Falls outside the "gadget" spectrum, largely devoted to fundraising for social change and advocacy. More than \$5 million was raised to support families affected by the mass shooting in Orlando last year.

4 YouCaring: This is one of the biggest sites to support grieving and distressed families and individuals. YouCaring allows the user to set goals but operates on an "anything helps" system. The site allows for daily access to funds, which is especially important when it comes to medical bills and final expenses.

5 Crowd Supply: The focus here is on more obscure or geeky ideas: maybe a french press made out of a mason jar, a budget-based stick PC.

6 Crowdfunder: Instead of getting rewards for different funding levels, you get a stake in the company itself. The site requires a minimum investment that can reach four or five figures.

7 Experiment: This site funds scientific research. As with Kickstarter, if the project doesn't meet its funding goals, there is no charge. Before the proposal goes on the site for crowdfunding, it's reviewed to ensure the science is sound and the project is viable.

8 Chuffed: The focus is groups working on a variety of social issues. The site asks for a pitch of 50 words or fewer before approval for crowdfunding.

ARE YOU A GOOD FIT?

Though crowdfunding can be exciting and sometimes lucrative, not everyone is a good candidate for it. Virtually every business enterprise has expenses and risks. Many crowdfunding sites charge a commission, and there are credit card fees. Crowdfunding also comes with its share of hype that doesn't deliver, shipments that don't go out on time, and the occasional scam. And the funding success rate for Kickstarter and Indiegogo campaigns is a less-than-guaranteed 35 percent.

For charitable efforts, donordrive.com warns about risks for larger nonprofits: You may get donations via crowdfunding, but you may not get much information about who gave to you. You can have little or no control over your branding, messaging or the giving process. You can lose up to 30 percent of donations to the platform's commissions. Many medium and large nonprofits set up their own third-party programs, which give donors the chance to give and fundraise for your organization only.

Nonprofits and for-profits alike have the option of angel investors, though a lot of circumstances have to be just right for them to pan out.

Consider whether your venture is in a category that typically thrives in crowdfunding. "We love physical products, tangible goods," said Command Partners President Roy Morejon. "We see a lot of success with technology—companies that are bringing new tech to market through crowdfunding, and the early adopters wanting access to that technology before it comes to the shelves of Best Buy. ... The right design characteristics are also important.

"What doesn't work well for us is software, unless you have a pre-existing database and you're launching version 3, 4 or 5 of that software. You have to have a really big community behind it in order to back it and potentially get that discount instead of paying full price for it that next time around. ... Software is also tough because it's potentially not proven yet. All of the bugs aren't worked out yet. Mobile apps are extremely difficult to crowdfund as well because people would rather wait for it to get in the apps store and have, say, Apple, say 'Yes, it's been approved' before they start putting capital down on an app that they haven't been able to play with and try."

Some companies or inventors don't reach their funding goals because "either they reach their goals and waste the money away due to delinquent founders, or those who don't know how to run a business: shipping and logistics, sourcing and manufacturing it, putting all of these things together to actually start a business."



WHAT'S AHEAD

In an industry that seems inextricably linked to tangible goods, crowdfunding will continue to be associated in some way with the hottest product trends. The recent Consumer Electronics Show in Las Vegas was a veritable robotics showcase, possibly providing a peek into a new crowdfunding frontier.

One of those robots was unveiled at the CES, sparking considerable media buzz. This month's *Inventors Digest* cover subject, Professor Einstein—a 14.5-inch-tall, Wi-Fi-connected robot with more than 50 facial expressions and gestures—is designed to teach kids about science and be a kind of “grown-up” friend. Professor Einstein's crowdfunding was scheduled to begin on January 23.

Roy Morejon of Command Partners, marketers for the Professor Einstein crowdfunding campaign, said there are opportunities for everything to be crowd-funded. “Now we're seeing a more localized effort with not only reward crowdfunding but equity crowdfunding. With the Jobs Act being passed, there's the opportunity for the small pizza shop to try and open a second location with their small community of fans getting involved in owning that next shop that opens up.

“On the reward side, it could be anything that people are going to be passionate about that fills a need and makes that current product seem old, that this is a new version of what's out there. There's also a huge opportunity with the larger enterprise companies, the Fortune 5000 and 10000 companies needing to be innovative and needing to bring new product to market.

Crowdfunding is that way to test a new idea in the market to see if it's going to succeed before they spend millions of dollars on R&D. We're starting to look at a lot more of those.” Morejon said corporate behemoths aren't late to the crowdfunding party; “they've just been sitting on the sidelines and watching.”

Business sectors that have recently begun crowdfunding—including retail, real estate and even insurance—will continue to expand those efforts. British website businessadvice.co.uk predicts that this year, crowdfunding will “cement its position as a mainstream route to funding.” According to the World Bank Report, global investment via crowdfunding could reach \$93 billion by 2025.

This soaring wave will increase the importance of inventors, investors and companies being educated and current on all crowdfunding aspects. Platforms will have to educate investors on the latest crowdfunding-related rules and opportunities in order to win their business as marketing competition increases.

Experts may differ on what will be the biggest future trend in crowdfunding, but most agree that the industry isn't going away. Ron Suber, president of online lender Prosper Marketplace, told the University of California, Berkeley: “I promise you that it's not a fad; it's a mega trend. The amount of benefit that borrowers and investors are receiving is unprecedented in financial history.”

Hanson Robotics' Professor Einstein, meant to teach kids about science, is part of a more recent trend: the crowdfunding of robots.



PHOTO BY FRICK PHOTO

Part 2 of 2

What Makes an IoT Device Tick?

ITS CONNECTIONS ARE KEY TO DELIVERING INFORMATION, ENABLING PROTOTYPES **BY JEREMY LOSAW**

I first became interested in an Internet of Things (IoT) device when I realized it could help me grow my plants.

I have an 8-by-12-foot greenhouse at the end of my driveway that is packed with orchids, my late grandmother's Christmas cactus and my partner Kerry's half-dead Wandering Jew plants that I tried to kill over the summer. Because the greenhouse is small, the temperature and humidity change rapidly inside based on the ambient temperature and sunlight.

After installing a misting system for cooling a few years ago, I wanted a way to monitor the temperature in real time. I found a company called La Crosse Technology that offered a Wi-Fi temperature and humidity sensor, so I ordered one. At less than \$100, it reads the temperature and humidity every five minutes, sends the data to a website and emails you when the temperature goes out of range.

After some frustration with the initial setup, I had the sensor installed in my greenhouse and communicating to a wireless receiver plugged into my router. Once I got it working, I was obsessed with the data. I could log on during a hot day and monitor the temperature and humidity to ensure the misting system was working. One day I could see that the temperatures were going out of range and called my neighbor to make some quick changes, thus saving some plant lives. Eventually I ended up ruining the sensor as I accidentally watered it and fried the circuit board.

I recently replaced it, and my greenhouse is back online. The service has since improved; now I can monitor the greenhouse from an app on my phone.

In Part 1 of this series, I talked about the history of the IoT and some different devices. In this final installment, I will talk about the ingredients of an IoT device, the different communication types, and how to prototype an IoT device.

Ingredients of an IoT device

Three parts make up the core of an IoT product. The first piece is the device that performs a function and sends or receives data. The second is a network connection such as Wi-Fi, Bluetooth or cellular; the last piece is a back-end database or website to manage the data to and from the device.

We can use the wireless temperature and humidity sensor from my greenhouse as an example. The wireless temperature sensor (Part 1) has a module that monitors the temperature of an environment. Inside the sensor is a wireless communication chip that sends temperature data to a receiver connected to a router (Part 2). The router is connected to the internet, where the data travel and are collected by a database (Part 3). The database can be accessed by the user via a website or an app on a smartphone.

Types of connections

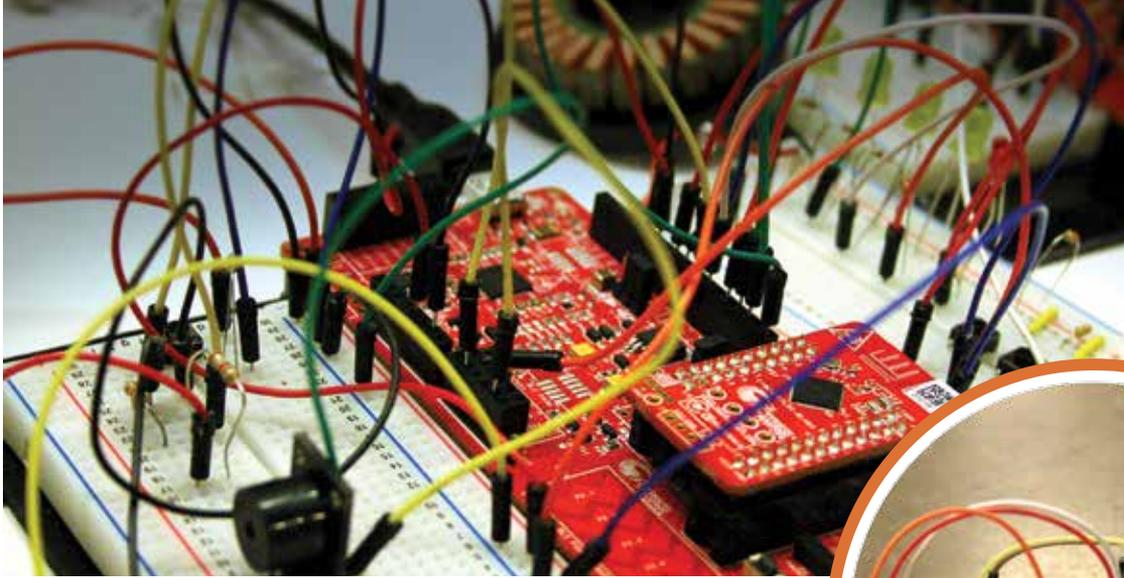
The key ingredient to making the IoT work is the cloud. Although relegated to a buzzword in marketing campaigns, online data storage (and management of that data) is the key to making connected devices work. There has to be some mechanism to get data to the databases, and four main types of connections are used to deliver the information.

Wired: IoT devices do not need to be wireless. It is possible to have a connected device that uses a wired connection for communication. This can be done through a CAT 5- or CAT 6-style cable that looks like an overgrown phone jack. Wired connections have some advantages as they can flow data much faster than wireless connections and are less likely to have loss-of-connection issues.

Wi-Fi: This is one of the most popular ways an IoT device communicates with the internet. It uses a 2.4 or 5 gigahertz radio signal to transmit data between the device and the wireless router. It allows for devices to be placed in areas where a wired connection would not be practical and provides a reliable connection. The downside is that it uses a large amount of power, and the range is only about 200 feet.

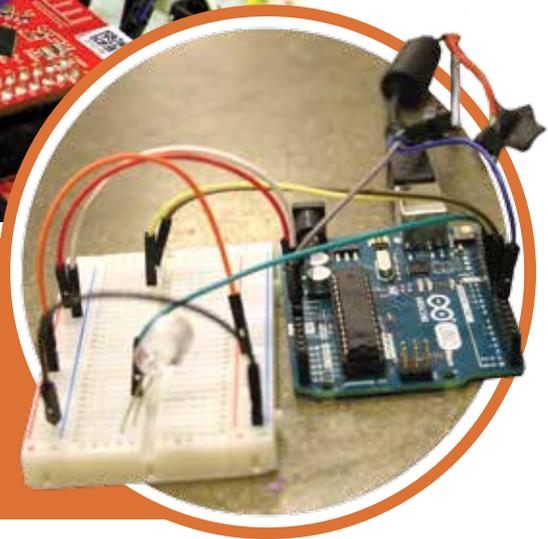
The Cypress Bluetooth Low Energy development board is used for prototyping. The small square board on the right of the photo with the Greek meander pattern is the chip and Bluetooth radio that can be used in the final product.





A Cypress Bluetooth development board has peripheral sensors and inputs.

The core of an Internet of Things product consists of the device that performs a function and sends or receives data; a network connection such as Wi-Fi, Bluetooth or cellular; and a back-end database or website to manage the data to and from the device.



An Arduino microcontroller with a breadboard is used for prototyping.

Cellular: Another wireless way to connect to the internet, cellular connections rely on the network of high-power cellular towers and protocols that define the data transmission. The most common cellular protocol for IoT devices is GSM (Global System for Mobile Communications). Cellular data allow for connectivity to the internet from much further distances than Wi-Fi, but also use a lot of power.

Bluetooth: A popular short-distance, peer-to-peer wireless communication protocol, Bluetooth cannot connect to the internet directly. With a range of about 30 feet, it is primarily used to transmit data between devices while using much less power than Wi-Fi or cellular. Bluetooth connections from an IoT device can be used to get data from the device and transmit it to a smartphone. The smartphone then uses Wi-Fi or cellular data connections to push the data up to the web.

Prototyping an IoT device

Many people have great ideas for connected devices, but it can be a challenge to prototype them. They often have both a mechanical and an electrical component, which makes it doubly difficult. Fortunately, there are good prototyping techniques to get your idea connected to the web that do not require an engineering degree.

The heart of a connected device is a microcontroller, a tiny computer that can be programmed to control the device. One of the most popular and easy-to-use microcontrollers for prototyping is an Arduino, an open-source hardware platform that can read sensors and control servos and actuators. It can also be expanded to add Wi-Fi or Bluetooth communication,

with tons of resources and sample code on the web to help. More powerful microcontrollers such as the Raspberry Pi can be deployed for more complicated projects. The Enventys Partners team has had success using the Cypress Semiconductor Bluetooth chips and development boards, but they are likely a bit too complicated for a novice.

The other side of the IoT equation is the back-end data management, or the connection to the cloud. This is the link between the IoT device and the smartphone or computer being used to monitor it. A number of services can help handle the data management to deploy an IoT device. One of the most popular is Particle.io, which is free for prototypes that have 25 or fewer devices and 250,000 or fewer events to track per month, with additional plans that increase in price depending on the usage. Electronics supply company Adafruit has released a beta version of its Adafruit IO platform to support IoT devices, which is also helpful for prototypers. Amazon also provides an IoT back-end called AWS (Amazon Web Services) that can host IoT databases and handle reporting.

If the technology gap is too large and you still want to bring an IoT device to market, there are specialists that can help you bring your idea to reality. Freelance websites such as Gigster can help you find engineers and software developers that can help build out the sensors and communication to get a prototype together. Holistic design firms such as Enventys Partners provide a full suite of design, development and marketing services, and experience with IoT partners that can help bring the product to life. 📦

A Jolly Good Marketer

INVENTORS CAN APPLY SANTA'S METHODS AND SPIRIT THROUGHOUT THE YEAR **BY JOHN G. RAU**

Though store displays for Christmas long ago gave way to Valentine's Day material, inventors can learn from Santa Claus's approach to marketing and consider it all year.

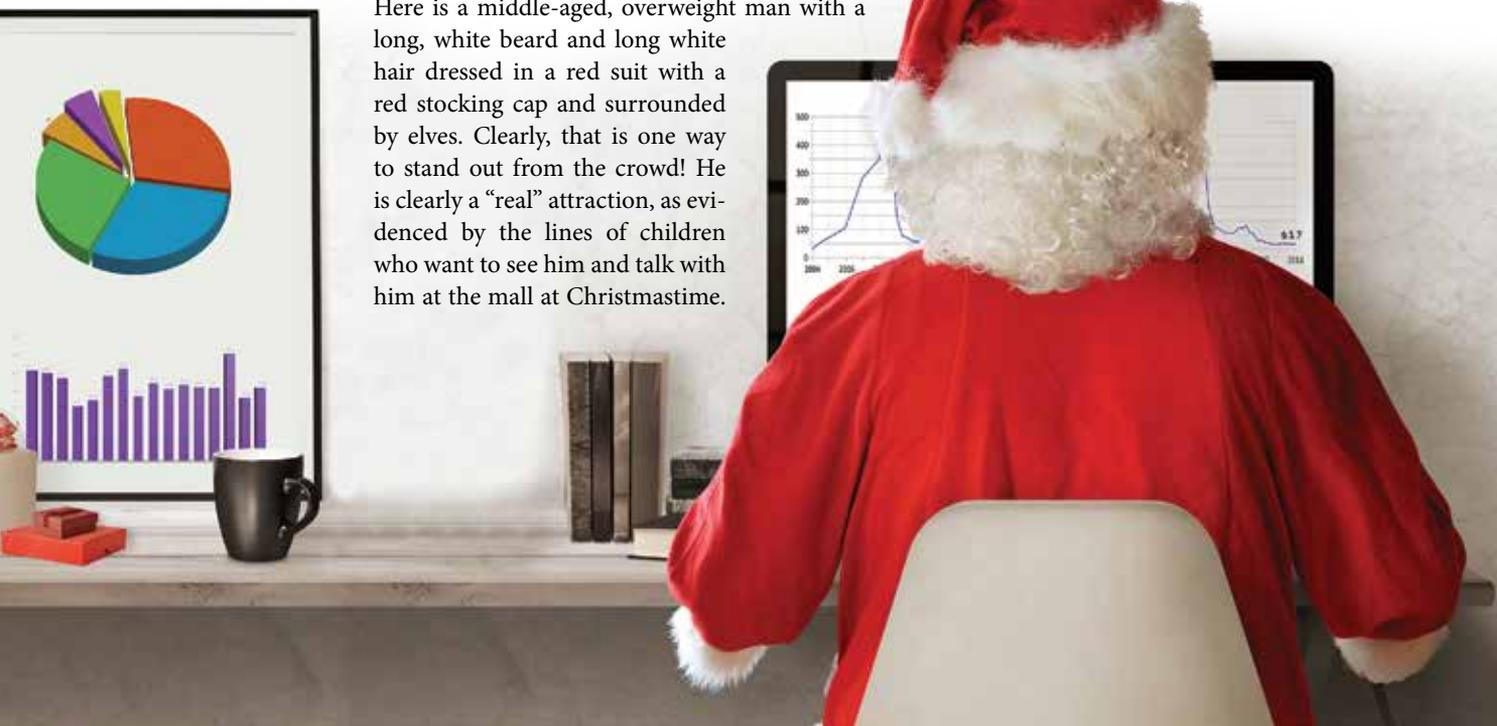
Think about it: Santa has a well-defined target market and understands its demographics—namely, well-behaved little boys and girls worldwide. He has to be the ultimate inventor in the sense of designing a delivery system that meets some enormously challenging requirements. How else can he deliver more than a billion packages to expectant children within a 24-hour period on Christmas Eve?

Santa Claus is in the commercialization business. His approach to marketing his services parallels the many steps that inventors must follow in getting their new invention product into the marketplace. Scott Bowden at Innovation Excellence provided some general themes; here are my suggestions based on those.

- **Wear Attire that Makes One Stand Out from the Crowd:** Look at Santa's approach to standing out from the crowd. He has successfully demonstrated the "wow factor"—that is, "Wow! Look at that!" Here is a middle-aged, overweight man with a long, white beard and long white hair dressed in a red suit with a red stocking cap and surrounded by elves. Clearly, that is one way to stand out from the crowd! He is clearly a "real" attraction, as evidenced by the lines of children who want to see him and talk with him at the mall at Christmastime.

You don't have to dress like Santa Claus to be an inventor, but the message is that in order for your new product or service to be successful, you must have discriminators that enable it to stand out. You want your potential customers to say "Wow, what a great idea!"

- **Make a List and Check it Twice:** You should develop some form of an Invention Business Plan that lists all of the steps and activities you need to successfully develop your new product or service idea. Your "elves" should be able to help. You should also prepare a time-phased schedule of these activities and follow it. Following your plan by making a list and checking it twice is important to ensure you are on track to successful commercialization.
- **Know All the Names of Your Team Members:** Chances are, you don't know everything about everything—which means that you need to surround yourself with people who



are knowledgeable in the areas you are not. You should surround yourself with a team of professionals with expertise in the areas needed, such as a patent attorney or patent agent, product designers, engineers, accountants, cost estimators and pricing specialists, market research and marketing professionals, prototype builders, manufacturing consultants, materials consultants, etc. These are “your elves”! You may even find a “Rudolph” who can lead you through the fog and down the path to successful commercialization. You may not need all of these, but don’t hesitate to get outside help such as some assistance from a college or university business school, or even get involved with a business incubator in your area where you can receive a broad range of services.

- **Embrace Eccentricity:** Clearly, Santa is eccentric. Any guy who fraternizes with elves and uses as his primary mode of transportation a sleigh guided by reindeer has to fit any reasonable definition of eccentric. On the other hand, inventors could be regarded as eccentric because of its association with genius and creativity. So inventors are already eccentric, just like Santa!
- **Have a Jolly Laugh and Show Good Spirit:** As an inventor, you must have a passion for developing your new product idea. It has to be something you really want to do in spite of the risks and potential obstacles. You need to show good spirit, but save your jolly laugh until after you have successfully commercialized your new product idea and have a bank account to support that position. Comedian George Carlin said, “The reason Santa is so jolly is that he knows where the bad girls live.” These people are not part of his target market, but it illustrates the point that you need to understand the demographics of the marketplace you plan to enter. There’s nothing wrong with “laughing all the way to the bank.”
- **Search for Alternate Entry Methods, Such as the Chimney:** Look at the marketing situation faced by Santa. He really only has two choices for delivery of presents into a house: down the chimney if the house has one, or through the front door (or a window). If he comes through the front door, he might be spotted by a neighbor or, worse, wake up the dogs that would bark and wake up the household.

Whether it’s standing out from the crowd, surrounding himself with capable team members, identifying barriers or delivering on dreams, Santa Claus thrives in the commercialization business.

As an inventor, you also need to identify and describe any barriers to entry into your target market and, if there are any, determine how these apply to you and what steps you need to take to overcome them. However, you potentially have more options than Santa to enable you to market and sell your new product. Examples would include through distributors, directly to consumers, internet advertising, major retailers, infomercials, etc. As in the case of Santa, you will need a plan and strategy for doing this.

- **Enable the Dreams of Others:** Santa Claus is all about dreams, delivering presents to all well-behaved girls and boys around the globe. This is similar to the objective of inventors—that is, to deliver a solution to a problem that meets an unmet need for which many people may dream of a solution, and hopefully with at least enough such dreamers to make the new invention commercially viable. Remember that customers spend money because they believe that what they buy can solve their problems, fulfill their needs or satisfy their desires. In order to be successful in the marketplace, you must have a value proposition that captures both the unique value that your invention idea presents and enables a customer to see past the competition and choose you.

There’s much to be learned from Santa Claus’s approach to commercializing his services. He has to have been inventive, or how else could he have met such challenging performance delivery requirements? Besides, he’s been doing this successfully for a long time. 📦

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





Ruling is Another LOW for PTAB

FEDERAL CIRCUIT SAID BOARD USED WRONG DEFINITION OF CBM PATENT

BY GENE QUINN



The United States Court of Appeals for the Federal Circuit recently issued a decision in *Unwired Planet v. Google* that should raise serious questions about what is going on at the Patent Trial and Appeal Board of the United States Patent and Trademark Office. The case asked the court to determine whether the PTAB properly instituted a Covered Business Method review, a controversial form of post-grant challenge created by the America Invents Act that was supposed to be limited to business method patents relating to the financial services sector.

The PTAB has long been criticized for ignoring the limiting statutory language that narrowly defines a CBM patent. The board routinely institutes CBM reviews on patents that do not qualify for the process, having instituted review on graphical user interfaces despite legislative history clearly stating that GUI patents are not to be considered a CBM patent. With its November 21 decision in *Unwired Planet*, the federal circuit has again stood up to abusive PTAB practices and said: Enough!

No basis for review

In this case, *Unwired Planet, LLC* appealed from the final written decision of the PTAB in CBM No. 2014-00006, which was filed by Google, Inc. on Oct. 9, 2013. The patent in question—U.S. Patent No. 7,203,752—is entitled “Method and System for Managing Location Information for Wireless Communications Devices.” The ‘752 patent describes a system and method for restricting access to a wireless device’s location information. On April 8, 2014, the PTAB instituted CBM review of all of the challenged claims.

The PTAB instituted the review on four grounds: (1) lack of patent eligibility with respect to claims 25–29; (2) lack of written description support for claim 26; (3) obviousness of claim 25; and (4) obviousness of claim 25. Ultimately, in the final written decision issued by the PTAB on April 6, 2015, it upheld only the first point, finding that the challenged claims were directed to unpatentable subject matter under Section 101.

But the PTAB used the wrong standard to institute the CBM proceeding in the first place, which led the federal circuit to vacate the board’s decision and remand the case for further consideration by the PTAB—namely, the application of the proper standard.

According to Section 18 of the AIA, the PTAB may institute a CBM proceeding only for a patent that claims a method for performing data processing or other operations used in the practice, administration or management of a financial product or service. Specifically excluded from the definition of a Covered Business Method patent are those that relate to technological inventions. To determine whether a patent is for a technological invention, the PTAB is supposed to consider whether the claimed subject matter recites a technological feature that is novel and unobvious over the prior art, and solves a technical problem using a technical solution.

In deciding to institute the Google-requested CBM against the ‘752 patent, the board did not apply the statutory definition. Instead, the board stated that the proper inquiry “is whether the patent claims activities that are financial in nature, incidental to a financial activity, or complementary to a financial activity.” The board determined that the ‘752 patent was a CBM patent because the location service could involve an eventual sale of services.

PTAB ignored its limits

As the federal circuit pointed out later: “All patents, at some level, relate to potential sale of a good or service.” To allow this PTAB-created standard that has no textual support in the statute to be applied would be to allow virtually any patent to be the subject of a CBM.

The “incidental” or “complementary” language used by the PTAB is not found in the statute. This specific language comes only from a statement by Sen. Chuck Schumer (D-N.Y.) found in the legislative history, which the USPTO quoted in its response to public comments concerning interpretations of the statutory definition of what qualifies as a CBM patent. There were, however, clearly conflicting statements in the legislative history, which makes any statements from that source unhelpful.

The federal circuit explained: “The Board’s application of the ‘incidental to’ and ‘complementary to’ language from the PTO policy statement instead of the statutory definition renders superfluous the limits Congress placed on the definition of a CBM patent. CBM patents are limited to those with claims that are directed to methods and apparatuses of particular types and with particular uses ‘in the practice, administration,

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In explaining its decision for *Unwired Planet* in its case against Google, the federal circuit used this example: “The patent for a novel lightbulb that is found to work particularly well in bank vaults does not become a CBM patent because of its incidental or complementary use in banks.”

or management of a financial product or service.’ The patent for a novel lightbulb that is found to work particularly well in bank vaults does not become a CBM patent because of its incidental or complementary use in banks.

Ultimately, the federal circuit did not reach the merits of the 101 decision. Instead, the circuit vacated the PTAB’s final written decision and remanded “the case for a decision in the first instance, and in accordance with this opinion, whether the ’752 patent is a CBM patent.”

The post-grant administrative proceedings ushered in by the AIA were a horrible mistake. Now that we’ve seen these proceedings play out over the last four-plus years, we know that they are even worse than predicted. The PTAB provides few (if any) procedural safeguards for patent owners; it ignores the statute and does whatever it wants. Recent instances of the federal circuit finding the PTAB inconsistent with the law are on the rise, evidence that the board is out of control. ☹

Gene Quinn is a patent attorney, founder of IPWatchdog.com and a principal lecturer in the top patent bar review course in the nation. Strategic patent consulting, patent application drafting and patent prosecution are his specialties. Quinn also works with independent inventors and start-up businesses in the technology field.



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PTAB Had a Roller-Coaster Year

ITS LATEST PROBLEM: SERIAL CHALLENGES AGAINST THE SAME PATENT

BY GENE QUINN

Few topics in the industry elicit such emotion as the Patent Trial and Appeal Board at the United States Patent and Trademark Office.

Ushered in by the 2011 America Invents Act with the intent of providing an administrative process for getting rid of bad patents, the board has been called a death squad by some and celebrated by others. The truth probably lies somewhere in the middle, but it is extremely difficult to tell. The USPTO provides extremely misleading statistics that seem to have the intent of making the board seem less of a threat than patent owners know it to be.

Further complicating the true story behind the board is a relatively new problem associated with harassing patent challenges. I'm referring to serial challenges against the same patent. We are starting to see a phenomenon emerge whereby challenge after challenge is filed against a patent, only to be denied institution by the board. Then mysteriously, without

explanation as to what changed, an identical challenge is filed and suddenly the board institutes the proceeding on the same prior art that was previously seen as unpersuasive. Worse, the way the statistics are calculated, these serial, harassing challenges make it look as though the board has a lower institution rate.

An example involves inter partes review (IPR), a PTAB trial proceeding that reviews the patentability of claims in a patent only on grounds that could be raised under Sections 102 and 103, and only based on prior art consisting of patents or printed publications. If four IPR review challenges are filed against a patent and all denied but a fifth, identical IPR is instituted, that means that out of those five challenges the institution rate was only 20 percent—hardly anything to get upset about. But that is nonsense. The patent owner had to respond to five challenges and still has to fight the proceeding, so from his or her perspective it might as well be a 100 percent institution rate.

2016 HIGHLIGHTS

Here are the highlights of 2016 for the PTAB, starting with a case decided on the last day of 2015 that found that the board actually does not need to consider timely submitted evidence that a party has a right to submit.

- *Redline Detection, LLC v. Star Envirotech, Inc.*—Timely filed supplemental information does not need to be considered by PTAB in IPR proceeding (federal circuit, Dec. 31, 2015).
- *Ethicon Endo-Surgery, Inv. v. Covidien LP*—The same PTAB panel can decide both IPR institution and merits (federal circuit, January 13).
- *Tradestation Group v. Trading Technologies Int'l*—The PTAB institutes a CBM proceeding on a graphical user interface, which is covered by multiple patents in Europe. This is despite the AIA legislative history clearly saying GUIs are not business method patents subject to CBM, and despite the fact that GUIs are not a business method and offer a technological solution. (PTAB, January 27).
- *Synopsys, Inc. v. Mentor Graphics Corp.*—The PTAB has discretion to institute an IPR and issue a written decision on a subset of challenged claims (federal circuit, February 10).

- *Patent Office Amends PTAB Trial Practice Rules* (April 1).
- The patent office defends the PTAB continually denying motions to amend in a Director's Forum blog by Acting Chief APJ Nathan Kelley (May 9).
- USPTO announces David Ruschke (formerly of Medtronic) as the next chief administrative patent judge, effective May 23.
- *Cuozzo Speed Technologies v. Lee*—The PTAB can apply the broadest reasonable interpretation of patent claims in an IPR; decisions to institute an IPR are not appealable to federal courts. (Supreme Court, June 20).
- *In re Magnum Oil Tools Int'l*—The PTAB Improperly shifted the burden of proof on obviousness to the patent owner in IPR (federal circuit, July 25).
- *Arendi S.A.R.L. v. Apple, Inc.*—The federal circuit rules that common sense is not a substitute for reasoned analysis and evidentiary support (federal circuit, August 10).
- *Veritas Technologies, LLC v. Veeam Software Corp.*—PTAB is arbitrary, capricious in denying motion to amend in IPR

Federal circuit rulings are telling

The arbitrary and capricious nature of what goes on at the board started to come to light last year with several decisions from the U.S. Court of Appeals for the Federal Circuit, after being carefully hidden from the public and excused by both the patent office and the courts for years. This awakening accounts for the board's rollercoaster 2016.

At the beginning of last year, the board was riding high on a wave of complete power with courts deferring time and time again to whatever it wanted to do, and whatever procedural unfairness befell a patent owner. The high-water mark for the board came in June when the Supreme Court issued its ruling in *Cuozzo Speed Technologies v. Lee*, which ruled that the broadest reasonable interpretations standard was acceptable and that IPR institution decisions were not appealable. After that, however, the tide turned decidedly—with the federal circuit finding the board acted arbitrarily and capriciously, and that it was blatantly using the wrong definition of a Covered Business Method patent (see related story) to institute challenges on patents that were not financial business methods.

The year ended with the federal circuit considering whether the board's refusal to allow motions to amend, despite the statute saying they are allowed, is within its discretion. The board is in a very different place than it was at the start of last year. ☛

(federal circuit, August 30).

- *Mylan v. Yeda Research & Dev. Co.*—PTAB invalidates three patents covering Teva's Copaxone, opens door for Mylan's generic version (PTAB, September 1).
- *SAS Institute, Inc. v. Complementsoft, LLC*—Federal circuit denies en banc rehearing, IPR proceedings can be instituted for less than all of the challenged claims (federal circuit, November 7).
- *Click-to-Call Technologies, LP v. Oracle Corp.*—In concurring opinions, two federal circuit judges invite en banc review of a holding that PTAB decisions to initiate IPRs are unreviewable (federal circuit, November 17).
- *Unwired Planet v. Google*—Federal circuit slams PTAB for using the wrong definition of CBM patent, which would make virtually every patent a covered business method (federal circuit, November 21).
- *In re Aqua Products*—On December 9, the federal circuit sat en banc to hear arguments in *In re Aqua Products, Inc.* on the burden of proof applicable to motions to amend patent claims during an inter partes review.

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Patent Venue Case Carries High Stakes

SUPREME COURT RULING COULD HAVE PATENT REFORM IMPLICATIONS

BY GENE QUINN



By recently deciding to hear a patent venue case—*TC Heartland LLC v. Kraft Food Brands Group LLC*—the Supreme Court has agreed to decide whether U.S. Code Title 28, Section 1400(b) is the exclusive provision governing venue in patent infringement actions. Resolving this question could have very large ramifications on where patent infringement cases can be brought by patent owners.

Ultimately, the question that petitioner TC Heartland really wants the Supreme Court to address is whether the Eastern District of Texas, home to 20 percent to 25 percent of all patent litigations, is a proper venue for patent owners to choose. If the Supreme Court issues a ruling that strikes down current patent venue rules, there would be no need for patent venue reform efforts to continue in Congress. On the other hand, if the high court affirms the U.S. Appeals Court for the Federal Circuit in this case, calls for legislative venue reform would likely become deafening.

The statutes in question will be the aforementioned Title 28, Section 1400(b), as well as Section 1391(c). In 1400(b), a “patent infringement may be brought in the judicial district where the defendant resides, or where the defendant has committed acts of infringement and has a regular and established place of business.” In 1391(c), a corporation is deemed to be a resident of “any judicial district in which such defendant is subject to the court’s personal jurisdiction...”

In *Fourco Glass Co. v. Transmirra Products Corp.* (1957), the Supreme Court held that Section 1400(b) is not to be supplemented by Section 1391(c) and that “Section 1400(b) is the sole and exclusive provision controlling venue in patent infringement actions...” Though that might seem to end the inquiry on its face, the federal circuit has for 25 years ignored the Supreme Court ruling in *Fourco Glass* based on the understanding that 1988 amendments by Congress “rendered the statutory definition of corporate residence found in (Section) 1391 applicable to patent cases.” So the federal circuit believes that Congress overruled the Supreme Court’s ruling in *Fourco Glass*, which Congress obviously has the authority to do.

Federal circuit decision

Although this decision will be about whether venue in the Eastern District of Texas is proper, this case originated in the District of Delaware. TC Heartland LLC petitioned for a writ of mandamus to the federal circuit for an order directing the United States District Court for the District of Delaware to either dismiss or transfer the patent infringement suit filed against it by Kraft Foods Group Brands LLC. The panel decision of the federal circuit denied the petition.

Kraft filed suit against Heartland in Delaware, alleging that Heartland’s liquid water enhancer products infringe on three of Kraft’s patents. Heartland moved to dismiss the complaint for lack of personal jurisdiction. It also moved to either dismiss the action or transfer venue to the Southern District of Indiana under U.S. Code 28, Sections 1404 and 1406.

Heartland, a limited liability company organized and existing under Indiana law and headquartered in Indiana, alleged that it is not registered to do business in Delaware, has no local presence in Delaware, has not entered into any supply contracts in Delaware or called on any accounts there to solicit sales. Heartland did, however, admit that it ships orders of the accused products into Delaware, consistent with contracts with two national accounts.

Heartland argued that it is entitled to a writ of mandamus based on two legal theories. First, it argues that it does not “reside” in Delaware for venue purposes according to Code 28, Section 1400(b). Second, it argued that the Delaware district court lacks specific personal jurisdiction over it for this civil action. The federal circuit, in a decision written by Judge Kimberly Ann Moore and joined by Judges Richard Linn and Evan Wallach, concluded that a writ of mandamus was not warranted.

Heartland attempted to make a novel but rather frivolous argument that certain minor amendments to Section 1391 in 2011 somehow re-established the supremacy of the congressionally-overruled Supreme Court decision in *Fourco Glass*. More specifically, the 2011 amendments stated in Section 1391(a) that the section was applicable “except as otherwise provided by law.”

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Heartland argued that because of Fourco Glass, it was “otherwise provided” that Section 1391(c) did not apply to patent cases.

Judge Moore explained the fallacy of Heartland’s argument: “Heartland asks us to presume that in the 2011 amendments Congress codified the Supreme Court’s decision in *Fourco Glass Co. v. Transmirra Products Corp.* ... regarding the patent venue statute that was in effect prior to the 1988 amendments. We find this argument to be utterly without merit or logic. The venue statute was amended in 1988 and in *VE Holding*, this court held that those amendments rendered the statutory definition of corporate residence found in (Section) 1391 applicable to patent cases. With respect to personal jurisdiction, Heartland did not dispute that Kraft’s patent infringement claims arose out of their shipments into Delaware. The federal circuit easily found those contacts sufficient to satisfy the minimum contacts requirement for personal jurisdiction to attach. Whether there is or is not personal jurisdiction over Heartland is not before the Supreme Court.

If the Supreme Court issues a ruling that strikes down current patent venue rules, there would be no need for patent venue reform efforts to continue in Congress. If the high court affirms the federal circuit, calls for legislative venue reform would likely become deafening.

A ‘poor vehicle’

In Kraft’s opposition to the petition for certiorari—a writ in which a higher court reviews a lower court’s decision—counsel for Kraft pointed out that this case is a poor vehicle for the Supreme Court to decide the issued complained about by Heartland relating to forum shopping.

Kraft is correct. Obviously, this case has nothing to do with forum shopping. TC Heartland shipped allegedly infringing products into Delaware and was sued in Delaware. How it can be surprising that it was sued in Delaware is a mystery.

This case is being used by those with an agenda to attempt to make a statement about what is happening in the Eastern District of Texas, in a patent owner-friendly district court. It is unconscionable that the Supreme Court would take this case and force Kraft to play an unwilling and unjustifiable role in a macabre judicial protest with heavy political overtones.

Conclusion

I have little doubt that the Supreme Court will make the wrong decision, as it almost always does in patent cases. But if logic and sanity prevail, the federal circuit will be affirmed. Unfortunately, it will cost Kraft unnecessary legal fees and push back resolution of this infringement matter. ☹

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Supreme Court's Apple Verdict Has Key Impacts

\$399 MILLION DECISION OVERTURNED AS SAMSUNG WINS APPEAL IN SMARTPHONE DESIGN PATENT CASE

BY GENE QUINN AND STEVE BRACHMANN

The Supreme Court's decision in *Samsung Electronics Co. v. Apple* is generally good news for those who hold single-component design patents but not good news for those with design patents covering multicomponent products.

The high court found in an 8-0 vote that a damages award for design patent infringement may be limited to revenues attributable to a component of an article of manufacture and not the entire article itself. The December 6 decision overturned a judgment reached in May 2015 at the U.S. Court of Appeals for the Federal Circuit, which would have awarded nearly \$400 million in damages to Apple Inc. for the infringement of three design patents by mobile devices marketed by Samsung Electronics.

Samsung appealed after the federal circuit upheld a patent infringement award to Apple and found it entitled to receive 100 percent of the profits Samsung obtained through the sale of the infringing smartphones. The award was granted under U.S. Code Title 35, Section 289, which gives a plaintiff the right to a defendant's total profits on an "article of manufacture" deemed to be infringed-upon design patents held by the plaintiff. The Supreme Court did not have a problem with the damages calculation, focusing on what constitutes an "article of manufacture" capable of leading to a total profits award.

Section 289 says: "Whoever during the term of a patent for a design, without license of the owner, (1) applies the patented design, or any colorable imitation thereof, to any article of manufacture for the purpose of sale, or (2) sells or exposes for sale any article of manufacture to which such design or colorable imitation has been applied shall be liable to the owner to the extent of his total profit, but not less than \$250, recoverable in any United States district court having jurisdiction of the parties."

History of the case

This design patent dispute relates to the ongoing patent war between two technology giants. A jury found that Samsung infringed Apple design patents, its utility patents and also diluted its trade dresses. The infringed design patents are U.S. Design Patent Nos. D618,677, D593,087 and D604,305, which claim certain design elements embodied in Apple's iPhone. The infringed utility patents are U.S. Patent Nos. 7,469,381, 7,844,915 and 7,864,163, which claim certain features in the iPhone's user



interface. The diluted trade dresses are Trademark Registration No. 3,470,983 and an unregistered trade dress defined in terms of certain elements in the configuration of the iPhone.

Following the first jury trial, the district court upheld the jury's infringement, dilution, and validity findings over Samsung's post-trial motion. The district court also upheld \$639,403,248 in damages but ordered a partial retrial on the remainder of the damages because they had been awarded for a period when Samsung lacked notice of some of the asserted patents. The jury in the partial retrial on damages awarded Apple \$290,456,793, which the district court upheld over Samsung's second post-trial motion. On March 6, 2014, the district court entered a final judgment in favor of Apple, and Samsung filed a notice of appeal. All totaled, the amount won by Apple as a result of the infringement (i.e., damages as well as pre-judgment and post-judgment interest) reached \$399 million.

On appeal, the federal circuit ultimately affirmed the jury's verdict on the design patent infringements, the validity of two utility patent claims and damages awarded for the design and utility patent infringements appealed by Samsung. The circuit also reversed the jury's findings that the asserted trade dresses are protectable.

The federal circuit's decision from May 2015 upheld the traditional interpretation of Section 289, finding that the whole of the infringing Samsung smartphone products was the only permissible article of manufacture because consumers could not buy the smartphone in individual components. In oral arguments presented to the Supreme Court on October

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12, Samsung's counsel made the case that the damages award should not be derived from the entire profits on the sale of design patent-infringing smartphones when those design patents only covered a portion of the device's appearance.

Article of manufacture

As explained by the Supreme Court, determining the proper damages award under Section 289 involves two steps. "First, identify the 'article of manufacture' to which the infringed design has been applied. Second, calculate the infringer's total profit made on that article of manufacture." Therefore, it was essential to determine the proper scope and meaning of the term "article of manufacture."

Before diving into the critical question, the high court explained that it was making only a limited ruling: "The only question we resolve today is whether, in the case of a multi-component product, the relevant 'article of manufacture' must always be the end product sold to the consumer or whether it can also be a component of that product."

In searching for the meaning of the crucial term "article of manufacture," the Supreme Court consulted the American Heritage Dictionary, which says the word "article" means "a particular thing." The word "manufacture" means "the conversion of raw materials by the hand, or by machinery, into articles suitable for the use of man" and "the articles so made." The Supreme Court concluded that "an article of manufacture, then, is simply a thing made by hand or machine."

Given that a component of a product is a thing that is made by hand or machine, the Supreme Court concluded that the term "article of manufacture is broad enough to encompass both a product sold to a consumer as well as a component of that product." So the high court determined that the narrow interpretation of Section 289 by the federal circuit, which found that the article of manufacture could only cover an end product sold to consumers, was inappropriate.

Case remanded

Samsung and Apple had asked the Supreme Court to determine whether the appropriate article of manufacture in this case was the entire smartphone or a particular component of the smartphone. After deciding that it is possible that an article of manufacture could be a component of the product sold to consumers, the Supreme Court punted on this key question, instead deciding to remand it to the federal circuit for further consideration. The Supreme Court said the briefing was insufficient for it to reach that question.

Those familiar with the Supreme Court will understand that this type of decision is typical for a court that does not like to answer the key question before it, instead preferring to vaguely shed light on the matter and kick it back down for further proceedings by lower tribunals. This type of dance is extremely typical when it comes to constitutional law cases but has been absent with respect to the high court's patent jurisprudence for some time. If anything, this Supreme Court has gone well beyond the questions presented, frequently talking about patent trolls who are not in the room and relying on sometimes-dubious facts submitted in amicus briefs to support its fundamental reconfiguration of U.S. patent law.

Perhaps the decision to say very little is a signal that the court will revert to its traditional preference to decide as little as possible. There is also the outside chance that with only eight justices, the court decided it would be better to say less rather than risk the decision being anything other than unanimous.

What it all means

Because the Supreme Court did not venture down the apportionment rabbit hole and instead decided the case based on what constitutes an "article of manufacture," many design patents should be unaffected. For example, when automobile manufacturers obtain a design patent on a particular part, there should be little serious question as to what will be the "article of manufacture."

The Supreme Court acknowledged as much at the beginning of the decision: "In the case of a design for a single-component product, such as a dinner plate, the product is the 'article of manufacture' to which the design has been applied. In the case of a design for a multicomponent product, such as a kitchen oven, identifying the 'article of manufacture' to which the design has been applied is

a more difficult task."

In this case, Apple obtained a patent on the casing for the smartphone, which meant that a great many things inside the case were not covered by the design patents in question. This made the case more difficult than one in which the design patent is on a single-component product.

Of course, the game now returns to the federal circuit, which must determine the appropriate article of manufacture and come up with a test to satisfy the Supreme Court. Good luck with that! 🍀

Was the appropriate article of manufacture in this case the entire smartphone, or a particular component of the smartphone? The Supreme Court punted on that issue and remanded it to the federal circuit.

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.





PATENTLY SURREAL: Obama's Strategic Plan on IP Enforcement

REPORT FOLLOWS 8 YEARS OF SETBACKS FOR GRASSROOTS INNOVATORS

BY GENE QUINN

In December, weeks before the end of President Obama's second term, his administration released a joint strategic plan on intellectual property enforcement for fiscal years 2017 through 2019. The section on patents, which begins on page 134, reads like a cross between a Monty Python skit and a Soviet-era, propaganda-laden report.

Perhaps the Obama Administration was trying to brainwash the entire industry into believing that the president had been a tremendous defender of the U.S. patent system. That will not be how the Obama years are remembered by innovators and patent owners.

The reality is that the future of American innovation has been forfeited (or at least heavily mortgaged) by a calculated dismantling of the U.S. patent system for the benefit of a handful of politically well-connected companies that helped the president get elected and re-elected. America is left with a patent system that works tremendously well for several dozen well-to-do multinational corporations in Silicon Valley but no longer works for anyone else.

The beginning of the section on patents reads: "Patent-intensive industries are a driving force in the U.S. economy. According to a recent Department of Commerce report, the value added by patent-intensive industries in 2014 was \$881 billion, which was 5.1 percent of U.S. gross domestic product. Supporting efficient and predictable patent protection policies that promote investments in research and development is key to the continued growth of innovative economies."

Yes, patent-intensive industries are responsible for a great deal of economic activity in the United States. It is also true that efficient and predictable patent



protection policies promote investment and are responsible for the growth of innovative economies. Why, then, did President Obama spend so much of his time in office interjecting uncertainty into the patent system? Let's walk through some patent "highlights" of the Obama years.

Recalcitrant examiners

The only certainty in the U.S. patent system is that the law is hopelessly uncertain. Numerous patent examiners working for the U.S. Patent and Trademark Office refuse to issue patents and openly tell patent practitioners and innovators that they will never issue a patent, haven't issued a patent in years, and nothing they say will matter. These recalcitrant patent examiners proudly proclaim that they ignore rulings from the United States Court of Appeals for the Federal Circuit—and when they are reversed on appeal by the Patent Trial and Appeal Board, rather

than issuing a patent, they reopen prosecution to continue to harass applicants.

On top of this, the patent office is unable to control patent examiners who are engaging in widespread time and abuse fraud, according to the Commerce Department's inspector general. One examiner who was caught submitting more than 700 hours of fraudulent time wasn't fired or reprimanded; he left the office so that he didn't receive a negative performance review.

To call the American patent protection process arbitrary and capricious is insulting to those things in our society that are merely arbitrary and capricious.

Patent Trial and Appeal Board

The PTAB has become the most important and influential entity in the patent industry. This group of appointed Article II administrative law judges makes decisions that cannot be reviewed by any Article III court, not even the Supreme Court. The PTAB has increasingly come under fire from the federal circuit for acting in arbitrary and capricious ways, which is almost impossible to do given the extraordinary burden required to demonstrate an agency has acted arbitrarily and capriciously.

The PTAB ignores the statute it is charged with implementing and the legislative history as well. For example, it institutes Covered Business Method challenges against patents that are clearly not business method patents

The board also refuses to allow patent owners to amend claims challenged in post-grant proceedings, despite a statute that says amendments are allowed and a legislative history that is enormously clear and on point. The patent office has defended the PTAB refusal to allow amendments and the asinine argument

that the law allows patent owners to file a motion to amend, but it doesn't require the board to grant that motion to amend.

The PTAB has also said it does not need to consider timely filed evidence if it doesn't want to. The PTAB has a perverse incentive to initiate proceedings when multiple challenges are made against the same patent or patent family because those deciding whether to institute will decide the case on the merits, and if they have multiple challenges on the same patent they find it much easier to achieve their work production goals.

PTAB rules and procedures have fundamentally and systematically deprived patent owners of even the most basic due process in what is a thoroughly one-sided proceeding.

The courts

During the past six months, the federal circuit has finally started to find at least some software patent claims to be patent eligible. However, several federal circuit judges have never and will never find software patent eligible. At best, the test for patent eligibility is a subjective test, as admitted by the circuit in *Enfish v. Microsoft*. That means the test is not reproducible and will be panel dependent.

If you get the right panel of judges, you have a chance. If you get the wrong panel of judges, you have no chance as a patent owner or innovator. The only predictability comes after you know who is on the panel, which doesn't happen until you walk into the courtroom to argue the case. But even then, you can't be sure. The federal circuit is so horribly overworked that the court seems to be giving very little thoughtful consideration to most cases. Seventy percent to 80 percent of decisions are either one-sentence affirmances or nonprecedential opinions—and the dirty little secret is that nonprecedential opinions are frequently written by staff attorneys, not the judges.

The Supreme Court is openly hostile to patents. It does not understand patent law, does not understand innovation, and is arrogant in its ignorance. Short

of removing patents from the Supreme Court jurisdiction, the only thing that could help is legislation that thoroughly overrules all of its recent patent eligibility cases and does away with the judicial exceptions to patent eligibility—which are the Supreme Court's way of having created a tool that allows it to ignore the statute it is supposed to interpret.

Worrisome trends

The idea of creating the PTAB came from legislation supported by the Obama Administration and enacted by Congress. The PTAB has run amok, destroying patent value and crippling investment in innovative start-up companies. Patent valuation has been more than cut in half since the enactment of the America Invents Act.

The post-grant procedures of the AIA have been so successful in killing patents,

the time and resources required to invent and innovate. Research and development would be even riskier investments, with little to no assurance that such investments would or could be commercially put into use. Simply put, facilitating efficient and predictable patent protection policies harnesses the drive and ingenuity of our innovators and helps ensure that our economy remains innovative and competitive.”

Yes, large corporations are openly engaging in efficient infringement, which is just a sanitary way of saying they are stealing. With a patent system that has been so thoroughly crushed in the past eight years, patent owners see large corporations simply take their patented innovations, incorporate them into their products or services, and never have to pay a dime. Given how easy it has become to kill patents at the PTAB and how the courts have

To call the American patent protection process arbitrary and capricious is insulting to those things in our society that are merely arbitrary and capricious.

the legislation is even being used to challenge and kill biotech and pharmaceutical patents. Much ink has been spilled about the challenges funded by hedge fund billionaire Kyle Bass, but the biotech and pharmaceutical industry also find themselves being challenged, and losing patents, after being challenged by generic manufacturers. The biotech and pharmaceutical industries supported the AIA and didn't believe the post-grant procedures would ever be used against their patents. This grave miscalculation will cost the biotech and pharmaceutical industry billions of dollars.

The strategic plan also says: “Without effective mechanisms to protect intellectual property rights, including patents and trade secrets, competitors could simply sit back and copy, rather than invest

fundamentally changed the law of what is patent eligible, efficient infringement is a wise business strategy. Why pay for what you can steal without consequence?

The problem is that this wise business strategy is destroying the U.S. innovation economy because it is the individual, the small business, the start-up that innovates—because innovation requires risk-taking and dreams. Large entities generally do not take risks; they worry about shareholders and increasing stock prices.

All the while, China is becoming a better place for innovators. It is easier to obtain patent protection in China, and patent owners succeed 80 percent to 100 percent of the time when they bring patent infringement cases there. How long before start-up companies start moving out of the United States and to China? ☞



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"Flash of Genius" is written by Susan Gougian, inventor and business owner. In a recent interview, Gougian said that she wrote the book in response to the many questions about inventing that she was asked by family, friends, and acquaintances. The author went on to say that many people have great ideas, and that "Flash of Genius" is a book that readers will refer to over and over again as they develop their ideas into useful inventions.

Susan Gougian is a graduate of the University of Massachusetts, Boston, and the president of PortionMate Inc., a health and wellness company. The author is happy to answer questions about inventing and may be contacted at info@portionmate.com.

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What IS that?

The name says it all when it comes to the iPotty, from CTA Digital. The device, intended to make potty training less stressful, features a stand that securely holds an iPad and entertains kids while they play with apps. The iPotty has been controversial since its unveiling, when the Campaign for a Commercial-Free Childhood named it the worst toy of 2013. Yet despite those who think the invention is a wee-wee bit much, it's still being sold. "How about an iPotty for adults?" you may muse. That's been done, too.

Wunderkinds

Seventeen-year-old **Alex Wulff** of Skaneateles, New York, already has multiple inventions that could be of major significance to society. In 2015, he designed and built small, inexpensive devices that scan the path in front of a visually impaired wearer and vibrate to alert him or her to the closeness of objects. HaptoTech won the top award at the 2016 Central New York Science & Engineering Fair. Last year, he created sensors that are placed inside of casts for the purpose of alerting orthopedic doctors to possible problems, winning him a Patent and Trademark Office Society special award.

1,400

The different kinds of cards made specifically for Valentine's Day by Hallmark Cards, which some people mistakenly assume invented the holiday. According to statisticbrain.com, 85 percent of valentine cards are bought by women. Men purchase 73 percent of all Valentine's Day flowers, although 14 percent of women send themselves flowers on that day.

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WHAT DO YOU KNOW?

1 Which food did Thomas Jefferson invent?

- A) Macaroni and cheese
- B) Ice cream
- C) French fries
- D) A and C
- E) None of the above



2 **True or false:** A new line of vaporizer pens dispenses cannabis oil (marijuana) that can help relieve pain without making people high.

3 **True or false:** A patent only gives its owner the right to exclude others from making, selling and using the invention.

4 Why did Emile Berliner invent the microphone, in 1877?

- A) He had an injury to his larynx
- B) To improve the voice quality in telephones
- C) He was a preacher who had a large congregation
- D) None of the above

5 Which was invented first—the VCR, or the compact audio cassette?

ANSWERS

1. E. Jefferson helped popularize all three foods—and even sketched a macaroni machine—but didn't invent any of them. 2. True. The Hmbldt Vape Pen, available only in California at this point, hasn't been vetted by doctors but could become more commonplace as medical marijuana gains acceptance. 3. True. 4. B. 5. The Ampex VRX-1000 videotape recorder was introduced in March 1956 (and cost about \$50,000); the cassette was invented by Philips Inc. in 1962 and introduced in 1963.

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