AUGUST 2019 Volume 35 Issue 08

ADDING SAFETY, COMFORT

ADDING SAFETY, COMFORT TO CHILDREN'S LIVES

Hope for Patents Getting STRONGER LAWMAKERS SEEK MORE PROTECTIONS

The Strange Saga of the Slinky INVENTOR ABANDONED AN ICONIC TOY

10 SEO Basics MAKING YOUR WEBSITE SEARCH ENGINE FRIENDLY

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EDITOR'S NOTE



Best-ever Inventions for Kids? That's Sticky

Inventions for kids are as limitless as a child's potential and imagination. Little wonder that this month's treatment of the topic in *Inventors Digest* spans 12 pages—which obviously just scratches the surface.

Given the vast array of inventions conceived for kids' safety, comfort and fun throughout history, it's challenging to try to name the top five of all time. The website How Stuff Works gave it a shot, with interesting and mixed results.

HSW identified playgrounds as No. 1—an interesting choice but for the fact that a playground space is not technically an invention, and no one person has been credited with the idea.

No. 2, bubble gum, missed the mark. Kids may love it and it may be identified with them, but so is the fact that it's bad for their teeth and often ends up under a desk or on the bottom of your shoe. Third was the iconic Hula Hoop.

The fourth spot went to car seats. It makes sense that car seats made the list, but it's a mystery how an invention that has saved millions of kids' lives could rank below bubble gum and the Hula Hoop. Fifth place went to toy balloons.

Inspired by How Stuff Works' fun and daring list, I put together my own. The car seat seems an obvious No. 1. (Not coincidentally, two stories in this month's Kids Stuff section are associated with it.) And although playgrounds may be a somewhat hazy invention, they have had so many social and physical benefits that I'll rank them second.

Originating as sand gardens in Germany in the late 1800s, they first appeared in the United States in Boston in 1886. Playgrounds became a haven from poor air quality, cramped living spaces and social isolation though it must be noted that the U.S. Consumer Product Safety Commission says more than 200,000 kids go to the emergency room each year because of playground-related accidents.

My No. 3, the ubiquitous modern student backpack, evolved from backpacks used for the outdoors. *Time* magazine reports that Gerry Outdoors claims to have created the very first "modern nylon backpack in existence" for students in 1967.

How about the jump rope? Another iconic invention for kids and usually associated with girls, it's a classic no-frills concept that promotes exercise, creativity through different games, and socialization. The lunch box, often a kid's personal statement that has many vintage examples commanding big money as antiques, rounds out my list.

What is your top five? Drop us a line here or at inventorsdigest.com, and become part of the discussion in our monthly "Everybody's Talking" feature.

—*Reid* (*reid.creager@inventorsdigest.com*)

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American innovation needs to hit the gym









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Cecilia Tsai, co-inventor of the MiaMily HIPSTER Plus 3D carrier; photo courtesy of MiaMily

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CORRESPONDENCE

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

"The Curse of the Lonely Patent" (July 2019):

Author Louis Carbonneau contends that companies aren't licensing single patents. If that were entirely true, we independent inventors would be out of business. But Carbonneau is doing business in the major leagues, and we "indies" find our markets in the minors.

As I have advocated in some of my prior articles, we should invent products that appeal to the smaller corporations. We are out of our depth in trying to interest the car companies or Apple about some great product idea we came up with. These super-large corporations have an encyclopedic file of patents that almost certainly covers what we think is novel.

Even if we do come up with a novel idea, we are often up against "efficient infringement"—a cleanedup expression that stands for: "It's more profitable to



Who is the real Tom Terrific?

Most anyone with even a rudimentary knowledge of sports in the past 50 years will say it's Tom

Seaver, the Hall of Fame pitcher and most famous player in New York Mets history. Seaver was unofficially given that nickname—but never trademarked it—after leading the "Miracle Mets" to a World Series victory 50 years ago.

But on May 24, New England Patriots quarterback Tom Brady and his firm TBE Capital filed two trademark applications for "Tom Terrific." Gerben Law Firm PLLC of infringe and risk a lawsuit than it is to pay royalties." So, for those two reasons alone we should invent for smaller companies, those that don't have a large file of patents.

Smaller companies usually have a few patents on features of products that they produce, and perhaps a patent or two from inventors outside of the company. And smaller companies usually don't have a huge budget for the development of products. Thus, if

an attractive product comes along, they may grab it. It must, of course, have a patent, or a least a patent applied for.

> —JACK LANDER, INVENTORS DIGEST CONTRIBUTOR



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

BRADY'S TIMING NOT TERRIFIC

Philadelphia said the trademark would be used to sell Brady memorabilia.

A couple weeks later, Brady said he doesn't even like the nickname and only filed to prevent other attempts to trademark the monicker.

The Mets and their fans were furious largely due to the poor timing of Brady's decision. In March, the Seaver family announced that the legendary pitcher, 74, will remain out of the public eye for the rest of his life because of his worsening case of dementia.

The Mets contacted the United States Patent and Trademark Office in an attempt to convince it to reject the Brady filing.

Two Mets from the 1969 team, Ed Kranepool and Art Shamsky, recently joined fans at Manhattan's Sojourn restaurant to protest Brady's move. They strongly maintained that Seaver is the only person who should have that nickname. "If he can't talk for himself, we certainly can talk for him," Kranepool said.

The trademark issue quickly caught fire on sports talk radio and elsewhere. Ronaldo Sosa, a 52-year-old Mets fan, said of Brady in the *New York Post:* "Go back to deflating footballs, you jerk."

Meanwhile, Patriots fans used social media's primary tool of rage—Twitter to return fire: "6 Super Bowl Rings!!!!!! TOM TERRIFIC!!!!!! 1 World Series! Tom Terrific!"

Almost lost in the bickering was the fact that there was a Tom Terrific before Tom Seaver.

Tom Terrific was a Terrytoons cartoon that appeared on the "Captain Kangaroo" TV show in the 1950s. It followed the adventures of a boy who could turn into whatever he wanted to and fought villains with his sidekick, Mighty Manfred the Wonder Dog. Terrytoons' two Tom Terrific registrations have expired.

BRIGHTIDEAS

Fourneau 2.0

BREAD OVEN fourneau.com

This updated version, featuring several new components that work with the original base and cover, uses the super-heated container method of baking to make it easy to bake beautiful bread at home. Many components are made of cast iron.

Fourneau's new design includes a removable handle so you don't have to touch anything while baking. It is also easier to load and unload bread from the oven because of a baking tray that stays in the baking chamber. A silicone baking mat—a perforated mesh sheet—allows moisture from the bottom of the loaf to wick away, creating a crispy bottom.

The 2.0 has a retail price of \$244.



Aduri MEDITATION CUSHION, STUDIO medium.com/aduri

The Aduri cushion's proprietary multisensory system integrates with original meditation content and your personal biometrics, with an aim of maximizing the best personalized meditation guidance. The cushion is supportive and comfortable.

The system is tailored to learn your preferences, experience level and goals. Content includes a variety of guided meditations, music and soundscapes. You can track progress to see how your body improves. A gentle light reminds you of your practice and scheduled sessions.

Aduri will have a retail price of \$200 and begin shipping in March.

Shepherd SMART DOOR LOCK

shepherdlock.com

Shepherd Lock can convert your existing door hardware into a unique touch sensor (no fingerprints, just the touch). Your door hardware will be maintained, and your existing keys still work.

0

The product is billed as the first and only smart lock that can detect and thwart lock-picking attempts. To install, using only a screwdriver and two AA batteries: Remove the inside cylinder housing of the thumb-turn deadbolt; install the mounting bracket; screw the Shepherd module to the door; then snap on the magnetic cover. The door will only unlock if you have a key-fob or smartphone key within the Intelligent Authentication Zone[™].

Shepherd Lock, which will retail for about \$300, begins shipping to crowdfunding Rewards backers in February.

"Television is like the invention of indoor plumbing. It didn't change people's habits. It just kept them inside the house."

-ALFRED HITCHCOCK

Handy Gym

PORTABLE INERTIAL TRAINING handygymfit.com/en/about-us/

In the form of a 2-lb. accessory, Handy Gym uses developed NASA isoinertial technology for functionality and efficiency that is comparable to large gym machines. You can perform more than 200 exercises, and the system can fit into your suitcase or backpack.

The product, built around a pulley system, uses interchangeable weights and a variety of attachments and accessories. Choose from three discs (blue, yellow or red) for lighter or stronger inertia levels.

Built-in activity sensors connect with a mobile app via Bluetooth to monitor performance and display results in real time.

Handy Gym will retail for about \$500, with shipping scheduled for January.

Fortunate Nisstep Iconic slinky was an accidental Discovery, abandoned by its inventor

THE WORDS "accident" and "definition" on a major search engine, and the first entry says: "an unfortunate incident that happens unexpectedly and unintentionally, typically resulting in damage or injury."

But what about accidents that are not unfortunate? The Slinky springs to mind.

It was 1943. Richard James, a naval engineer, was trying to develop a meter for measuring horsepower on naval battleships. During his work with tension springs, one of them fell from a shelf to the floor.

The spring didn't stop moving when it landed, briefly "walking" along the floor. An idea for a children's toy was soon put into motion.

Sleek, sinuous

James spent the next two years trying to determine the best steel gauge and coil to use for his toy. According to theinventors.org, James's wife, Betty, found a name for the invention after seeing in the dictionary that the word "Slinky" is a Swedish word meaning traespiral—sleek or sinuous.

The toy's viability was cemented at Christmastime in 1945, when the nervous couple unveiled the Slinky at Gimbels department store in Philadelphia. Their anxiety disappeared when 400 sold for a dollar apiece in 90 minutes.

"A Slinky just sitting there isn't very exciting. It has to move," Betty James told CNN.com in 2001. "It if hadn't been for Gimbels giving us the end of a counter to demonstrate, I don't know what would have happened."

A similar success at the 1946 American Toy Fair was all the vindication the couple needed. The patent filing date was Aug. 21, 1946. The following January 28, U.S. Patent No. 2,415,012 was issued. Richard James's engineering background doubtless helped when crafting language for the patent, in which the Slinky is described as a helical spring toy that can walk down an inclined plane or flight of steps without the application of external energy. The toy was designed to have a low natural frequency between 10 cycles and 100 cycles per minute.

The patent also describes the importance of coiling the spring steel without substantial compression or lateral force tension to support the free movement of the spring.

Saving Slinky

Richard James was the initial impetus for the Slinky, but his wife played a much more prominent role in keeping the toy alive.

In 1960, the couple founded the James Spring & Wire Co. with \$500 and began production. To this day, all Slinkys are made with the original equipment designed and engineered by Richard James. Each one is made from 80 feet of wire.

That's where his association with the toy ends. Shortly after cofounding the company, he left his wife, six children and the company to join a Bolivian religious order. He had donated so much to the order that the company was on the brink of collapse.

Betty James took over as CEO, moved the company from Philadelphia to its current Hollidaysburg, Pennsylvania, location—while scrambling to make arrangements for their children and stay in their lives—and started an advertising campaign that included the famous 1960s Slinky jingle (youtube. com/watch?v=EZL6RGkPjws).

She eventually replaced the Slinky's blue-black Swedish steel with silver-colored U.S. metal and added spin-offs to the line. Richard James died in 1974; Betty James died in 2008, seven years after becoming one of few women to be named to the Toy Industry Hall of Fame.

Well over a quarter billion Slinkys have been sold worldwide. "No batteries, nothing to wind up," Betty James was quoted as saying in the Los Angeles Times. "These new toys on the market are lovely, but not everyone has \$40, \$50, \$60 to spend on a child." ♥

—Reid Creager

How Does It Work?



the educational television program "Newton's Apple": "As the Slinky moves down the steps, energy is transferred along its length in a longitudinal or compressional



a longitudinal or compressional wave, which resembles a sound wave that travels through a substance by transferring a pulse of energy to the next molecule. How quickly the wave moves depends on the spring constant and the mass of the metal.

"Other factors, such as the length of the Slinky, the diameter of the coils and the height of the step must be considered to completely understand why a Slinky moves as it does."

When the Slinky was unveiled at Gimbels department store at Christmastime in 1945, 400 sold for a dollar apiece in 90 minutes.

INVENTOR ARCHIVES: AUGUST

August 19, 1883: Gabrielle "Coco" Chanel, a famous French fashion designer who invented the house of Chanel, was born.

Chanel's designs emphasized simplicity and revolutionized the fashion industry. Her innovations included the Chanel suit, the quilted purse, costume jewelry and the "little black dress."

N*5

CHANEL

She is best known for the perfume Chanel No. 5, which she introduced in 1921 with the help of Ernst Beaux. The perfume purportedly got its name from the series of scents Beaux created for Chanel to sample; she chose the fifth, a combination of jasmine and several other floral scents.

Chanel was the first major fashion designer to introduce a perfume, replacing typical perfume packaging with a simple and sleek bottle. She died in 1971.

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Dealing With **Rejection**

BAD NEWS ON YOUR PATENT CLAIMS? CONSIDER 3 FACTORS BEFORE SPENDING MORE TIME AND MONEY **by jack lander**

ERE'S THE SCENE: Your patent professional (patent agent or patent attorney) has invited you to his or her office to discuss the "first office action" received from the United States Patent and Trademark Office.

So, you meet and are shown a response that has rejected 11 of your 14 application claims. You ask if there is any hope of saving most of the claims through a rebuttal. The attorney promises to try.

You know that a rebuttal will take research and the writing of a good argument that convinces the patent examiner that his or her interpretation was wrong.

But there is no need to decide at the time of your meeting. Also, you haven't done enough analysis to make the best decision. You need to take your time and consider three things before committing to more expense.

- Which independent claim(s) was rejected?
- Did that claim cover a feature of your invention that was essential to the patent's value for licensing?
- What are the "ballpark" odds of being able to salvage the essential claim(s)?

Determining the odds

The first point above was settled by the patent examiner. The second point must be answered by you. The third should be answered by your patent attorney.

Are the odds 10 percent or 50 percent that your rebuttal will prevail? This is a fair question, and it should be answered by the patent professional.

No one can say with certainty what the odds are, of course. Remember, there are two aspects to the licensing value of your patent: the *probability* of salvaging the essential independent claim, and the value of that claim for licensing.

The probability question is answerable only by your patent professional. The commercial value of that claim is answerable only by you. Patent professionals are not experts in marketing a patent (licensing it or selling it outright).

Most patent applications that are drafted for independent inventors have only one or two independent claims, rarely three. Thus, the odds are high that any independent claim permanently rejected will change the marketing value of your issued patent dramatically.

My main point is that I've known many inventors who didn't understand the key points of a patent application, or of the patent itself, and paid a lot of money for an essentially worthless patent.

If you don't understand what independent and dependent claims are, ask your patent agent or attorney. Better yet, purchase a copy of David Pressman's book, "Patent it Yourself."

Know what is covered

Although I don't advise you to attempt to write your own patent, I urge every inventor who is not experienced in filing for a patent to study Pressman's book before talking to a patent agent or patent attorney. Remember, attorneys charge by the hour, and the more you know about the essentials of patentability and application filing, the less you'll be charged for your patent.

Now, if your patent agent or attorney tells you that the odds of salvaging the initial rejection are low and you decide to abandon the application, your main option is to produce and market your invention on your own. But to be sure that you will not infringe on another patent holder's patent, you must obtain a "freedom to operate" opinion from your patent professional.

In other words, are there current patents, or published patent applications, that cover features of your invention that you will use in your produced design?

In my opinion, this question should be answered before filing. It should be a regular part of the application process. Here's why: If your patent issues, and your potential licensee has to pay royalties to you *and to another inventor* for features that are included in your invention, but not claimable by you, your chances of landing a licensee are reduced. Even if a producer is willing to pay, say, a 5 percent royalty, if that producer has to pay two inventors, your royalties will be cut in half, or thereabouts.



6 crucial cautions

Let's take the position that even though your patent application suffered final rejection, no infringement complication was found. You then are free to produce and market without the fear of infringing on another inventor's current patent. Is that practical?

During the years I worked for corporations, I witnessed the launching of several new products. And, of course, I've launched a few of my own. I'll conclude with six cautions to consider before deciding to produce on your own.

- Some production processes don't require an investment in tooling. If your product will be injection molded of plastic, although you won't have to invest in an injection molding machine, you will have to invest in a mold that is used in that machine. Tooling up for production always costs much more than you estimate.
- Nearly all production processes offer a range of several different tooling options, the choice of which depends largely on the anticipated volume of sales. Low tooling cost generally means a high cost per unit produced and hinders your ability to compete. High tooling cost generally means low unit cost.
- The vast majority of plastic components are made by the injection molding process. The cost of a mold may range from \$10,000 to more than \$100,000. The economics of molding are based on the number of parts produced per molding cycle. The more parts per cycle, the less expensive is each part. But more parts requires more cavities in a larger mold, and a greater cost for that mold. I urge you to buy at least one book on injection molding.

There are two aspects to the licensing value of your patent: the probability of salvaging the essential independent claim, and the value of that claim for licensing.

- The great majority of metal parts are either stamped or die cast. Both processes have economic calculations that are essentially the same as those of injection molding.
- Short-run methods are OK to determine whether you have a market. But short-run methods mean that your selling price is often higher than your customers' perception of what they think is fair value for how much they are willing pay. This limits your market, and you may never raise the business to a practical volume and profit level without a better compromise between tooling investment and cost per piece produced. Retooling as sales volume increases is a very expensive option.
- Tooling decisions require knowledge of the options that are available; a target for return on investment plus profit; and a forecast of sales, let's say, for the second and succeeding years ahead. I'll show you the explicit math in next month's issue. Meanwhile, invest in books that explain the key processes. €

Jack Lander, a near legend in the inventing community, has been writing for *Inventors Digest* for 23 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.



SOCIAL HOUR

SEO Basics for Inventors

A WEBSITE THAT IS SEARCH ENGINE FRIENDLY WILL MAXIMIZE YOUR SOCIAL MEDIA PLAN **by elizabeth breedlove**

Solution OCIAL MEDIA, email marketing, paid advertising, your website and more all work together to create a web presence that will ideally draw in leads and convert them to customers. What does this mean for inventors using social media to promote their products?

Although sharing your content on social media is important, it's one small part of a digital marketing strategy. In fact, it's especially important to ensure your site is in great shape to complement your social media efforts.

A good site is built on search engine optimization best practices. SEO means building your site in such a way that Google and other major search engines can easily crawl it to understand what it's about, and in such a way that users have a great experience. Google and other search engines are able to decipher the kind of experience a website offers through clues that come from how visitors interact with the page.

I've outlined some things to consider as you're building or updating your website to ensure you're giving your visitors—and search engines—the best impression using SEO best practices. These SEO tips for inventors should help you grow your site traffic and your business.

Install an SEO plug-in. Plug-ins such as Yoast SEO, the All In One SEO Pack and The SEO Framework handle many of the technical aspects of SEO: creating site maps, optimizing metadata, applying noindex, nofollow and disallow tags, and more.

If this sounds like gibberish to you, that's OK! Just know that these plug-ins make it easy to optimize different aspects of your site so that the search engines are able to crawl it and understand its content. Once you pick a plug-in that works on your content management system, there are many tutorials online that explain how to set it up to help your site rank better on search engine results pages.

Reduce your site speed. Make sure all pages on your website load quickly. Data show that most people won't wait for a page to load; if it doesn't load immediately, they'll go to a different site. A few easy fixes to increase load speed include reducing image sizes and doing away with redirects wherever possible.



Be sure your website is mobile friendly. The exact data vary depending on the source, but nearly all sources agree that most social media usage is done on a mobile device. On top of that, more than half of all Google searches are done on a phone or tablet.

For this reason, it's crucial that your website is mobile friendly. Fortunately, Google makes it easy to determine mobile friendliness! Visit search. google.com/test/mobile-friendly and enter your URL. If the tool deems your website not mobile friendly, make fixing it a priority.

Make sure your site is secure. It's crucial that your website is protected with HTTPS, even if it doesn't handle confidential communications. HTTPS protects both your website and your website's users. If you're uncertain how to enable HTTPS, ask your developer. This is a key piece of building a high-performing website and shouldn't be overlooked.

Use keywords in your content. Keyword research may be one of the most important parts of a welloptimized website. It's important to understand what people are searching for so that you can ensure users find your site.

Start by determining one primary keyword or phrase for each page on your site. Quite a few free tools online help with keyword research, but Google's Keyword Planner is a great place to start.

Once you've determined your primary keyword for each page, you can begin to turn these into related "long-tail" keywords. For example, the primary keyword for this article could be "seo tips" and a long-tail keyword could be "seo tips for inventors." Once you have these keywords determined, you can begin to write or edit copy that includes them. This copy is what Google will use to determine your site's content.

Create good title tags and meta descriptions for each page. The terms "title tag" and "meta description" refer to the text on the search engine results page that shows the title and description of each page. Your SEO plug-in will have a place for you to set title tags and meta descriptions for every page on your website. This is a great place to include your keyword, but it's also important to write enticing copy that will draw in visitors. Don't force in the keywords if they don't fit. Search engines are able to decipher the kind of experience a website offers through clues that come from how visitors interact with the page.

Use short but descriptive URLs. Data show that pages with short URLs tend to rank better, but keep the URL descriptive enough for both the user and the search engine. For example, a URL that ends in "/seo-tips-inventors" is better than "/ seo-tips-for-inventors-to-use-on-their-websites."

Include internal and external links. Make sure you link to other copy on your site throughout your site, but also link to other sites. Make sure any sites you link out to are high quality and relevant to your own content.

Fix all broken links. Broken links create a bad user experience. Not only do your visitors not like a negative experience, neither does Google. There are quite a few paid and free link checkers that will crawl your site to find broken links. Once you've identified them, go through and either remove the link or change it to content that exists.

Optimize all images with image alt tags. Adding alt tags to your images is incredibly easy, and if you aren't sure how to do it, a quick Google search will give you instructions for your specific content management system. Make sure that your alt tags are descriptive and include your target keywords. This will help you rank higher in Google Images.

If you're feeling overwhelmed by this, not to worry. The internet is full of great resources that make SEO tips easy to find and understand. If you're unsure where to begin, start with the resources at hrefs.com or moz.com. Soon you'll be well on your way to a site with more visitors! €

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



Making **Pot** Predictable

TESTING PRODUCT ANALYZES CANNABIS, PROVIDES RELIABLE COMPOSITION AND POTENCY READINGS **by Jeremy Losaw**

S MORE people use cannabis for medicinal and recreational purposes, it is becoming important for growers and consumers to validate how strong a given dosage is. Cannabis is harvested from plants, and like any other plant-based product can have some variability in potency based on how it was grown.

Everyone has had the experience of eating a piece of fruit that was sweeter or not as sweet as expected. That experience lasts only a moment, but cannabis users consuming a dose with an unexpected potency can have unexpected consequences for hours. Israeli inventor Guy Setton saw the need for a device to accurately analyze the key metrics of marijuana buds and created GemmaCert, to allow non-destructive testing and give consumers a predictable result.

How it works

The GemmaCert uses spectroscopy (the study of the interaction between matter and electromagnetic radiation) to analyze the two primary compounds that make cannabis effective, THC and CBD. THC is the compound that makes you feel high; CBD is non-intoxicating but provides pain relief and other health benefits.

Testing is done by placing a sample from the plant into the analysis chamber at the top of the device. In about a minute, the GemmaCert analyzes light that is reflected and absorbed by the bud and provides the user with the content of the sample via a smartphone app. The procedure is non-destructive, so users can sample without wasting any product.

Although not quite as accurate as High-performance liquid chromatography (HPLC), GemmaCert is much

faster and does not require trained technicians to run the equipment. The device costs approximately \$4,000.

> GemmaCert was created in response to research about the cannabis industry. Setton and his colleagues were exploring opportunities in the marijuana market for the Israeli health and nutrition business for which he was employed.

After completing research about the market, Setton realized how

large the industry and potential revenue was. The business deal fell through, but he had the blessing from his employer to explore opportunities in the industry.

He thought it too risky to be a cannabis supplier due to the volatility of regulation, as well as the potential for the cannabis to become a commodity and for prices to drop.

Guy Setton's invention provides a real-time solution for measuring cannabis characteristics, with results delivered directly to a proprietary secure app on your smartphone.

Co | ★ | GC20034

Results

16%

Another

0.6% Total

 \times % \oplus

%

C80

+

=

GemmaCert

Total

THE

The GemmaCert analyzes the two primary compounds that make cannabis effective, THC and CBD.

"Ask any given person to name five potato producers for McDonald's and no one can name them," Setton says. "I saw cannabis flowers going that same direction."

A hot market

He saw opportunity in the analysis and proper labeling of cannabis buds. Setton found that there was massive frustration from both prescribers and users of medical marijuana that the same product could yield very different experiences for the user.

"There was a problem really knowing what the material was in terms of its composition and potency. ... Patients were complaining that sometimes they got something that worked, and then the next time they were supposed to get the same thing and it didn't work," he says.

He noticed that the food and beverage industry was using spectroscopy for analyzing their products and wondered if it could be applied to cannabis.

The first prototype for the GemmaCert was a mixture of high- and low-tech components. Setton purchased an expensive spectroscope, mounted it inside a cardboard box and started taking readings and images of different cannabis buds. The prototype was held together with tape but allowed him to experiment with a technology that was usually deployed to analyze homogenous materials.

It took some experimenting to achieve good results for cannabis flowers, but he found that by rotating the sample and combining it with advanced imaging techniques, he could accurately find the THC and CBD content of a given bud.

"The cannabis flower posed a much greater challenge because the trichomes (where the active ingredients are concentrated) are not dispersed equally over the flower," Setton says.

The next prototype was more robust but made a lot of noise and took up an entire tabletop. However, it allowed Setton the opportunity to gather lots of data on different cannabis strains, which was crucial to increase the intelligence of the device.

Then he started working with industrial designers and engineers to shrink the device to a more suitable size. He wanted the device to be visually appealing, so the designers created a device that is evocative of an Ehrenmeyer flask.

Some info left secret

Patents on the GemmaCert have been filed and are still working

their way through the various systems. He applied for protection in the United States, Canada and Europe—his primary target markets.

Setton says that although having patents are great for the business in terms of raising capital, he worries about having his intellectual property published once the patents issue for fear of copycats. He would rather keep some of his knowledge as a trade secret; from his perspective, a large part of the intellectual property is resident in the know-how he has built from his years of development.

He manufactures the GemmaCert in a unique way. The product is assembled in Israel, with the plastic parts made in Asia and the electronics sourced from European suppliers.

The price of the device is too high for most recreational cannabis users, build quantities are low, and he even used 3D printing for demonstration units. Keeping the final assembly in his home country was a big advantage, as it allowed him the maximum flexibility to update the build spec based on new learnings and user feedback.

Now that the product is available on the market, Setton's next step is to continue the refinement of the device and maximize its potential. He already has customers all over the world using the product, with success. He hopes to apply the core technology of the device for use in the mass production of cannabis products. Θ

Details: gemmacert.com

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





ECILIA TSAI and her husband, Alessandro Cereda, have an invention they say will quell the fears about hip dysplasia.

The Mayo Clinic says hip dysplasia usually happens at birth, a condition that occurs when a hip socket doesn't fully cover the ball portion of the upper thighbone. This allows the hip joint to become partially or completely dislocated.

"For almost five years, we've been perfecting and selling carriers that are safe and comfortable for both the parents and babies alike," says Tsai, who cofounded the company MiaMily with her husband. "While extensively researching, developing and field-testing the MiaMily HIPSTER Plus 3D carrier, we learned that there's a surprising amount of fear-mongering clickbait about hip dysplasia and its alleged connection to wearing the wrong kind of baby carrier.

"In fact, according to the experts with whom we've consulted, hip dysplasia must already be a pre-existing condition for a baby carrier to worsen it. Although we were comforted by the notion that baby carriers such as ours cannot cause the condition, we wanted to focus on making sure our carrier could never exacerbate hip dysplasia in a baby who already has it."

Tsai notes that in its earliest stages, hip dysplasia is a "silent" condition—"so that a parent might not know if his or her child is suffering through being held in a carrier that may be slowly worsening hip dysplasia. ... So it was crucial to us that we made sure our product would provide proper thigh and hip support.

Cecilia Tsai is addressing concerns about hip dysplasia with HIPSTER.



to the couple's baby carrier helps ensure protection for infants and their parents by reid creager

Hysteria

"By incorporating an actual baby seat into the HIPSTER carrier, we have indeed ensured that the baby's thighs will be supported at hip level" and not dangling. Doctors say this is crucial for proper early hip development."

The International Hip Dysplasia Institute approved HIPSTER as a "hip-healthy product."

Comfort for all

The couple, who live in Switzerland, take pride that their invention came from a need they identified in their own experience. And the importance of safety and comfort wasn't just for the baby.

"When I had my first baby, Mia—upon whom our company's name is based—I couldn't find a baby carrier that supported my back and hips properly," Tsai says. "I was in so much pain all of the time. It was awful! Alessandro and I knew there had to be a better way, and we were tired of waiting for someone else to come up with a solution.

"My family is in manufacturing, so I was able to work with them in fabricating a prototype for a baby carrier that would actually feel good when I wore it and that would be just as comfortable and safe for Mia." Her husband says that when creating the HIPSTER, the four main priorities were safety, comfort, functionality and portability.

"Usually we tend to rest our baby on our hips, which causes arm and pack pain," he says. "With HIPSTER, since the baby's weight is on the seat and not on your arm, you can carry your baby basically standing straight up, with no weight on your arms."

Cereda says HIPSTER lets you carry your baby nine different ways. Using the hip seat only, you can carry the baby face in, face out and to the side; with

the double shoulder carrier, face in, face out and on your back; and with the single shoulder carrier, to the side, face in and face out.

Ensuring safety was a given, considering that the product was made with the couple and their three young children in mind.

"It's one thing to say we've done the research, we've done the field testing and we keep striving to make our products as safe and comfortable as possible," Tsai says. "But the fact these are carriers we use every day with all three of our children is something we know our fans and customers can rely on when deciding it's time for their own MiaMily carrier.

"Due to our diligence in ensuring

said safety and comfort of our products, our MiaMily carriers have all been submitted and approved by global safety standards verified through SGS testing. Our carriers have passed the following safety standards: ASTM F2236 and CPSIA 2014, and the Consumer Product Safety Improvement Act of 2014, EN13209-2:2005 +AC 2016, GBT 35270, and EN 71-3."



HIP DYSPLASIA STATS

One in every 4 babies in breech position develops symptoms of developmental dysplasia of the hip, per hxbenfit.com. About 1 of every 8 babies having a parent suffering from the disorder is affected by it. Girls are more likely to have this dysplasia as compared to boys.



When designing HIPSTER, Ceclia

Tsai and husband

prioritized safety, comfort, functionality

and portability.

Alessandro Cereda

"By incorporating an actual baby seat into the HIPSTER carrier, we have indeed ensured that the baby's thighs will be supported at hip level."-cecilia TSAI

A walking ad

It took six months and four different variants for the couple to come up with a prototype they liked. "Then, something funny happened," Tsai says.

"Other parents would see me wearing the carrier out in parks or while shopping downtown and ask what brand it was, where they could get one like it. Some even asked if they could take pictures of the carrier!

"That's when we thought maybe we had something special on our hands, so we decided to make a video with our one prototype and go on Kickstarter to acquire the funding to produce and sell carriers to anyone who wanted one."

After reaching their \$25,000 goal in six days, MiaMily sold almost 700 carriers in 30 days in 33 countries. At that point, the couple—which had never intended to mass-produce and sell the carriers—had to reconsider.

"As any entrepreneur knows, often the best products are the ones you make for yourself to solve a problem you're having," she says. "Because hey, as it mostly turns out, other people might be having the same problem, and what works for you could very well work for them."

Late to patent

When the couple launched their company in 2014, they were funding everything themselves. They had to prioritize their expenses.

"Back then, it was still incredibly time-consuming and cost-prohibitive for us to look into patents," Tsai says. "Our primary concern in those earliest days was to develop and sell the best baby carriers we could come up with. The patents, for the time being, would just have to wait.

"Alessandro and I also knew that before going to all of the trouble and expenses of filing patents, we wanted to be 100 percent confident in our original model. If there turned out to be any components that needed further tweaking, we wanted to be certain all of that was handled before we entered into the patent process."

They principally filed in 2017 and celebrated receiving their first official patent on May 28 this year. They are also completing the filing of other patents to come.

Timing proved to be their friend. By the third year HIPSTER was on the market, MiaMily was partnering with major U.S. retailers that included buybuy BABY and Babies R Us, with others interested.

"There was more brand exposure from these massive partners, and that was when we decided MiaMily was a success, that we had a product we could stand by and it was time to get those patents," Tsai says.

Unlike other inventors, Tsai and Cereda were never preoccupied with being knocked off.

"With or without our patents, we knew we'd soon be seeing ersatz copycats of our carrier out there," Tsai says. "But Alessandro and I have decided not to worry about the competition, many of whom are already pretty late to the party.

"We want to keep focused on the one thing that got us here in the first place: Continuing to stay dedicated to researching, developing and selling the market's most innovative baby carriers." €

Details: miamily.com





Barbara Heilman and her daughter, Becca (Heilman) Davison, celebrated their utility and design patent earlier this year.

Frustration Unlatched

GRANDMOTHER'S IDEA: AN EASIER WAY TO RELEASE A CAR SEAT BUCKLE

It's frustrating enough when we struggle with a seat belt buckle during those occasional times on a plane. But opening a car seat buckle is something many parents do virtually every day.

Barbara Heilman and her daughter, Becca (Heilman) Davison, experienced that frustration routinely when Barbara—a new grandmother—had trouble pressing her granddaughter's car seat buckle because of arthritis in her thumb.

Davison, who gave birth to her first daughter in 2015, recalls: "She couldn't take my daughter out of the house for fear of getting stuck somewhere and not being able to get my daughter out. My mom, who is also an occupational therapist, quickly thought of a tool that would solve her own problem."

UnbuckleMe is a device that fits perfectly around the square buckle on a seat belt. To operate it, slide the thin plastic base of the device under the buckle; for square buckles, it is designed to snap into place. Then stabilize the base with your fingertips and pinch the two ends together.

This leverage reduces the force required to open the buckle by more than half. (U.S. motor vehicle safety standards and regulations require buckles to have a minimum release force of 9 lbs. so they can't be opened by children.) Then, pull down and away from the buckle so it releases.

The device also works well on push-button high chairs and strollers.

100-plus prototypes

Heilman's work background, in which she often made splints and other assistive devices for patients, made her comfortable with creating handmade solutions. Because splint material is pliable, the early prototyping came naturally to her.

"She actually has a full box full of over 100 prototypes that she made, as she came up with new iterations and ways to improve the design," Davison says of her mother.

However, the transition from a handmade prototype to a digitally designed version took more time. "We worked with several engineers to translate the properties and qualities that we knew we needed (such as rigidity in the handle and flexibility in the arm) into the form of a computer-aided design, which was required for manufacturing. This process took about six months before we were ready to order our tooling with our manufacturer." Ensuring the safety of the product for kids was an obvious priority, though absent some of the requirements for car safety devices. "Because UnbuckleMe is an accessory that does not attach to the car seat, it has not been crash tested with car seats. We strongly recommend not to attach this product to the car seat in any way," Davison says.

"The product has been tested for lead content and passed all required levels for children's products. It is also BPA free. I am a certified child passenger safety technician (CPST) and have strong support from the child passenger safety community that this product contributes to safety, ensuring that all adults can safely operate car seats."

Grandmom and daughter filed their patents in 2016, with a rough prototype in hand.

"The U.S. is a first-to-file country, so we knew that it was important to file as soon as possible to protect our intellectual property. We have been very glad that we did," Davison says.

The process took about 2 ½ years before they received their utility and design patents early this year. They have additional patents pending.

Long nails are safe

Davison says UnbuckleMe is ideal not just for those with arthritis or carpal tunnel syndrome.

"It is also great for moms with long fingernails who are tired of breaking them on car seat buckles!" she says..

"Just keep it in a safe place when the car is moving, out of reach of kids. Every family with young kids has someone who struggles with car seat buckles, and this product will make life easier." $\mathbf{\hat{v}}$ —*Reid Creager*

Details: unbuckleme.com



PORTABLE BOOSTER SEAT IS 10 TIMES SMALLER THAN NORMAL

Jon Sumroy didn't want to cut corners on his kids' safety by shunning bulky and inconvenient booster seats. Size MATTERS, especially in a shrinking world. From batteries that are smaller than a pencil eraser to an IBM computer that measures 1mm by 1mm, inventors have never placed a greater premium on portability.

Portability with safety takes value to a new level. So when Jon Sumroy found a void in the marketplace that involved children, he invented the mifold Graband-Go Booster Seat.

Billed as the most advanced, compact and portable child car safety seat in the world, mifold is 10 times smaller than a regular booster and just as safe. It's intended for children 4-12 years old who weigh 40-100 lbs.

Fortunately unfortunate

Sumroy was working at a tech start-up and living with his family in Englewood, New Jersey, in the early 2000s. "At the time my kids, who were still little, were often in other people's cars: carpooling with the neighbors, with their grandparents and often in taxis," he says.

"Their booster seats were too big and bulky to always carry from car to car and often, we'd just cut corners and they would go unprotected. I wanted to have a car seat that was so small and portable that

> the kids could take it with them in their school bags and always be safe, no matter whose car they were in.

"Unfortunately, nothing existed," he says—although in retrospect, that proved fortunate.

In 2012, Sumroy read an article that said about half of all U.S. kids travel without the correct booster. He revisited his idea, began working on it as a hobby, and after a couple years set up the company that sells mifold.

"The very first thing I did was to register a U.S. provisional patent, in May 2012. I then registered a PCT (Patent Cooperation Treaty, an international patent law treaty) a year later, as I was not yet sure the idea would ever come to fruition and the PCT allowed me more time.

"Now this original patent has been granted and registered in many countries worldwide—and the protection goes all the way back to that original provisional filing in 2012. This first patent is now one of several we now have."

Labor of love

But the longest and most difficult part of the inventing process for Sumroy was prototyping.

"We have made hundreds of prototypes," he says, "from my first, homemade concept—a black canvas matt with straps and mountain climbing clips sewn on—through Styrofoam models to 3D-printed models, then CNC'ed (computer numerical control) components and finally pilot production products.

"All of this was the journey from idea to the shopping cart. I love every one! Occasionally I rummage through the storage bins in the office back room and play with them to remind me just how far we have come."

He says the process took three years: "Over and over again, we made prototypes and took them to the testing laboratories to crash test—only to see something fail. However, looking back with hindsight from where we are now, with nearly 1,000,000 seats sold worldwide, the prototypes tell the story of our journey. It was long, hard and wonderful."

The rate that

booster seat

use reduces the risk for seri-

ous injury for children ages 4-8 when compared to seat

belt use alone, according to

kidsittingsafe.com.





Since a fabulous 2016 debut on the crowdfunding site Indiegogo in which it smashed its \$40,000 goal and raised \$2.6 million, mifold went on to raise \$3.3 million from investors and has struck deals with retail behemoths such as Amazon and Target.

Beyond the safety stats

When it comes to an invention designed to enhance child safety, compliance with regulations has added importance.

The mifold booster car seat conforms to the most universally accepted global booster car seat regulations, Sumroy says. "Most countries are covered by the international regulation UN ECE R44.4, but we also comply with National Highway Traffic Safety Administration regulation FMVSS 213 in the United States and the Motor Vehicle Restraint Systems and Booster Seats Safety Regulations regulations in Canada."

The mifold seat also has specific regulatory approval in countries that requite their local approvals: Chile, China, South Korea and Taiwan. This covers every country in the world that regulates for backless child restraint systems.

But often, a human story conveys the value of an invention more than statistics can.

On Sept. 30, 2016, Kylynne Huber and her kids were involved in a car accident. She recalls, on the product's website: "I decided to purchase the mifold booster seats because we have four kids in car seats and I loved the idea of having such small seats to be able to fit my older kids in the back with a 5-point harness car seat in the middle of them.

"I took the brunt of the impact. When I knew I was going to crash, I turned my van to try and take most of the impact over my kids. Thank goodness it worked. I hit the steering wheel with my chest and my entire face, so I've had residual issues from that, as well as whiplash and back issues."

The family walked away from the wreck without any hospital stays. They used the mifold boosters after the accident to get the kids home. "I wanted to have a car seat that was so small and portable that the kids could take it with them in their school bags and always be safe, no matter whose car they were in."–JON SUMROY



"I know without a shadow of a doubt that my kids were saved because they were properly placed in car seats and booster seats," Huber says. "I have been wondering how the mifolds would withhold a wreck, and I am now 100 percent confident in saying they work!! My babies are safe!"

The mifold booster is now used by the Bradley County Sheriff's Office in Tennessee in some patrol cars to transport kids in emergency situations, with similar agencies likely to follow suit. *●* —*Reid Creager*

Details: mifold.com

The mifold shoulder belt positioning strap and clip is attached to the back of the portable seat and goes behind the child's back. The clip is then attached onto the adult seat belt chest strap and holds it down on the clavicle.

Just the Baby sleepwear cuddle pads MIMIC A TIMELESS CAREGIVING SENSATION BY EDITH G. TOLCHIN

LOVE LEARNING ABOUT NEW BABY PRODUCTS.

New moms or dads, often sleepless during those early months, take their last bit of energy to research solutions that help their baby—and them to sleep like, well, a baby.

A mom, Manasi Gangan, has had much success with her line of Zen Sleepwear for babies.

Edith G. Tolchin (EGT): What is Nested Bean's Zen Sleepwear, and how does it work?

Manasi Gangan (MG): Nested Bean's Zen Sleepwear is designed to help babies sleep easier and longer by providing continuous comfort between your cuddles. It is the only infant sleepwear with lightly weighted "cuddle pads" on the center and sides of the baby's body to mimic the sensation of being held in a caregiver's arms, because that is where we typically rest our arms when holding a baby. According to researchers Dr. Tiffany Field and Dr. Saul Schanberg, the simulation of touch elicits a neurological response similar to touch itself. The "cuddle pads" are calibrated, according to physiotherapy standards, to impart just the right amount of therapeutic pressure on a baby's body to make them feel the security of our embrace and help them go from one sleep cycle to the next, thus lengthening the duration of sleep.

EGT: What led to this invention?

MG: We had just welcomed our second son, and like any typical new mother I was prepared for the frequent nighttime feeds and the sleep deprivation that came with the territory. However, there was nothing typical about our newborn's sleep patterns. He only slept in my arms and would wake up as soon as he was put down.

"There was nothing typical about our newborn's sleep patterns. He only slept in my arms and would wake up as soon as he was put down."

—MANASI GANGAN

If necessity is the mother of invention, then curiosity ought to be the father. The idea for Nested Bean's flagship product, the Zen Swaddle^{*}, was born out of my desperate need to find rest, and my curiosity about whether the soothing comfort that he felt in my arms could be mimicked.

As I looked for answers, I came across the work of Dr. Schanberg, a prominent touch researcher. His findings suggest that the calming and nurturing benefits of touch can be simulated to trigger the same soothing response as touch itself.

Think how much you love relaxing under the weight of your favorite comforter at the end of a stressful day. That is because our skin receptors cannot tell the difference between a person hugging, or an object imparting a similar pressure. The receptors trigger the same neurological response to soothe and reduce our stress levels (as long as the pressure to body weight ratio is maintained at, or under 10 percent).

Many new parents have felt the lure of products that promise better sleep. New mothers who experience prolonged sleep deprivation are likely to experience isolation and even post-partum depression. However, despite all the products in the market, babies sleep best in our arms. Developing a product that extends the calming benefits of touch seemed the perfect bridge to soothing a baby, while promising some rest to parents coping with the demands of early parenthood.

Following physiotherapy guidelines, our product development team designed a beautiful and functional product with the safety of the baby as the foremost priority. We worked with Consumer Product Safety Commission-certified labs to test the construction and design to ensure that there was no risk to the baby. Test results were verified by pediatric pulmonologists and approved as eight times safer than their best benchmark. That is when I knew we had a product that could be taken to market.

Finding a quality and safety-conscious manufacturing partner during the early phases wasn't easy. I had heard horror stories of manufacturing companies from the Far East who did not show consistency in quality or pricing when working with early-stage companies. Developing in the USA was proving to be cost prohibitive. South America was a good first option while we developed scale enough to work with a larger factory in Asia.

After spending almost a year in research, design, safety testing, consumer testing and perfecting the manufacturing details, the w was launched in a test market in late 2012. That year, we even won the Juvenile Product Manufacturers Association Award for Innovation.



EGT: How many tries did it take before you perfected your first prototypes?

MG: During early phases of product development, you have to iterate fast. I don't think I could count the tries, since the samples were so frequently corrected and bettered. If I had to guess, I would say somewhere between 40 to 50 individual tries and 10 or so actual samples that were tried with testing groups before we developed the first marketable product.

EGT: Did you have any difficulties with patenting the product?

MG: There were no major issues patenting the product. We have since built on the first patent with a broader patent. The key is doing sufficient research on comparable patents before documenting the uniqueness of your own.

EGT: How many styles, fabrics, sizes and colors have you created? Retail pricing?

MG: Since launching our flagship product, the Zen Swaddle, we have developed a line of lightly weighted sleepwear which includes sleeping bags, footies and body suits. There are collectively around 55 SKUs, and the retail price ranges from \$29.99 to \$49.99. This excludes bundles and multi-packs.

EGT: How does the sleepwear comply with the Consumer Product Safety Improvement Act's government regulations regarding production testing, labeling and so on? What about the beads coming loose?

MG: Nested Bean takes safety extremely seriously. Before launching the company, we consulted with safety firms to make sure that the Zen

> Sleepwear complied with all the CPSIA safety requirements, both mandatory and voluntary.

The construction of the Zen Sleepwear demands the highest form of safety when enclosing beads in its weighted "cuddle pads." The beads are first sewn into a fabric pouch completely. The pouch is then sewn into the garment, creating a double redundancy. The beads are also calibrated such

that there is enough air flow allowed through the cuddle pads.

Zen Sleepwear has a brand mission of sleep wellness.

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

MG: We manufacture in China and Vietnam and work with branches of top American safety firms to conduct safety testing.

THE POWER OF TOUCH

A 1988 study conducted by Dr. Tiffany Field showed that premature infants who were massaged for 15 minutes three times a day gained weight 47 percent faster than others who were left alone in their incubators.

Dr. Field said the massaged infants did not eat more than the others.

The infants who were massaged were discharged from the hospital an average of six days earlier than premature infants who were not massaged, saving about \$3,000 each in hospital costs, Dr. Field said.

EGT: Can you share any problems you've encountered during product development?

MG: My deep background in IT product development guides me in this process. If you pay attention to the details and have a great product development team, you can avoid many of the common hurdles. Building the right qualified team and iterating through testing with focus groups is necessary. That's the key: In the early years of entrepreneurship, you have the find people who believe in your mission so that they feel compelled to join you.

Finding the manufacturer is the largest hurdle. I got lucky and found a manufacturer who was able to give us a shot because they believed in the efficacy of the product. That's the key: In the early years of entrepreneurship, you have the find people who believe in your mission so that they feel compelled to join you.

EGT: Are you selling online or with Amazon, or other retail? How has social media advertising worked out for you?

MG: Nested Bean products are sold through our own website as well as Amazon, and retailer websites such as Buy Buy Baby and Target. Social media has been a great tool to educate, spread brand and product awareness, as well as receive social proof. Digital content marketing is, as a whole, integral to our success.

EGT: Any new products on the horizon?

MG: Yes, we will be extending the Zen Sleepwear line in 2019 and 2020 to capture a larger market size. We are also developing a road map for products beyond the sleepwear. This is a nod to our commitment to our brand mission of sleep wellness.

EGT: Any words of wisdom for inventors?

MG: For inventors, developing patents is not as hard as you think. If there is a problem that you have a solution to, search for similar solutions using Google Patent Search. Any local IP attorney may be able to help you out to determine if you have a patentable idea at no charge. After that, it's with just a little perseverance that you may be the owner of the next million-dollar—or, better still—a billion-dollar idea.

For entrepreneurs, the difference between an idea and a successful venture is action. Plan your steps carefully towards materializing your big idea. Use your creativity to make your seed funding last as long as you can. Your energy will attract people who believe in you. There will be obstacles, but stick to your gut and focus. Show grit and wear failure down.

For parents, lean into your instinct when caring for your baby. You cannot spoil them by loving them and holding them. On the contrary, your touch and care will certainly create a stronger bond. If you have a challenging sleeper, don't be afraid to ask for help. Not being able to figure out your baby's sleep patterns doesn't make you a bad parent. €

Details: nestedbean.com

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





S INCE AMERICA'S EARLIEST DAYS, many creative and innovative toys and games for kids have come through the consumer marketplace—with some becoming so iconic they have become household names and synonymous with a moment in time for kids. Here are some of the best-known patented standards.

Editor's note: In past issues of *Inventors Digest* we have covered classics that included Monopoly, Frisbee, the Hula Hoop and Bunch O Balloons—and there's a story on the Slinky on page 10.

Whirligig (aka yo-yo)

The yo-yo predates any single company, with evidence of similar toys going back as far as 500 B.C. The American craze for the spinning toy can be traced to the late 1920s, with the founding of the Yo-Yo Manufacturing Company by Pedro Flores, but the USPTO had been issuing patents to protect the manufacture and design of many yo-yos, whirligigs and "bandalores" for years.

The term bandalore is used to describe the toy protected by U.S. Patent No. 59,745, issued in November 1866 to James L. Haven and Charles Hettrick, both of Cincinnati. The invention is designed as two metal disks held together at the center by a clutch and rivet; the string is attached to holes found on either one or both of the metal disks. The patent discusses how this design enables the use of metal in the design, resulting in a higher degree of speed and momentum.

Battleship

U.S. Patent No. 1,988,301 was issued on January 15, 1935, under the title "Game board." The originally patented game does not bear a lot of resemblance to the one that many of us grew up playing.

The patent explains that the invention relates to a perforated game board and pins insertable in the perforations. Play will go back and forth with each player calling out shots at the unseen target created by the other player. "Play continues thus and when one of the series of perforations within an enclosure has been filled with pins, that 'ship' is 'sunk.""

Magic 8 Ball

In 1946, American inventor Abe Bookman invented

the design of this toy device. The design was conceived by Bookman's brotherin-law, Albert Carter, who had the idea of creating and selling a fortune-telling craft product.

Interestingly, an 8-ball had been used to tell fortunes as a gag in the Three Stooges short film "You Nazty Spy," which came out at least 5 years before Bookman and Carter developed their prototype.

U.S. Patent No. 3,119,621, issued to Bookman in January 1964, is among the first patents issued to protect the design and manufacture of the fortune-telling toy. This patent



describes a toy containing liquid in which a buoyant indicator rises to a top window with a minimum of surface tension. This lower surface tension improves the visibility of the die and reduces its ability to stick against the internal walls of the 8-ball.

Bookman perfected the device in later years, as evidenced by further patents he received to protect the Magic 8 Ball innovations.

Mr. Potato Head

Mr. Potato Head was invented and developed by George Lerner in 1949, and first manufactured and distributed by Hasbro in 1952.

Some fun facts about Mr. Potato Head: On April 30, 1952, it became the first toy advertised on television; the original Mr. Potato Head cost 98 cents; and in the first year the Mr. Potato Head kit sold one million units.

Although not relating to the original Mr. Potato Head, Lerner received U.S. Patent No. 3,660,926 on May 9, 1972. The invention related to a toy capable of being easily assembled by a child. The components were provided in a metallic container or can, and the decorative elements were magnetic and attached to the can.

It doesn't seem that this version caught on quite like the original, but with this clearly related patent to Lerner and true iconic status of Mr. Potato Head, an exception had to be made.

Toy Building Brick (aka Legos)

Since its founding in 1932, the Danish corporation The Lego Group has been primarily involved in the creation of toys and playthings. Despite some critical voices on

On April 30, 1952, Mr. Potato Head became the first toy advertised on television.

the use of plastics instead of natural wood for children's playthings, Lego began manufacturing plastic toys by the end of the 1940s. However, the interlocking plastic block the company released in 1958 and named the Lego exploded in popularity, eventually earning the honor of "Toy of the Century" by the British Toy Retailers Association as well as *Fortune*.

Lego received U.S. Patent No. 3,005,282 on July 28, 1958, protecting the design and manufacture of its toy building brick in October 1961. As the patent states, the blocks are designed to connect through projections extending away from the block that can engage with protrusions on adjacent blocks. This design, also known as a stud-and-tube coupling system, allows children to create thousands of unique works with even just a few blocks.

Etch A Sketch

In 1959, a French mechanic named Arthur Granjean exhibited a new toy that he had developed at the International Toy Fair in the German city of Nuremberg. He called his invention the L'Ecran Magique, or "The Magic Screen."

When no European investors lined up for his creation, he went to Americam, where he was able to interest the Ohio Art Company in his design. After adding a few knobs to Granjean's design, Ohio Art released the Etch A Sketch to much fanfare in 1960.

The original USPTO patent for this device, U.S. Patent No. 3,055,113, issued to Granjean in September 1962, protects a device on which a user can trace any number of designs and then wipe them out immediately whenever he or she chooses. The toy consists of a fluid-tight case with a translucent screen situated on one side. An internal tracing stylus is controlled by a user through the knobs, scraping a metallic material away from the screen so as to create a traced image.





Barbie

The Barbie Wikipedia page credits Mattel co-founder Ruth Handler, who on a trip to Europe came across a German toy doll called Bild Lilli. With the assistance of John Ryan, the page explains, Handler re-designed the doll and gave it a new name, Barbie.

Handler is not mentioned on the first Barbie patent, No. 3,009,284, which issued on Nov. 21, 1961. Therefore, we will say that the true inventor of Barbie was John Ryan, a designer who worked for Mattel.

The patent explains: "This invention provides a doll having a body and limbs in articulated relationship and means for supporting the doll in an upright or standing position for display or for storage."

Video game console

In April 1973, the U.S. Patent and Trademark Office issued U.S. Patent No. 3,728,480, titled "Television Gaming and Training Apparatus." Assigned to Sanders Associates, it lists Ralph Baer as the sole inventor.

The patent claims an apparatus, used in conjunction with a standard television receiver, that generates dots upon the receiver's screen that can be manipulated by a user. The patent further claims the use of a joystick control to manipulate the dots on the screen. This created what has become a multi-billion in-home video game industry.

In 1971, Magnavox licensed the technology; in Summer 1972 it released its Magnavox Odyssey Home Video Game System. To switch between games, a user inserted a cartridge into a slot on a console, much like the popular Atari, Nintendo and Sega consoles that came years later. Unlike those cartridges, which contained internal circuitry required to play a game, these cartridges served as jumpers that completed the circuit connection required to select a specific game; all of the Odyssey's games came preloaded on the console's internal circuitry, which included 40 transistors and 40 diodes.

The Odyssey was a successful product, with 130,000 sold between the product's September 1972 release and Christmas of that year. When the first model was discontinued in 1975, the Odyssey had sold a total of 330,000 consoles.

Rubik's Cube

One of the most popular games of the 1980s was Rubik's Cube, a puzzle game that proved enormously frustrating to many who attempted to unlock its solution.

Invented in 1974 by Hungarian inventor Erno Rubik, the device was patented in the United States with the issuance of U.S. Patent No. 4,378,116 on March 29, 1983, with the title Spatial logical toy.

On a classic Rubik's Cube, each of the six faces is covered by nine stickers, each of one of six colors: white, red, blue, orange, green and yellow. The Rubik's Cube craze captured worldwide attention in the 1980s, with tournaments and even the "Guinness Book of World Records" recognizing the fastest attempts to solve the puzzle.

Today, there are more than 40,000 YouTube pages dedicated to the puzzle game.

Super Soaker®

The Super Soaker is one of the most successful toys of all time, selling in excess of \$1 billion worth of product.



Inventor Lonnie Johnson, a former United States Air Force engineer, was experimenting on a new type of refrigeration

system when he conceived the method of using a pressurized water stream. He shortly thereafter conducted tests in his basement, built a prototype, and filed a patent application on his invention in October 1983.

Ultimately he was issued U.S. Patent No. 4,591,071 on May 27, 1986. The invention in that patent

was a toy squirt gun that shoots a continuous high velocity stream of water. It was the first of many patents on what would commercially become known as the Super Soaker.

Success was not immediate, as is typically the case for independent inventors. Initially, the toy was called the Power Drencher when it went to market in 1990. After some tweaks and a name change, in 1991 \$200 million worth of product flew off the shelves. \heartsuit

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.





Crowdfunding **Tips and Tricks**

PLANNING YOUR CAMPAIGN IS THE MOST IMPORTANT STEP BY HOWIE BUSCH

AST MONTH, I examined some myths about crowdfunding and some of the basic information you should know. Now I'll get into some insider tips.

When I launched my campaign on Kickstarter two years ago, I hit my funding goal in just two days. "Shark Tank" saw my campaign page and reached out seven days after I launched. So yes, I'm a big fan.

Before the campaign

Plan for the pre-launch: The pre-launch page is a service that lets you announce your crowdfunding campaign. It's designed to let people subscribe to your email list and share your pre-launch on social media. Don't forget that revenue from rewards campaigns and pre-sales of goods are taxable income, so consult your CPA.

This time, which leads up to the start of your campaign, is more important than anything else you will do. The more time you have to prepare, the better.

Starting one month before is doable but not advisable. Ideally, you're better off starting 3-4 months out with pre-launch activities. Even longer doesn't hurt.

Fill that email list: Bring your people to the party and get them to become "backers" early. That's how you move up with their algorithm, which results in better placement on the site so their endemic traffic can find you easier.

So get your friends, family and acquaintances on an email list and involve them early. Whether they are in the demographic for your product is not relevant.

What do you do once you have them on your list? First, get them excited about what you're doing. Second, make them feel like they're part of the process. Ask them their opinion on the product's name, color choices, pricing. Tell them other exciting things going on, such as showing them the prototype.

The more invested they feel in the launch, the more likely they are to support you and share it with others.

Organize publicity: During your pre-launch, pull together your list of people who might want to write or blog about your product.

Identify various campaigns that are similar to yours, in terms of product type and demographic,

and see who has written about them. Typically, the campaigns will have an area on their campaign page that lists their most impressive media coverage. Dig in and do that research—or get someone on your team or hire a virtual assistant to do that.

Not only do these folks have an audience, they have shown they are willing to write about Kickstarter products and products that also fall within your product category.

Have that list ahead of time so that when you do launch, you're ready to reach out to these folks quickly. Getting good media coverage will help ignite your campaign and give it social validation.

Sharing your publicity with backers via updates and with your email list via blasts is important, as well as targeting them with Facebook and Instagram ads and social media updates.

This creates something I've heard described as "surround sound." In other words, you want them to feel like they're seeing your campaign everywhere.

Prioritize killer visuals: The best Kickstarter campaigns have great images and videos. You'll need to have a prototype developed. Depending on what your product is, you may want to have one or more samples or prototypes done.

Not only do great visual assets look great on the campaign page, you'll also use them for your Facebook and Instagram ads to drive traffic to your campaign. Great visual assets also will be sent to media and influencers. The better they are, the more likely they are to help you drive traffic.

Plus, great visual assets give the impression to potential backers and media that you are the real deal. Your product will look like something they can see themselves buying and using.

So make sure you have enough of a budget to get really good assets here, or call on friends who might be really good at it. That's what I did for my images.

When I launched DudeRobe, I needed a photographer who could take product shots for my page. I put it on Facebook and received more than 25 suggestions of people to contact.

I got a text from my college roommate's brother



(who happens to be a professional world-class photographer with more than 10 *Sports Illustrated* covers to his credit). The message simply said, "Stop trolling Facebook. I will help you."

And that's why the images on my Kickstarter campaign are so incredible. He did an unbelievable job and for payment, all he wanted was a complete set of DudeRobe products.

Like I said, people want to help. Sometimes, you just have to ask.

Max out the landing page: A landing page is a onepage website that shows your product and teases your upcoming campaign.

Your goal is simple: get people to give you their email address. They are only giving you their email address if they feel it's something they would be interested in purchasing. Your visual assets will help drive their interest and desire, and hopefully net you their email.

Tie your landing page into an Email Service Provider such as Mailchimp or Klayvio. There, you can store the email addresses and send out email blasts to your audience.

Keep in mind that just because someone gives you his or her email address, that doesn't mean that person will end up buying your product. Most people don't want to wait—and if it's not available right then and there, often they lose interest.

So how do you drive traffic to your landing page? Right now, the gold standard is still via Facebook and Instagram ads.

The other benefit of this approach is that you can get a pretty good sense of the demand for your product. **Calculate rewards/pricing:** You'll need to know your manufacturing costs as early as possible so that you know how much to charge backers for it. Typically, you'll want your price to be 4-5 times your cost because there are plenty of costs you have to cover during your campaign.

Consider your shipping and fulfillment cost. For me, shipping a DudeRobe is expensive, so I had to figure that into my cost structure.

But you'll have other costs, such as the cost to create your video and pictures, and the cost to hire an agency if you decide to go that route. And if you do have someone doing your ads for you, what is that cost?

Make sure you factor in everything. You would hate to do all of that work, have a great campaign and lose a good amount of money.

I had something happen two weeks before I was ready to launch that was potentially devastating. My manufacturer, after confirming my pricing three times, decided to triple my cost. If I moved forward with them, I would have lost a lot of money.

I turned to my network of friends and asked anyone involved in any apparel manufacturing whether they knew of a factory that could make the robes. We were launching on Tuesday after Memorial Day. Four days before, I got a call from a friend who had secured a factory that would make it for me at the original price.

During the campaign

Provide campaign updates: Regularly update your backers within whichever platform you use, but try to keep you email list updated, too. People may not have gotten to contribute yet, but keep them up-to-date and they may very well contribute as the campaign goes on.



Scrutinize agencies: A number of digital agencies, including Charlotte's Enventys Partners, have expertise in crowdfunding. I used a couple of them and although they were not overly successful with Facebook ads, they did give me comfort in knowing that they were running my ads and A/B testing what worked and what didn't.

You have a couple of options when it comes to your ads and what you will be charged. One option is to have the agency pay for your ads. That comes with a much steeper commission (typically 30-35 percent). You have less risk but a much bigger liability with great success. I know someone whose campaign did more than \$1 million who paid the agency approximately \$300,000.

The other option is to pay for the ads yourself. They will run the ads for you and test them as well—and for that, they will typically take approximately 15 percent as commission.

Consider Green Inbox: The best ROI I saw was with a company called Green Inbox. The company can also run ads for vou, but I didn't use it for that.

I used its email, Facebook and LinkedIn options to send emails to anyone I had emailed before with my gmail account. There were plenty of people I didn't have on my email list

Even though many people received duplicate emails because they were already on my mailing list, that's OK. It was just another reminder to them that added to that "surround sound" effect.

Look at Kickbooster: This service offers a way to reward affiliates that send supporters to your campaign. Perhaps it's a blogger or other influencer; maybe it's a well-networked friend. Either way, it lets you reward and track people who send people to your campaign and end up contributing.

Track everything: Although Kickstarter is notoriously difficult in terms of letting you use pixels, make sure you do your best to track everythingusing Google Analytics, Facebook Pixels and Kickstarter's analytics within their platform.

You will be amazed at the treasure trove of tools and information at your fingertips.



with whom I had emailed over the years. Many of them were happy to know about the campaign and happy to contribute.



Update them with where things stand on the campaign front, and things that are happening like good press coverage and other cool things. Then, as time goes on, let them know what's going on with manufacturing.

Be as upbeat as possible at all times. But once the campaign is over and you're getting into the manufacturing part, don't be afraid to share problems. It shows you're working hard to make this product a reality and makes the experience more human.

Use cross-collaborations: This is when you partner with other brands that are also running campaigns that happen to also hit the same demographic as yours. Then, when you provide an update to your backers, at the bottom of the update you will provide a blurb, image and link to those campaigns. Limit it to no more than three per update.

Remember, they'll do the same for you. So you're getting people in the same demographic as your target who have already purchased on Kickstarter/ Indiegogo. That's a big plus.

If you partner with one of the marketing agencies, they'll usually help you do this-especially because they're working on so many campaigns at once. For me, this was a valuable way to drive sales. But you can also do this on your own, by researching other campaigns that are running and reaching out to them personally.

Either way, it's a valuable way to get sales...with no cost attached to it.

Post-campaign

Consider Backerkit: Most people I know have used Backerkit to process their orders because it allows for upsells and better data export and management. There's a fee to use Backerkit, but you should be able to make it up in upsells.

Use InDemand on Indiegogo, aka The After Party:

You can continue to take pre-orders once your campaign ends. So why wouldn't you?

If you launched on Indiegogo, it's a no-brainer to continue there. But even if you launched on Kickstarter, as I did, you can move your campaign over to Indiegogo's InDemand portal and reap the benefits of its traffic.

Not everyone knows about this, but I say why not? I raised more than 10K after moving over to Indiegogo.

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



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PROTOTYPING



SOME STORIED WORKS HAVE SURPRISING RELEVANCE FOR PROTOTYPERS AND INVENTORS BY JEREMY LOSAW

BOOK IS MY BEST FRIEND during this more relaxed time of year.

As an engineer I enjoy reading about technical subjects, but I also love a good novel or essay. One of my favorite pastimes is driving back to my parents' house and perusing my mom's bookshelves for new friends.

She has many books from the 1960s, '70s, '80s that are some of my favorites from this era. The feel and smell of books published closer to their original release date have a way of heightening the experience.

On the surface, literature may not seem to offer much to the inventor mind. But books from non-technical authors can be food for the soul and provide a different context in which to weigh our ideas, while offering nuggets as to how we should approach product development. Here are some of my favorite authors and what their work can teach us about innovation.



Philip Roth

Roth, who died last year, is widely regarded as one of the great novelists of the last half century, with more than 30 books. "Portnoy's Complaint" and "American Pastoral" are two of the best-known works from his innovative and controversial career.

Roth's novels were often autobiographical. His candid writing about adult themes resulted in divided opinions about his work.

His career is more proof that it can take a long time for someone's work to gain popularity, including inventors. Despite his critically acclaimed writing, he struggled to parlay that into film success. From 1959 to 2003, only two of his books, "Goodbye Columbus" and "Portnoy's Complaint," were produced for the big screen.

Roth's 2006 interview with Terry Gross from NPR's "Fresh Air" provides a great lesson we can relate to prototyping. When asked whether his storylines are mapped out before he writes, he responded: "I don't know anything in the beginning, which makes it great fun to write, you know? You don't know anything. You don't even know how to write.

"So you begin every book as an amateur and as a dummy. And in the writing, you discover the book. ... Each and every sentence is a revelation."

Roth essentially prototyped each book—just as an inventor uses a rough idea to develop a higher concept, slowly learning things about the technology

Philip Roth essentially prototyped each book—just as an inventor uses a rough idea to develop a higher concept, slowly learning things about the technology and refining the product.

David Foster Wallace wrote about how an ad brochure created a connection for the intended audience.

and refining the product. Each prototype provides a revelation and brings the product one step closer to production, just as every sentence did for Roth.

David Foster Wallace

Pulitzer Prize-nominated David Foster Wallace wrote a mixture of novels and essays. His most popular and lengthy work is the novel "Infinite Jest," which spans 1,079 pages.

However, most of his work was as an essayist and columnist for publications such as *The New Yorker*, *GQ* and *Harper's*. Although I have yet to make it through "Infinite Jest"—I tried many years ago, the task complicated by trying to read a 4-inch-thick book while exercising on an elliptical machine at the gym—I have thoroughly enjoyed his essays in "Consider the Lobster" and "A Supposedly Fun Thing I'll Never Do Again."

I had a "meta moment" with Wallace when I started reading his first essay in "Consider the Lobster" called "Big Red Son," which is about the 1998 Consumer Electronics Show—as I was on a plane to Las Vegas for CES!

The piece details his experience at the adult film trade show, which used to be a subsection of CES before growing to be its own event. Though much of the essay is sexually explicit, it includes descriptions of new product launches from that year such as "Personal Java 1.0" and "The First Ever Full Text Message Pager in a Wristwatch."

By far, my favorite of his essays is "A Supposedly Fun Thing I'll Never Do Again." In the spirit of his writing, it is a largely critical analysis of his time aboard a sevennight cruise on a ship he nicknames the SS Nadir.

He wrote: "I have heard upscale citizens ask ... whether snorkeling necessitates getting wet, whether the skeet shooting will be held outside ... and what time the Midnight Buffet is."

The most helpful insight from this work for product developers is when Wallace discusses the

advertising brochures on the boat. He describes how they are

not merely a factual description of the cruise and its services. They create an immersive and emotional moment for the intended audience that draws them into the experience.

"In regular advertising ... the purchase is prerequisite to the fantasy ... in the cruise brochure's ads, you are excused from doing the work of constructing the fantasy. The ads do it for you," he wrote.

Product developers spend lots of time building prototypes and obsessing over the minutiae of the functionality of their designs. However, it may lead to more commercial success if our inventions, and the features they have, are tuned to fit within the fantasy of how the potential customer will use them.

Chuck Klosterman

I became obsessed with Klosterman's work after reading his essay collection "Sex, Drugs, and Cocoa Puffs." This book is a delight for Gen X-ers as it features chapters on the reality show "The Real World," teen sitcom "Saved by the Bell" and an essay on why the movie "Star Wars" is overrated. Insights that can be applied to product development are found in two of his other books.

"But What if We're Wrong" is a series of essays that encourages us to view our present life as it were the distant past. Its central argument is that it is impossible to tell what the future will think of present-day art, music, culture and science.

Klosterman cites the novel "Moby Dick" as a prime example. When the book was released in the middle of the 19th century, it received mixed reviews. Sales flopped, and author Herman Melville's life took a turn for the worse. Today, "Moby Dick" is largely considered a literary classic.

Two takeaways for the product developer: Bad reviews do not necessarily mean a product is bad; it may just be ahead of its time. It is also powerful ONSIDER THE OBSTER

PROTOTYPING



Chuck Klosterman's work reminds us that bad reviews may mean a product is ahead of its time, and that your present-day thinking may be wrong.

to consider that at any moment, you could be very wrong about your present-day thinking.

Considering how a product may fail in the future (sometimes called "future-proofing") is something that professional product developers are constantly thinking about during the development cycle to ensure the product has maximum longevity.

Klosterman reminds us how long it can take technology to mature in his book "Eating the Dinosaur." In the essay "Going Nowhere and Getting There Never," he explores the automobile's place in American culture.

The author reminds us that even though the automobile has been around for more than a century, it is still really new tech whose real capabilities may not reveal themselves for many more years.

He writes: "From a historical perspective, we're still figuring out what cars are supposed to be—I mean, boats have existed for forty thousand years, but nobody managed to consistently sail anywhere distant until the Middle Ages. If you look at a Model T and a Lexus LS, there are far more similarities than differences."

It's sobering that even an impactful product we develop in our lifetime may not fully reach its potential until well after we are dead. Yet it is also exciting to imagine how far each generation of designers may push technology forward in new and innovative ways. €



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INVENTING 101

Selecting a **Distribution Network**

OPTIONS THAT WILL HELP YOU GET YOUR PRODUCT TO MARKET BY DON DEBELAK

ANY INVENTORS have great products that never quite make it to market because the inventor isn't able to set up a distribution network. Distribution is a term that stands for the process by which a product moves from the producer to the final consumer. There are many types of distribution networks, and virtually any of them can be used by inventors. Here are some common ones.

Sell direct to consumer. This method is often through the internet, but it can also be accomplished by advertising in local media and then following up with a sales call when people are interested. Companies might use other lead generation techniques such as being in local special event shows, then follow up on leads generated at the show.

Advantages: A low-cost distribution channel, it can help an inventor fine-tune the product with a small group of initial users. It works well for complex inventions, such as a gutter blocking where individual sales calls are required to get the product established.

Disadvantages: Internet sales are difficult unless you have an item that will rank high in internet searches.

Sell direct to retailers or dealers. This is not a national breakout strategy for most inventors but a way to generate sales in local areas to prove the product will sell. It's often used to convince investors that the product will sell.

Advantages: Local retailers are typically open to

helping local inventors; early sales help line up investors; local sales help inventors immediately respond to product problems.

Disadvantages: Cost to produce a small quantity can be high and the inventor could lose money; small quantities might prohibit the inventor from paying for the tooling needed to make the product with commercial viable quality.

Sell to retailers and distributors through manufacturers' sales agents. Inventors often don't have industry contacts and can't afford to exhibit at major trade shows or travel around the country to sell their product. They also can't afford to hire their own salesperson. In these cases, inventors turn to independent sales reps, companies that carry 4-15 products from small companies. These individuals can introduce products successfully for inventors.

Advantages: Reps work on commission, so they don't have an upfront cost to the inventor; reps know the buyers and provide the quickest route to market; reps can offer sophisticated market intelligence to inventors regarding pricing, packaging and promotional programs.

Disadvantages: Reps will quickly lose interest if they can't make \$15,000 or more per year on your product; reps won't support you in a quality crisis, as they are more attached to the customers than to their suppliers; reps expect you to have inventory and be able to deliver, so you need enough cash flow to support production. **Sell to consumers at shows, events and fairs.** State fairs, county fairs, kitchen shows and a host of others happen in virtually every market. Inventors can take up booths and sell their product.

Advantages: Inventors get firsthand market feedback on how their product is accepted by consumers, they can learn which pricing works best, and they get a chance to demonstrate the product's benefits.

Disadvantages: Shows can be expensive if consumers don't buy sufficient products; low-cost products rarely sell enough to cover costs; small-volume production can be expensive and sometimes of low quality.

Sell to retailers and distributors at trade shows. Many industries have large trade shows, both for consumer and industrial products. These shows attract people from all the major retailers and distributors, as well as manufacturers' sales representatives. You can set up a booth and meet retailers and distributors that might be willing to sell your product.

Advantages: You have an opportunity to meet many potential buyers of your product and potentially pick up orders. You might not have to pay sales commissions if you can get retailers direct. It is possible to get large orders at a show.

Disadvantages: The shows are expensive. You might need to spend \$15,000 and up to get to purchase a good display, rent a booth and arrange for all the travel and literature expense. You might run into resistance being a one-product company; most retailers find it simpler to buy from companies with bigger product lines to keep their costs down.

Sell through another marketer. Inventors can sometimes locate another manufacturer that runs into resistance from being a one- or small-line company. Often those companies benefit greatly from having another line to sell along with their products. It cuts their sales costs and makes their line more attractive to representatives.

Advantages: Low-cost strategy; could have significant sales advantages, as the marketer will already have buying customers; the marketer can provide feedback regarding pricing, packaging and promotional programs; the company will receive more exposure at sales shows.

Disadvantages: Inventor products will be considered second priority by a marketer; inventors won't have control of sales efforts; the marketer's portion of sales revenue is typically around 25 percent, rather than a 10 percent sales commission. €

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





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Bipartisan Concern

SENATE IP PANEL IS UNANIMOUS ON NEED FOR PATENT REFORM, BUT WHAT WILL COME OF IT? BY LOUIS CARBONNEAU

RECENT GALLUP POLL shows that only 20 percent of the U.S. population approves of the work being done by Congress. For comparison, half of the population believes in aliens.

As the saying goes, a bipartisan Congress can accomplish great things. Except, it never happens. Such was the case with the congressional hearings by the U.S. Senate subcommittee on Intellectual Property led by U.S. Sens. Thom Tillis (R-N.C.) and Chris Coons (D-Del.).

Nonetheless, in those hearings we witnessed a rare display of unanimity throughout the sub-committee that the system is broken, that innovators have a raw deal and it needs to be fixed sooner than later. This was the common theme throughout the two full weeks in which 45 witnesses appeared before the bar.

Objections on the record

First, the main actors: Senators Tillis and Coons have made it abundantly clear that they believe the patent system is broken. Hijacked by large tech companies and with the courts granting decisions that cause more harm than good, the system has gradually chipped away at every patent holder's rights.

Both senators also seem to understand that other countries (like China) have taken the opposite position, and as a result smart money has been flowing out of the country. They wrote an op-ed piece saying as much.

I feel it is important to cite the following excerpts, as anyone who believes that rewarding innovation is the backbone of a strong economy should do well in absorbing the following:

"Since our country's founding, the U.S. patent system has been one of the unsung heroes of America's success story. Patents are based on a simple concept: that American inventors, entrepreneurs and companies whose hard work and expertise lead to a new invention deserve to reap the benefits of their work for a limited time.

"That respect for intellectual property, enshrined in the Constitution, has incentivized millions of Americans over the years to develop lifesaving cures, revolutionary technological advances, and groundbreaking manufacturing innovations. Patents have played a key role in building America into the economic, academic and military superpower it is today.

"All of that, though, is now at risk, because our patent laws have become overly complicated, riddled by uncertainty, and, frankly, hostile to innovation. Over the last several months, we've heard from dozens of business leaders, researchers, academics, practitioners, members of the public, and judges who have told us that America's global reputation for having the gold standard for patent protection is fading, if not gone completely.

"To put it simply, many inventors, innovators and investors believe that it's better to seek a patent and pursue new innovations in places like Europe or even China. That should concern every single American."

A new narrative

Second, the supporting cast: In the last round of consultations leading to the America Invents Act (AIA) eight years ago, and for years thereafter, the only people with a voice (and a lobbying budget) were the technology integrators who benefited directly from a weak patent system, as they were usually on the receiving end of licensing requests and patent assertions. For years, they found their quintessential villain, the patent troll, and the fiction worked so well that it was almost impossible to bring forth a different viewpoint.

More recently, we have finally seen a counter narrative take a foothold and the hearings. The recent hearings were the culmination of this reversal, with former judges, past United States Patent and Trademark Office directors, inventors, practicing attorneys, wellknown IP law professors, representatives from the life science industry (who also have a vested interest in a strong patent system), etc., follow one another and tell of the considerable impact the erosion of patent rights has had on our economic present and future.

Notably absent from the hearings were representatives from the tech industry and their associations. Notably absent from the hearings were representatives from the tech industry and their associations.

This is disappointing, as it either means they were not invited (which would be a mistake; we need both viewpoints out in the open) or, worse, they already know this is not going to lead to anything of substance and they still have the "power of the purse" to influence Congress the way they want in the upcoming elections. Which begs the question: Why bother being part of a process that you will later decry?

Great expectations

These hearings were in the context of Sen. Tillis and Coons' proposed bicameral (meaning it has support from the Democrat-led House as well) bill that would amend the current patent law. This would seek to clarify the murky patent eligibility question that keeps everyone uncertain as to whether a given invention can be protected without the need of a validation by an appeals court decision or the Patent Trial and Appeal Board, preferably by both.

This effort is far more surgical and limited in scope than the STRONG Patent Act, also sponsored by Sen. Coons, which is working its way through Congress and would go a lot further to restore the lost equilibrium toward patent rights owners. Needless to say, not everyone is happy with this, and organizations such as the Electronic Frontier Foundation and others have voiced their displeasure.

To the extent they can point to some of the unintended consequences of some language in the proposed legislation, their critics should be encouraged: It would make the new bill stronger and avoid the massive surprises (such as inter partes review) that the previous round of patent reform created.

Members of Congress have now created expectations that perhaps something meaningful will be done in the near future. Let's hope they walk their talk this time, or their approval rate could sink to new lows at the worst possible time for them. €

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



STRONGER Hope

LAWMAKERS REINTRODUCE LEGISLATION TO STRENGTHEN PATENT PROTECTIONS **by gene quinn**

R ECENT MOMENTUM in support of the independent inventor continued recently on Capitol Hill when Sen. Chris Coons and U.S. Rep. Steve Stivers reintroduced the STRONGER Patents Act of 2019 on July 10.

Coons introduced the STRONG Patents Act in 2015, which became the STRONGER Patents Act in 2017. This latest iteration, like the iterations before, seeks to take a number of steps to strengthen patent protections and promote American innovation.

Coons (D-Del.), Stivers (R-Ohio), U.S. Rep. Mazie Hirono (D-Hawaii) and U.S. Rep. Bill Foster (D-Ill.) gave remarks, followed by a number of industry, inventor, business and university representatives who support the legislation. The bill is also being co-sponsored by Sen. Tom Cotton (R-Ark.). Coons and Foster noted the "huge ideological spectrum" represented by the various members of Congress who are supporting the bill.

"The STRONGER Patents Act recognizes the critical nature of the patent system and will help reverse a troubling trend of legislation and litigation that has weakened it over the past decade," said The Alliance of U.S. Startups and Inventors for Jobs Executive Director Chris Israel in a statement. "The STRONGER Patents Act will make pragmatic and impactful improvements to U.S. patent law that will increase innovation, spur investment, protect U.S. intellectual property and make America more competitive."

Innovation Alliance Executive Director Brian Pomper also issued a statement noting there has

> been an "alarming decline" in the U.S. patent system in recent years, and that "the STRONGER Patents Act takes critical steps to strengthen patent protections and promote American innovation and job creation."

eBay overturned?

Although there have been several changes from previous iterations of the bill, perhaps the most important provision contained within it has been retained. That relates to injunctions for victorious patent owners who have proved infringement and who have also withstood all validity and other challenges to their patents.

Section 106, titled "Restoration of Patents as Property Rights," would restore the presumption of injunctive relief upon a finding that a patent is both valid and infringed. The language in the STRONGER Patents Act of 2019 reads:

"(b) INJUNCTION — Upon a finding by a court of infringement of a patent not proven invalid or unenforceable, the court shall presume that— (1) further infringement of the patent would cause irreparable injury; and (2) remedies available at law are inadequate to compensate for that injury."

If enacted, this provision would essentially overrule the U.S. Supreme Court's decision in *eBay v. MercExchange* in 2006. In *eBay*, the Supreme Court ruled that the presumption that an injunction should issue to a victorious patent owner was inappropriate and that courts needed to apply the familiar four-part injunction test.

This has led to permanent injunctions being overwhelmingly denied since *eBay*. This is ironic given that a patent is merely an exclusive right—while an injunction, like the patent grant itself, is an order from a court to a defendant that has already lost that the defendant must not engage in certain activities already prohibited by the patent grant.

Left toothless

In a truly Dilbertesque manner, after *eBay* a patent owner has an exclusive right up until the point he or she has prevailed in litigation. Once that person has prevailed in litigation against a defendant that

"The STRONGER Patents Act takes critical steps to strengthen patent protections and promote American innovation and job creation."

-BRIAN POMPER, INNOVATION ALLIANCE EXECUTIVE DIRECTOR





has been adjudicated to infringe and having withstood all defenses, the patent owner no longer has an exclusive right because there is no entitlement to an injunction. And injunctions are typically denied.

Post-*eBay*, patent owners do not have the right to exclude, period. Without owners' ability to get an injunction, infringers have the right to use and continue using—which means the U.S. patent system has been transformed into a compulsory licensing system. Patent owners are not in control. The tortfeasor infringer is the party in control.

This is not how the law is supposed to work. The STRONGER Patents Act would recognize that infringement causes irreparable damage, and monetary damages are insufficient to compensate patent owners who are supposed to enjoy exclusivity.

The STRONGER bill Indeed, it would return patent law to fundamental principles of American law, which seeks to incentivize parties to resolve matters with arms-length negotiations and outside of the courts. The law is distorted and misstructured if parties are driven to the courts to resolve disputes because the law interferes with private resolution.

The theory that law should maximize certainty and minimize transaction costs in order to facilitate an efficient, arms-length negotiation of rights is known as the Coase theorem. The theorem is attributed to Nobel Laureate Ronald Coase, who says obstacles to bargaining and/or poorly defined property rights lead to an inefficient marketplace.

Coase's wisdom can aptly be demonstrated by the current plight of the U.S. patent system. Before 2006, a victorious patent owner was typically the recipient of an injunction. That makes perfect sense, because a patent is nothing more than an exclusive right that grants nothing more to the owner than the right to exclude others from making, using, selling, offering for sale or importing that which is claimed. Without the right to exclude, a patent is worthless. And without an injunction, infringers cannot be made to stop, so they don't.

Tilted playing field

Without the ability for a patent owner to obtain an injunction, attorneys for infringers commit malpractice if they advise taking a license. After all, patents can be challenged at the Patent Trial and Appeal Board, where many will fall. Those that survive can be litigated again in district court, and serially challenged by others at the PTAB.

If the patent owner wins, there is always an appeal—and likely a retrial, given the U.S. Court of Appeals for the Federal Circuit reversal rate. If the patent owner wins monetary damages, the award will be remitted (i.e., lowered) because the federal circuit never likes awarding 100 cents on the dollar to patent owners. Of course, all of this will probably take a decade. How many patent owners have the funds to fight for a decade? They will give up.

Taking a license is indeed malpractice when it is so easy to challenge patents, so easy to tie up patent owners indefinitely, so difficult to get adequate damages, and virtually impossible to get an injunction.

eBay has so significantly tilted the playing field that arms-length negotiations of rights is impossible, which is why so many attorneys who represent infringers brag about simply throwing away, or circular filing, inquiry and notice letters they receive from patent owners. Infringers have no risk. They cannot be shut down.

The STRONGER Patents Act is an extremely important piece of legislation that would return sanity to the U.S. patent system. The most needed and important provision that would immediately return the system to an equilibrium between patent owners and infringers is overruling *eBay*, which is long overdue. €

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IoT Corner

Anheuser-Busch InBev is piloting a new IoT monitoring solution in South Africa for its Staycold beer coolers. The 120,000 point-of-sale coolers in bars, restaurants and rural areas are being upgraded with temperature and location monitoring equipment from CIRT, a tech start-up based in Johannesburg.

The system sends data via the Thingstream network, which is optimized to move small amounts of information via cellular networks. This allows the makers of Budweiser to ensure that beer distributed to the coolers is kept at the optimum -2 and +4 degrees Celsius temperature range, as well as track the physical location of the devices.

The system allows for target maintenance schedules for the equipment, saving time and money on service calls while adding customer satisfaction. —*Jeremy Losaw*

Wunderkinds

Nikita Rafikov of Evans, Georgia, was 11 five years ago when he developed a way to embed GFP (green florescent protein) into windows to create efficient glass and lighting. This can light homes without using electricity; Nikita built a "House of the Future" using this concept. GFP is the protein found in certain jellyfish that creates the bioluminescence effects seen in nature photography.

What IS that?

You can probably tell what they are —**grass flip flops**. The larger question is: Why? These fuzzy, synthetic wonders were launched in late 2011 by "Down Under" company KUSA, which poses the opposite question on its website: "Why not celebrate a piece of Australian fun and sun right now?"

\$38.95

The **average median hourly wage for STEM jobs**, per the most recent data available—another indicator of the value of STEM education. The median wage for all other types of jobs in the United States is \$19.30.

WHAT DO YOU KNOW?

1 In almost all countries, how long is it before a utility patent normally expires after its earliest effective filing date?

- A) 10 yearsC) 20 years
- B) 15 yearsD) 25 years

2 True or false: The United States Patent and Trademark Office defines a trademark as a brand name.

3 Which was invented first—the doorknob or the door hinge?

4 True or false: In 1993, Gary Burghoff of "M*A*S*H" invented a radar-like device.

5 to file a trademark application with the USPTO? A) \$250 B) \$275 C) \$300 D) \$500

ANSWERS: 1. C. Assuming all renewal fees have been paid. 2. True. 3. Evidence suggests the first door hinge occurred around 1600 BC in Hattusa, an ancient Near Eastern capital, in the form of large wooden doors pivoting in stone sockets. The doorknob was invented in 1878 by Osbourn Dorsey. 4. False. He was issued a patent for his enhanced fish attractor device. 5. B. The \$275 is a processing fee and cannot be refunded.

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