APRIL 2026 Volume 42 Issue 04

Inventors DIGEST

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Modernizing Mindfulness

High school inventor's awarded stress-reducing technology builds on ancient relaxation technique

The practice of Anapanasati is considered one of the oldest forms of meditation in the world. It's a breathing technique that 10th-grader Anuki Mudalige saw her grandparents practicing while visiting them in Sri Lanka.

As she observed their daily meditation practice, it sparked an interest in mindfulness and its power to reduce stress in our everyday lives. After returning to her high school in Lewis Center, Ohio, Anuki began to develop a wearable, AI-powered device inspired by the Buddhist philosophy for relaxation. She called it NeuroBreath.

Her invention won four awards at the 2025 RTX U.S. Nationals for Invention Convention Worldwide run by The Henry Ford—including The Lemelson Foundation's Invention Award for Societal Benefit.

The Lemelson Foundation recently spoke to Anuki about her invention journey, and how she was inspired to combine the ancient practice of mindfulness with AI-powered technology to help people relax.

The NeuroBreath prototype uses a breathing sensor, EEG device and app to detect mindfulness.

When did you first become interested in inventing?

I've always enjoyed inventing, even if it was something small. When I was little, I used a screwdriver to take things apart and to build them again, just to see how they worked.

My real start with invention came in fourth grade, when I joined the Invention Convention program. That first experience showed me that inventing isn't just about creating a device—it's about identifying problems in your own life, creating a solution, and then sharing your idea with others in a way they can understand.

Presenting my project to judges and explaining why it mattered gave me a whole new perspective on what innovation really is.

Your early inventions focused on energy efficiency. Can you describe them?

My first invention was SunXTube, which was a system designed to capture sunlight from outside and direct it into the home. Unlike traditional skylights, SunXTube could provide natural light not only to upstairs rooms but also to darker spaces like basements. This reduced the need for artificial lighting and saved electricity.

My second invention was the Smart iVent System, which allowed users to place smart vent covers anywhere in their house and control them digitally through a mobile app. By opening and closing vents remotely, homeowners could manage airflow more efficiently, which reduced wasted energy for heating and cooling.

The third invention, which I created the year before NeuroBreath, was called HeatWise. HeatWise was a hybrid design that combined features of both tank and tankless water heaters. The main goal was to reduce energy costs by combining the efficiency and quick heating

of a tankless water heater while also keeping the storage capacity of a traditional tank.

NeuroBreath is very different from your other inventions. What was your motivation?
After seeing my grandparents practicing mindfulness breathing and meditation in Sri Lanka, I tried it out myself, and I felt the relaxing effect. It truly does reduce stress.

Most people there practice this form of mindfulness meditation on a daily basis. I thought I could use this back home because stress is a huge problem. It affects people of all ages.

Can you explain some of the technology you used in NeuroBreath?
NeuroBreath has three major components: the breathing device, the EEG headset and the mobile app.

This breathing device is worn around the stomach and uses a stretch sensor to detect the expansion and contraction of the stomach during breathing. The sensor is connected to a microcontroller, which can track the different phases of breathing such as inhaling, holding and exhaling.

Other than just detecting breaths, the microcontroller also classifies mindfulness breathing techniques. This allows the device to give personalized feedback for each user.

Since mindfulness is not only about breathing but also about mental focus, I also integrated an EEG headset to measure brain activity. The EEG can detect brainwaves that are linked to deep meditation and attention.

When combined with the breathing data, the EEG gives us a better understanding of both mind and body during mindfulness practice. All of the data from the breathing device and EEG is sent to a mobile app, which uses this data to give real-time feedback, track progress, and even includes gamification features like levels and awards.

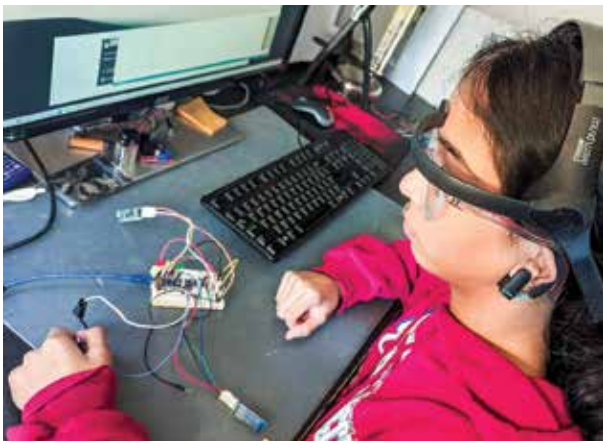
Why was gamification important to NeuroBreath?
Even though mindfulness is super effective, most people don't know how to practice it correctly, or they aren't motivated to stay consistent. Adding gamification to NeuroBreath makes mindfulness more engaging, motivates people to stay consistent and helps them actually build a habit of mindfulness practice.

It's kind of like Duolingo for language learning: It keeps you coming back to practice.

"After seeing my grandparents practicing mindfulness breathing and meditation in Sri Lanka, I tried it out myself, and I felt the relaxing effect. It truly does reduce stress."
—ANUKI MUDALIGE

Could you share some of the breathing techniques?
One effective breathing technique is 4-7-8 breathing. It's where you inhale for 4 seconds, hold for 7 seconds, and exhale for 8 seconds.

A lot of research shows it's really effective, but it's not something you just pick up right away; it takes practice. The best way to start is to find a rhythm that feels



Anuki Mudalige wears the EEG device that detects brain waves while testing NeuroBreath.

comfortable for you, maybe experiment a little. Once you get used to it, you can work your way up to the full 4-7-8 pattern.

How did you incorporate AI into your device?
AI is pretty important for NeuroBreath.

There are two main AI components. The first one is the neural network integrated into the breathing device, which classifies different breathing patterns and allows it to detect and recognize breathing techniques. The second one is the AI Guru, a chatbot in the mobile app that lets users talk to it and get advice on mindfulness.

What's next for NeuroBreath?
This year, I won a patent application award from Cantor Colburn at the 2025 RTX Invention Convention Nationals. I've never had the chance to pursue a patent before, so I'm really excited to begin that process with NeuroBreath and eventually secure a full patent.

Looking ahead, I would love to work with a company or organization to commercialize and distribute NeuroBreath so it can reach people all over the world. Beyond that, my goal is to keep improving its technology—things like making it more accurate, affordable and accessible, so that it can have the biggest possible impact on stress and mental health.

What has participating in the Invention Convention taught you?
I was really shy in elementary school, and I think the reason I'm a lot more confident now is probably because of the Invention Convention. This is because you're not only presenting to judges and in front of people, they're giving you feedback and guiding you to improve. Overall, I think that is one of the biggest reasons I can communicate much more clearly and confidently today.

Who have your mentors been throughout your invention journey?
My parents have been very supportive. Another key mentor was a Buddhist monk, who taught me a lot about mindfulness practice. He thought it was a cool idea to take a modern approach to this practice that has been done for thousands of years, pulling the science and technology part into it to make people today want to use it.

Do you have plans for your next invention?
Right now, I'm working on a device called Sensora to help deaf and deafblind individuals detect emergency sounds through an affordable, wearable device.

It was inspired by my cousin in Sri Lanka who was born deaf. During my visit, I noticed her missing phone calls multiple times because she can't hear them. I started thinking about how she could miss not only phone calls but also things like doorbells, fire alarms and more.

I then started researching and found that many deaf individuals live in poverty, without any access to resources such as emergency alert systems. What I want to do with Sensora is create an affordable yet effective device that gives people equal access to safety, no matter their income.

What's your advice for students interested in pursuing invention?
Just try to start with something small and then work towards it. There are so many problems in the world that need solutions, and you don't need to have a perfect idea at the beginning. You just need to notice a small problem in your own life, and then think: "How can I help fix this?"

From there, take one step at a time, try different things out and don't be afraid to make mistakes. Every failure teaches you something, and even the smallest ideas can grow into something that makes a real difference.

Details: lemelson.org/invention-notebook

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Family Could Be A Smarter Tradition

It was obvious during my interview with Joya Lyons for this month's cover story that her family of four is enthusiastically engaged with her Enchanted Tooth Fairy Box and business, Enchanted Traditions.

It doesn't always happen this way. Resentment, jealousy, distance and unrealistic expectations can fester when a family member achieves invention success. Thomas Edison's family is a classic example.

Here's a bonus question for this month's Inventiveness quiz (Page 46): True or false—Edison nicknamed one of his children Dot, and another Dash.

Marion was "Dot." The first of Edison's six children spanning two marriages, she had an uneasy relationship with her father after he married a 20-year-old two years after the death of Edison's first wife, Mary. (Edison was 39 when he remarried.)

Thomas Jr. was "Dash." He earned his father's displeasure by often trading on the family name, ala his "Edison Junior Lamp" and other failed ventures. A story by The Lemelson Foundation about science across generations said Dash "turned to chorus girls and drink." Edison called him "absolutely illiterate, scientifically and otherwise."

The third child from Edison and Mary, William, studied science at Yale and held several patents related to radio principles. Thomas Edison didn't care much for him, either, and William briefly contested his father's will after Dad died.

Father-child relationships fared much better with the three kids Edison had with the much-younger Mina. Madeleine ran for U.S. Congress (unsuccessfully) and in the 1950s sat on the Board of Directors for Western Union; Charles took over Dad's corporate organization, was secretary of the Navy under Franklin Delano Roosevelt and served as governor of New Jersey; Theodore worked as a laboratory assistant for Edison and held 80 U.S patents when he died in 1992.

Maybe if Edison's first set of children felt more a part of his life's true passion, their relationships would have been closer. And especially in the context of what happened with that famous family, maybe Joya Lyons' company that celebrates family bonds is as ingenious as Edison's best work.

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CORRESPONDENCE

Questioning 'locking everything down'

"Evolutionary Vs. Revolutionary" (May 2024):

(Editor's note: William Seidel's Think Marketing column discussed how improvements and modifications to successful products are safer than what is unproven.)

This is, at the risk of a little blasphemy, gospel. It's why I wonder more than a few moments every day why we choose to lock everything behind IP, copyright and licenses.

I know greed is a powerful motivator, but it is the single greatest weight bogging down the rate of human advancement and discovery, and we have dragged that weight too long. Locking everything down enforced by legal consequence is an admission by the creator that they aren't going to try to improve what they have created and don't want anyone to take market share by doing it better.

Letting everyone work with and improve things that have already been brought into existence by another human is the best way to advance. Just because you tell someone else how to make it doesn't mean they can do it at the level that you do.

It won't reduce potential earnings if you always work towards advancement and to do whatever it is you are doing better than anyone else. This creates the competition that makes all of us do our best work. You might even meet people that you find you can do even greater things in the future with, together. Greed breeds stagnation.

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K. PERRY DEFEATS K. PERRY. ARE WE DONE?

Australian designer Katie Perry has won her Australian High Court appeal against pop megastar Katy Perry in a years-long trademark case. But is this finally the end of a long-running story?

Judges found on March 11 that Katie Perry—who changed her surname to Taylor in 2015—had not hurt the U.S. singer's reputation or caused confusion with her clothing brand, which started in 2007.

Katie successfully sued Katy two years ago for selling merchandise during a 2014 Australian tour, but the ruling was overturned in 2024 with the designer's trademark cancelled.

The latest decision found that Perry's reputation was so well established in Australia that anyone seeing Taylor's clothing brand would not confuse the two names.

"Today confirms what I always believed: that trademarks should protect businesses of all sizes," Taylor said in a statement shortly after the March 11 ruling.

A representative for the pop star said in a statement that she "never sought to close down Taylor's business or stop her selling clothes under the KATIE PERRY label."

In 2007, Taylor registered her business name, Katie Perry, and applied for a trademark. The BBC reported that from 2008, she sold clothes at local markets, had a website and several social media accounts with the Katie Perry brand.

But in 2009, lawyers for the singer asked Taylor to stop using her brand, hinting at a plan to oppose a trademark application before dropping legal action.

INVENTING 101

Finding Sales Reps, and Planning Ahead

BY DON DEBELAK

I've written in the past how sales reps, often called manufacturer's sales representatives, can be a big asset when trying to license a product. Besides the obvious step of aasking other inventors, here's how to find them.

Trade magazines, shows

Locate the leading trade magazines and trade shows for the industry. If possible, attend the trade show, go to booths with complementary products and see if they have reps—or maybe the booth will even be run by reps.

Scour new product sections in the trade magazines; send away for information on complementary products. When you receive the sales literature, see if local reps' names are included.

Trade association websites

Sometimes industry trade association websites have lists of reps. Gale's Book of Associations (gale.com) and internet searches should be enough for you to find industry trade associations. Also check out manufacturer's sales representatives directories such as MANA, the Manufacturers' Agents National Association (manaonline.org).

VITAL VOCABULARY

Venturing This term describes when you decide to turn your invention into a business by making, marketing and selling it yourself instead of licensing it to a company. This process has its pluses and minuses—as July 2025 *Inventors Digest* cover subject Michelle Morrison will tell you.

Preparing for a deal

The agreement. Before you start contacting sales reps, have a manufacturer's rep agreement ready. You can find a sample agreement on the internet or have one done by an attorney.

Among the many particulars you will see is the expectation you will pay a commission of 10 percent to 12 percent.

The materials. The literature should include sales flyers, price lists, stories and testimonials. You should offer samples, list your web page and include info on manufacturing capabilities.

Discuss marketing support—i.e. ads being run, trade shows you will attend, PR efforts and other support. Offer information on sample policies, consignment or guaranteed sales for new customers, and co-op advertising programs. Also include what reps will receive for promotional materials, sales materials and samples.

You need professional-looking materials so the reps know you mean business. If your mailing looks like it was put together by a fly-by-night company, it is unlikely you will attract talented and experienced reps.

Sending the mailing. Send your mailing to only 10 to 15 reps to start. Call them and see if any are interested in your line; if not, ask why. You may need to make some changes in your package. Repeat the cycle with another 10 to 15 reps. Then, make a larger-scale mailing to all the reps on your list.

Interviewing the reps. If a rep is interested, prioritize these two aspects.

SHADES OF IP | PATENTS | TRADEMARKS | COPYRIGHTS | TRADE SECRETS

Patent, Trade Secret, or Both?

TWO OF THE FOUR main types of intellectual property, patents and trade secrets, are often used together or as part of an interlapping IP strategy—ironic in that the very public process of patenting destroys the secrecy that is the foundation of trade secret protection.

Powerpatent.com goes as far as to say: "Most founders think patents and trade secrets are an either-or choice, but the strongest companies never pick just one. They use both at the same time to build layers of protection around what really matters," creating "a quiet but powerful shield that makes copying slow, risky, and expensive.

"This layered IP strategy lets founders keep building fast, raise money with confidence, and stay in control of their technology instead of reacting to competitors."

Because there is no government registry for trade secrets, there are no filing or maintenance fees. This plays a prominent role in many companies' decision to use them as part of a layered protection strategy.

The process of filing for and maintaining a patent is expensive. Further, it generally takes 18-24 months from the filing of a utility patent application until a first Official Action from the United States Patent and Trademark Office. So during this time, some companies choose to protect the same information as a trade secret before eventually deciding whether the information or innovation is more valuable as a patent or trade secret.

Per a 2022 article on IPWatchdog: "Conventional wisdom holds that patent protections and trade secrets operate like a playground teeter-totter—when patents are strong, trade secrets are weakened and vice-versa. But in some instances, they can work together."

Choosing one or the other depends on the business and purpose. Romano Law says, "If you want to sell your invention or license its use to others in the marketplace, seeking a patent is a better option. ... You would not be able to disclose the trade secret to a potential buyer because it would lose its status as a trade secret.

"On the other hand, if you want to keep your invention as secret as possible, then protecting it as a trade secret makes more sense."

Reps should have complementary lines. For example, if you have a new style of backpack for camping, you want the rep to have other outdoor product lines for the same market.

The rep also needs to believe he or she can make at least $10,000 or $15,000 with your product. If they can't make that much, it is unlikely they will support you for long.

Don Debelak is the founder of One Stop Invention Shop, offering marketing and patenting assistance to inventors. He is also the author of several marketing books.

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GOOD TO KNOW

New USPTO branch in Utah: The University of Utah entered into an agreement with the USPTO to host a community engagement office on the campus, strengthening access to IP education, resources and expertise for students, entrepreneurs, businesses and communities across the Intermountain West.

The office will serve innovators in part of the eight-state area formerly serviced by the Rocky Mountain Regional Outreach Office. The eight-state area included: Idaho, Montana, Wyoming, Colorado, North Dakota, South Dakota, Utah and Nebraska.

Yes, Virginia

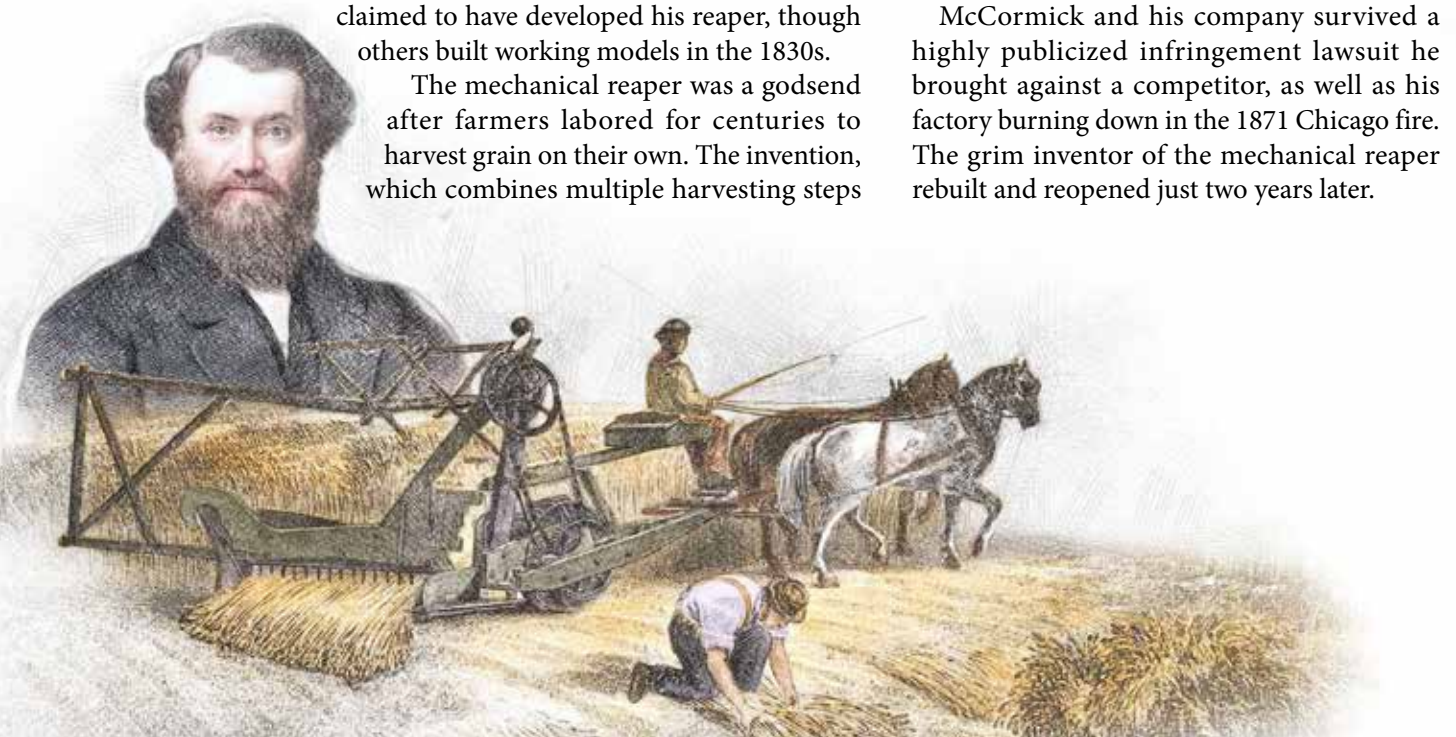
U.S.'s first state colony and primary host to America250 festivities is also home to famous inventions **BY REID CREAGER**

By any definition, this will be a hot summer in Virginia.

America's oldest state colony—first settled by the English at Jamestown in 1607—will host the exhibition "Give Me Liberty: Virginia & the Forging of a Nation" at the American Revolution Museum at Yorktown beginning July 1 as part of the United States' 250th anniversary celebration. This will come on the heels of Sail250® America—a global assembly of tall and military ships for 10 days in June that will involve 10,000 officers, cadets and crews of more than 60 ships from 20 countries.

These two innovative celebrations continue a history of invention in diverse fields from America's 10th state, admitted to the Union on June 25, 1788. Three of Virginia's most prominent inventions came during the 1800s.

Inventor Cyrus McCormick triumphed over struggles and controversies.



Mechanical reaper (1831)

This is the year that Cyrus McCormick—the machine's generally acknowledged inventor—claimed to have developed his reaper, though others built working models in the 1830s.

The mechanical reaper was a godsend after farmers labored for centuries to harvest grain on their own. The invention, which combines multiple harvesting steps and is the basis for today's machines, reportedly allowed farmers to increase crop yields up to 200 percent.

McCormick's story is one of victory over struggles and controversies. The Rockbridge County resident received his patent in 1834. His product had uneven sales results due to quality issues until he moved to Chicago in 1847 and built a factory.

He experienced a setback a year later when he tried to renew his patent—only to learn that the U.S. Patent Office noted a similar machine had been patented by Obed Hussey just months earlier. McCormick's application was denied.

He got vindication in 1851. In a display at London's Crystal Palace Exhibition, McCormick's reaper harvested a field of green wheat; Hussey's machine failed. McCormick won a gold medal and was admitted to the Legion of Honor.

Shortly after, according to a story archived from the New York Times, he learned he had lost a court challenge to Hussey's patent.

McCormick and his company survived a highly publicized infringement lawsuit he brought against a competitor, as well as his factory burning down in the 1871 Chicago fire. The grim inventor of the mechanical reaper rebuilt and reopened just two years later.

Frank J. Sprague's electric streetcar succeeded where 74 attempts by others failed.

Electric streetcar (1888)

Here is one of the most dramatic examples of successful perseverance in invention history.

After others around the world tried with limited to no success to build a viable electric trolley railway system—the Institute of Electrical and Electronics Engineers reported there were 74 previous attempts—the Richmond-based Union Passenger Railway finally got it right.

The system, a true triumph of engineering designed by Frank J. Sprague that replaced animal-powered trolleys, revolutionized urban transit. It began regular operation with 10 streetcars; electric power was supplied through overhead trolley wires. Running speed was 7.5 miles per hour, with a 15-mph maximum.

The electric streetcar may seem a primitive remnant of yesteryear, but it provided crucial transport before the mass popularity of cars and buses.

ChapStick (1890s)

Dr. Charles Browne Fleet, who opened a small, family-run pharmacy in Lynchburg, Virginia, in 1869, often dabbled in experimental balms and salves for customers. What became the world's first commercially successful lip balm evolved from attention to marketing and the idea to have the content pushed up in a small tube.

Lauren Cabral, writing for Back Then History:

"It looked like a small, wickless candle and was wrapped in foil. Perhaps due to the packaging, Fleet's lip emollient didn't catch on.

"In 1912, Fleet sold his product to his friend John Morton for just $5. Morton and his wife then began brainstorming how to make the product more marketable. Mrs. Morton came up with the idea of pouring the melted ingredients into brass tubes and including sticks that could be pushed up as the product was slowly used up."

The Mortons launched the Morton Manufacturing Co. from their home kitchen and began manufacturing ChapStick, with almost immediate success. Local commercial artist Frank Wright Jr. designed a logo for the brand in the mid-1930s that is still in use today.

The company has changed hands several times in the past near-century, but the product is still made in Richmond.

The Jefferson link

When most people think of Virginia in an inventing context, Thomas Jefferson comes to mind. It's fitting that America's third president helped draft the first U.S. patent laws.

In 1776, while writing the Declaration of Independence, Jefferson reportedly sat in one of the first swivel chairs. He had added a central iron spindle to a traditional Windsor chair that allowed the seat to rotate (the design was never patented).

Dating to America's earliest moments, Virginia and invention are inextricably linked.

INVENTOR ARCHIVES: APRIL

April 2, 1889: Charles Hall patented an inexpensive method for producing aluminum, bringing the metal into wide commercial use.

Hall was awarded five patents on that day for his discovery of the electrolysis process for extracting aluminum metal from aluminum oxide. One of the founders of aluminum company Alcoa, Hall was granted 22 U.S. patents.

Short-form Video, Re-imagined

How inventors can use the technique comfortably, without the spotlight **BY ELIZABETH BREEDLOVE**

If you pay attention to marketing trends, you likely know that short-form video is becoming more important if you want to find success online. However, like many small inventors and entrepreneurs, you may find yourself hesitant to embrace it.

The idea of your pointing a camera at your face, speaking into it with energy and polish, and posting it for strangers to judge can feel unnecessary at best and deeply uncomfortable at worst.

The good news is that short-form video does not require a spotlight. It requires clarity, something inventors understand.

A quick reframing

When people talk about Reels on Instagram, clips on LinkedIn, TikToks or short Facebook videos, they often describe them in terms of trends, music or personality-driven content.

If you spend even 10 minutes scrolling through TikTok or Instagram, you will see dancing, jokes, filters and fast edits. It is easy to assume that this is the only way to participate.

That is a misunderstanding of the format. Short-form video is simply a way to deliver information quickly and visually. You are not creating entertainment; you're just providing insight into a product, a process or a problem—something you already know how to do in conversation, at trade shows and in meetings.

A steady shot of the product on a workbench, with your voice calmly explaining what the viewer is seeing, creates a sense of credibility.

Demonstration is crucial

If you are uncomfortable being the center of attention, make your invention the focus.

One of the most natural uses of short-form video for inventors is a demonstration that shows potential buyers, retailers or partners what makes your invention useful. A 30- to 60-second clip that demonstrates your product in action can accomplish much more than a paragraph of explanation. This works especially well on platforms such as Facebook and LinkedIn, where audiences are accustomed to practical information.

You don't even have to appear on camera if that feels uncomfortable; your hands can be enough. A steady shot of the product on a workbench, with your voice calmly explaining what the viewer is seeing, creates a sense of credibility. It mirrors the way you would demonstrate your invention in person.

Many inventors already record videos for patent documentation, investor updates or internal use. Public-facing, short-form video is not dramatically different. It's just shorter and more intentional.

Explanation as education

Inventors often underestimate how interesting their thought process is to others. What feels routine to you may feel enlightening to someone who has never tried to take an idea from sketch to prototype.

Short clips that explain why you designed something a certain way, what challenges you encountered during development, or what mistakes you corrected along the way can build trust without requiring performance. These

videos can be filmed in your workshop, office or even at your kitchen table, with a simple phone camera and natural light.

On LinkedIn in particular, a thoughtful explanation typically performs well because the audience expects professional insight. A 45-second clip discussing a design decision can position you as experienced and thoughtful.

Even on TikTok, which is often associated with trends, there is a large and growing appetite for practical education. Users search for tutorials, behind-the-scenes looks and real problem-solving, and the algorithm rewards watch time more than charisma.

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The power of process

Perhaps the most overlooked opportunity for inventors is video of the process. Instead of presenting a finished, polished product every time, you can share small pieces of the journey.

When people see the process, they begin to understand the effort behind the invention.

Consider filming a clip of a prototype being tested, a look at a new material you are considering or a glimpse of your sketchbook. These moments do not require a script or a performance mindset—just a willingness to document.

Keep in mind, this doesn't mean revealing proprietary details. You decide what to show and what to keep confidential. The goal is not to expose trade secrets but to make the work feel real and ongoing.

Make it manageable

One reason video often feels intimidating is that it seems open-ended. You press Record and wonder what to say.

Instead of thinking in terms of "making a video," think in terms of answering one question.

What does this product fix? How long does assembly take? Why did you choose this material? What changed between Version 1 and Version 2?

If you can answer that question in under a minute, you have a video.

This approach reduces pressure because it limits scope. You are not telling your entire story at once, only contributing one small piece. Over time, those pieces form a body of content that reflects your expertise without requiring you to perform.

It can help if you "batch record." Set aside one hour and record five short clips in a single session.

Change the angle slightly or move to a different part of your workspace to create variety. Then, release those clips gradually over several weeks. The audience sees consistency, but your approach is all about efficiency.

Authenticity wins

There is a persistent myth that video must look polished to be effective.

For inventors who built their businesses on careful engineering and precision, this myth can be especially paralyzing. If the lighting is not perfect or the audio is not studio quality, it may feel unprofessional.

Yet on short-form platforms, polish is often less persuasive than authenticity. Viewers are accustomed to phone-shot footage. They value clarity and honesty over perfection.

This doesn't mean you should ignore quality entirely. Clear audio, steady framing and good lighting matter. But those elements are achievable with a smartphone, a quiet room and a basic tripod.

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.

Lather. Rinse. Repeat.

Whether a slogan, call to action, list or instructions, a 3-word message is easier to remember, and memorable **BY WILLIAM SEIDEL**

In the world of marketing, the No. 1 law is to keep it simple. The No. 2 law is to say everything in three words.

BMW, the "Ultimate Driving Machine," is the perfect example. The slogan is simple, defines the products and instills in customers' minds what the company represents.

It is no accident that things are easily remembered in threes.

This is a magic number because it is a cognitive principle supported throughout psychology and ingrained in our psyches. It is also a perception principle, because we are subconsciously attracted to things in threes: ABC, do-re-mi and "as simple as 1 2 3."

Remember the three blind mice, The Three Musketeers and The Three Stooges? There were five Marx Brothers but only three featured.

Thanks to Shakespeare, the three-act structure is the dominant factor in screenwriting, plays and movies with a beginning, middle and end. Remember "The Three Amigos" and "The Good, the Bad and the Ugly"?

In photography and composition, the Rule of Thirds is the first thing taught. In mathematics and aesthetics, it is the Golden Ratio—also known as the Divine Proportion—which is basically relationships of thirds. And there are rhythmic patterns that play a role capturing attention and engagement, making it ideal for jingles, songs and stories.

The Holy Trinity is the Father, the Son and the Holy Spirit.

Our brains feel patterns

Our brains are hardwired to recognize patterns consciously and subconsciously. Three is the smallest number to contain a pattern.

This combination of pattern and brevity results in greater familiarity and, as a result, is more memorable with more comfort and acceptance.

Learning how to use this device captures the ability to capitalize on this hidden persuader. The question is: What three things do you want to stick in a customer's mind? It works as a tagline with three words, benefits grouped into three bullet points.

Advertising pioneer E. St. Elmo Lewis's principles of copywriting are stated as: "The mission of an advertisement is to attract a reader, so that he will look at the advertisement and start to read it; then to interest him, so that he will continue to read it; then to convince him, so that when he has read it he will believe it.

"If an advertisement contains these three qualities of success, it is a successful advertisement."

I review hundreds of product presentations. Invariably, inventors crowd dozens of bullet points to explain every possible feature, benefit and application.

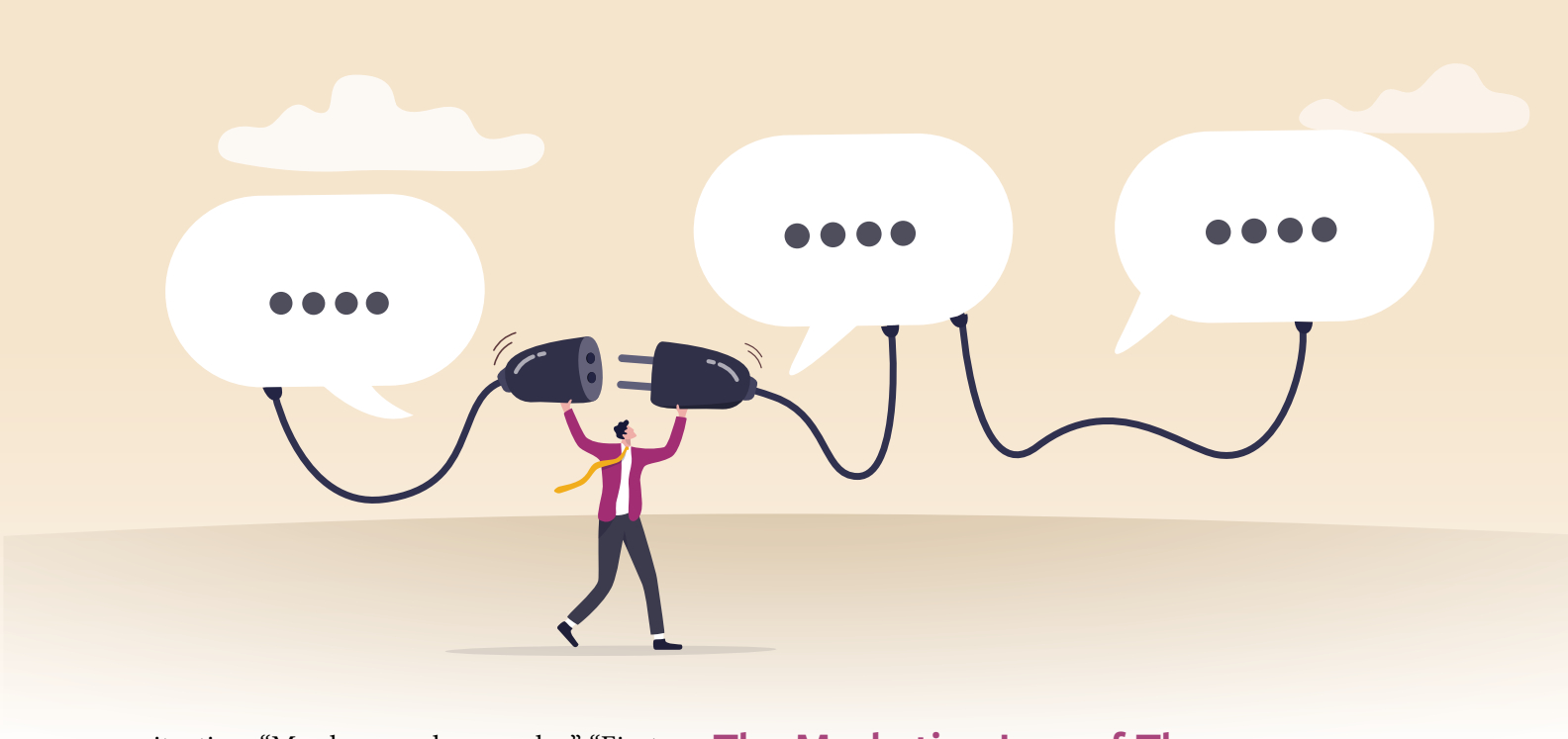
This may be correct, but it's unmanageable. I always say, "Give me the three most impactful benefits of your product that set it apart."

Too much information reduces the impact of the few important benefits that really matter. It's important to focus attention on bringing the three most marketable aspects of the product to life.

Classic repetition

The Marketing Law of Threes successfully tricks us into thinking that repetition equals importance.

Aviation standard procedure is to repeat critical commands three times. This ensures there is absolutely no doubt that it is a critical



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situation: "Mayday, mayday, mayday." "Eject, eject, eject." "Abort, abort, abort."

Epizeuxis is a form for creating emphasis with repetition: "Location, location, location." "Go, go, go." "Yada, yada, yada." (Some may remember Monty Python and the "Spam Song." Gotta say—it's catchy.)

In the old days of Madison Avenue, repetition of the message was sacrosanct with the notion that to make a message stick, hammer the points with repetition. "Tell 'em what you're gonna tell 'em; Tell 'em; Tell 'em what you told 'em." This is common in presentation skills, public speaking and commercials.

Repetition is important because there is a "forgetting curve" that shows within 20 minutes, we forget 40 percent of what we learned. After 60 minutes, we forget half of it. One day later, we will have lost more than 70 percent of what was learned.

I repeat: This is why repetition is important.

Store this example

Steve Jobs used threes in nearly every presentation. Upon the unveiling of the first iPhone in 2007, he proclaimed, "I have three breakthrough products—a new iPod, a smartphone, and an internet device."

This was three products in one. He could have mentioned dozens, but he picked the best three.

Does this sound familiar? "Honey, I'm going to the store. Do we need anything?"

"Yes, milk, eggs and dog food."

The Marketing Law of Threes successfully tricks us into thinking that repetition equals importance.

"Got it."

"Oh, wait! We also need apples, English muffins and coffee." Ahhhh, wait… I need a list."

Remembering more than three chunks of information doesn't work for most people.

Different products, different campaigns and different industries require different strategies. In complex technological ventures, it is important to keep the benefits and marketing simple—even when the features and background may be very detailed.

Presenting information or messages in groups of three simplifies the message and makes it more digestible for consumers, distributors and venture partners. From taglines and storytelling to pricing strategies and web design, keeping it simple assures more effective results because it helps people remember what you want them to remember.

The meaningful assignment for you: What do you want them to remember?

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

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Making a Clear Difference

Occupational therapist's rolling ink stamp instantly creates lined paper to improve writing legibility **BY EDITH G. TOLCHIN**

Polly Benson is a school-based occupational therapist and entrepreneur from Gainesville, Georgia, who invented a hand-sized device to help children of all learning levels improve the legibility of their writing.

When working with older students, Polly Benson noticed they often had no guidelines on their paper and had developed habits like inconsistent sizing, spacing and letter formation.

Edith G. Tolchin (EGT): Please tell us about your background in special education and how it led to LegiLiner.

Polly Benson (PB): I'm a school-based occupational therapist with over 30 years of experience, specializing in helping students with special needs succeed in the classroom. Throughout my career, I've worked closely with kids who struggle with handwriting—whether it's due to fine motor delays, sensory processing challenges or learning differences.

When working with older students, I noticed they often had no guidelines on their paper and had developed habits like inconsistent sizing, spacing and letter formation, which made their writing illegible.

In occupational therapy, we often focus on the underlying skills for fine motor strength and control—and sometimes those test within normal ranges—but students still struggle with legible writing. LegiLiner was born out of this daily challenge.

I needed a simple, practical tool that would empower teachers and therapists to make lined paper on the fly, giving kids the structure and consistent practice they needed. I thought: What if there was a rolling ink stamp that draws handwriting lines?

I couldn't find one, so I made a prototype. The teachers went crazy for it and encouraged me to patent it. So, I did!

EGT: How does the LegiLiner work? Can all children use it, or is it just for special ed?

PB: LegiLiner is a simple but powerful tool—a rolling ink stamp that instantly draws handwriting lines, shapes, patterns, math equations or even a music staff on any blank paper.

Teachers, therapists, parents and even kids can roll it across a page and, like magic, you've got perfectly-spaced lines ready to use.

"When working with older students, I noticed they often had no guidelines on their paper and had developed habits like inconsistent sizing, spacing and letter formation, which made their writing illegible."—POLLY BENSON

We recommend it as a tool (not a toy), but kids love drawing their own lines, too. It engages them in hands-on learning, and even if the line isn't perfectly straight, the parallel structure helps them focus and practice neat writing.

EGT: Is there an age range or grade range where children will get optimal benefits from the products?

PB: LegiLiner is most helpful for kids in Pre-K through about third grade, when they're developing and refining handwriting skills and need the most support with line placement, sizing and letter formation. But we also have stamps that benefit older students and adults.

EGT: How many different types of LegiLiners are there? Please share your manufacturing experience.

PB: We now offer 21 different LegiLiner stamp designs, from standard dashed lines in various sizes to lines that match specific curricula, music staff lines, shapes for sound boxes, dotted grids for journaling and graphing, and number lines for math. Many have multiple uses, which makes it easy for teachers and therapists to find the right fit for each child.

Getting LegiLiner manufactured has been quite a learning curve! I work with overseas partners to produce the custom rubber stamps and refillable ink rollers at scale. Managing quality, shipping, barcodes, packaging and timelines has taught me so much about supply chain and prototyping, and the importance of finding the right partners to grow from an idea into a product line that now helps thousands of kids every day.

EGT: Do you have any patents? If so, please tell us about that experience, any obstacles and advice.

PB: I'm especially excited about what's next. I'm patent-pending on a new multi-ink color stamp, which will open so many new possibilities for patterns and designs. Using multiple ink colors means we can better match curriculums and give kids visual cues that help them understand line orientation and placement more clearly.

Speaking of patents: The first time around, I did it myself without an attorney and got some bad advice, which led to the patent expiring. That opened the door for copycats, and I went from 100 percent market share to 12 percent overnight. It was painful but taught me a lot.

Now, my advice to other inventors is to hire a good attorney! The cost of doing it right is so much less than the cost of not protecting your work.

And I remind myself daily: People can copy the idea, but they can't duplicate the expertise and support that comes with LegiLiner. I'm not just selling a stamp; I'm offering a therapeutic approach to handwriting progression that's been developed over decades.

EGT: From where are you selling?

PB: LegiLiner products are available through our website (LegiLiner.com), Amazon and at

PHOTOS COURTESY OF LEGILINER

There are 21 different LegiLiner stamp designs, including standard dashed lines in various sizes; lines that match specific curricula; music staff lines; shapes for sound boxes; dotted grids for journaling and graphing, and number lines for math.

select educational conferences where teachers and therapists can try them in person. We also partner with a few school supply distributors and catalogs that offer our stamps to schools and therapy centers.

Most LegiLiners are priced around $15 each, with bundles and special pricing for schools and districts. Keeping them affordable is important to me.

EGT: Is your project self-funded, or have you done any crowdfunding?
PB: LegiLiner has been 100 percent self-funded so far. Early on, I ran a presale of 100 stamps in a school-based OT/PT group online to see if anyone would be interested. They sold out in a weekend!

That early test gave me the confidence to invest my own savings and start small-batch manufacturing. It showed me the power of validating your idea before you pour everything into it. You don't always need a big crowdfunding campaign; sometimes testing with your actual audience is the best "green light" you can get.

EGT: What types of media exposure have you gained?
PB: Recently, I was honored to appear on "Legacy Makers," a TV show that spotlights entrepreneurs who turn ideas into impactful businesses. My episode shows how I transformed a simple, therapy-inspired concept into a practical tool that helps kids feel successful.

It's always rewarding to see teachers post about using LegiLiner. That genuine word of mouth continues to be our most powerful media.

EGT: Any advice for novice inventors?
PB: Stay laser-focused on who you're helping, and stay connected to the people who'll use your invention every day. Get their feedback early and often!

I worked with an ambassador group that tested new stamps in exchange for samples, and their feedback was amazing. Many of my patterns came directly from requests and ideas from real users.

EGT: What is ahead for the product and you?
PB: I have three new patterns in production now and plan to add at least two more next year. My biggest goal is to keep growing and make LegiLiner a household name—not just in special education, but in every classroom and home where kids are learning to write.

Giving back is just as important to me. I have a huge passion for serving special-needs individuals and donate 10 percent or more of my profits. I partner with local organizations for packaging, which creates meaningful work opportunities, and I love to randomly bless teacher wish lists or fulfill requests for stamps in underprivileged areas.

I'm also excited about launching a mastermind program to mentor other up-and-coming entrepreneurs who have products in the therapy or pediatric education space. If I can help someone else get a jump start and avoid some of the bumps I hit, that makes it all worthwhile.

Details: Polly@LegiLiner.com

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

1-2-3 Common Invention Questions Answered

BY BEN GREENBERG, FOUNDER OF INVENTIONS UNLIMITED (INVENTIONUNLIMITED.COM):

1 What is the most significant mistake inventors make right after they get excited about an idea?
They confuse excitement with evidence. Invention starts with emotion, but success comes from proof. Before spending money, you need to validate the problem by talking to real customers and studying complaints, not compliments. Markets reward pain, not passion. If people aren't actively frustrated about the problem the invention solves, they won't pay—no matter how much you love your idea.

2 Why do so many inventors build prototypes too early?
Because building feels productive, even when it's premature. A prototype doesn't prove demand; it only proves something was built. The correct order is problem, validation, then prototype. When inventors skip validation, they often create expensive, beautiful objects for issues no one truly cares about. Prototypes should answer questions, not replace market proof.

3 How should inventors think about competition?
Competition is a signal, not a threat. If similar products exist, it means customers are already buying. That's good news. The opportunity isn't to be different, it's to be better. Reviews and complaints show exactly where competitors fail. That's where your invention wins. No competition often means no market at all.

Tradition Mission

Dentist's Tooth Fairy box keeps the magic of childhood alive in an elegant, practical way

BY REID CREAGER

The Enchanted Tooth Fairy Box is the signature product from Enchanted Traditions, founded by Charlotte dentist Joya Lyons in 2022. The company's mission is to promote family connections and traditions through children's picture storybooks, keepsakes and merchandise.

When the mother of a newborn and 6-year-old, Joya Lyons remembers all that 3 a.m. crying during one particularly sleepless and stressful night six years ago.

The tears were hers.

Her oldest child, Brielle, had lost her first baby tooth. "I'm thinking, I get to be the Tooth Fairy for the first time! This is going to be exciting! That's what everybody tells you."

The moment of tooth wasn't the kind of excitement she envisioned. "My daughter sleeps like a crazy person, for one. She also slept with all the lights on because at the time she was scared of the dark.

"And so all the time I'm thinking, 'How am I going to get this tooth from under the pillow?' And I have to wait till she falls asleep because she's going to see me in the light."

Lyons returned to Brielle's room several times, waiting for the right moment during a strategic ordeal that lasted half the night. She grew up in a family that cherishes traditions and family bonds. There could be no mistakes.

Her patience and persistence were ultimately rewarded when she finally got the tooth from under the pillow and exchanged it for the money without waking her daughter.

Sitting on a couch and crying a few hours before the sun came up, she thought, "I don't want to do that again. But I don't want her to not have a magical experience again for the second time."

A story is born

Lyons talked to her husband, Drew, later that morning. She told him that if any kind of automatic device existed to prevent this kind of frustration and stress, she would buy it.

The notion was consistent with how Joya Lyons' mind works. Always interested in working with her hands and the mechanics of things, she grew up in the Detroit area thinking she would become an engineer.

"Whenever I went to the dentist, I loved all the tools," said the co-owner of Charlotte-based Smile Savvy Cosmetic Dentistry with her husband since 2014. Dentistry was the best fit for her skills and dreams because she could have her own business, work with her hands and make her own hours while raising a family and honoring the traditions associated with it.

Her husband has always been enthusiastically supportive of her innovative mindset. "I've told her she was going to invent something(s) since the beginning of our relationship, during our dental school years," he said. "I was convinced in that belief."

So his reaction to her automated Tooth Fairy idea was as unsurprising as it was immediate:

"That is genius."

Two years after her light bulb moment, Joya Lyons turned on the switch for Enchanted Traditions. The company's mission is to promote family connections by creating children's picture storybooks, keepsakes and merchandise that celebrate and preserve traditions.

The box is part of a kit that includes the Enchanted Tooth Fairy Children's Book. The family includes Joya; her husband, Drew; Brielle, 12, and Trace, 7.

TOP RIGHT PHOTO BY BRK MARKETING; ALL OTHER PHOTOS BY ARIEL PERRY PHOTOGRAPHY

Enchanted Traditions' signature product is the Enchanted Tooth Fairy Box®, which enables kids waiting for the Tooth Fairy to keep that tradition alive—with a twist.

Instead of putting a tooth under his or her pillow that Mom or Dad have to search for without waking anybody, the child puts a tooth in an elegant box on a table before bedtime. The box has a revolving compartment that automatically and quietly switches out the tooth for money during the night—6 hours after the box has been preset.

The box is part of a kit launched in January 2023 that includes the Enchanted Tooth Fairy Children's Book. It's a story about Brielle, who discovers a magical tooth box that helps the Tooth Fairy complete her nightly mission despite obstacles. Stickers and letters are included for active playtime.

Now 12, the real-life Brielle loves the book for all its "details and action that make it fun for whoever loses their tooth and makes them excited every time they read the book. I like the box because it's an amazing way for the Tooth Fairy to collect the tooth, and the colors are pretty."

Steep learning curve

Getting the Enchanted Tooth Fairy Box to market was no simple fairy tale.

Like many fledgling inventors, the polished but affable Lyons said she generally had "no clue" how to execute a brilliant concept. She remembered thinking, "It has to be simple. It has to work. It has to be quiet."

And she had to protect her idea. She enlisted the help of a patent attorney to search for similar products—"Google is insufficient"—and when that yielded nothing became confident she would not be stealing someone else's idea. After the attorney helped her write a provisional patent application, "I could go ahead and make all the details and figure out how it was actually going to work."

She got a big boost from the Chicago Inventors Organization, a nonprofit dedicated to supporting inventors and entrepreneurs through resources, education and networking opportunities. Lyons called the CIO's owner, who recommended an engineer who could 3D-design what she described to him for not too much money (he charged her nothing).

"He helped me draw out 3D so I could take the design to a manufacturer," she said. Not knowing how to proceed next, she went back to CIO, which helped her find a manufacturing company in Tampa. She and an engineer came up with a design, and she excitedly submitted a patent application.

Joya Lyons' expertise as a dentist and experience as a mother give authenticity to the Enchanted Tooth Fairy Box. Enchanted Traditions is the only company with intellectual property for an automated childhood tradition device.

She remembered thinking, "It has to be simple. It has to work. It has to be quiet."

She should have waited. "When I went to the manufacturers, they said, 'That's a great design, but we need to refine this and get something that's going to be more repeatable because it's going to be something that's going to be a mechanism that's done often—and we don't want it to fail.'"

She had to apply for a patent on the refined mechanism. "They were able to draw another design, and this process took from 2020 to 2022, coming up with the prototypes," she said.

"The first prototype was horrible, but at least it proved it could work. And it was too big; it sounded like a lawnmower. They had to put so many things in there to make it sound like a mosquito."

Cost was a factor, as always, but for Lyons that was second to quality. "They said, 'We have to make sure it doesn't cost too much.' I'm like, I'll price it the way it needs to be priced. And I want it to look like a nice toy, not like it's going to break after you pick it up.

"I was very, very adamant about the quality and making sure it was quiet and beautiful."

There is still patent work to be done on the current mechanism, but Lyons is confident and thankful for the help she has gotten throughout the experience.

Unique distinction

A crucial bonus of the Enchanted Tooth Fairy Box is the expertise that comes with it—a product from a mother who understands dental health as well as child development. This isn't some automated toy from a toy company.

Now, Enchanted Traditions has two U.S. patents and a unique distinction: the only company with intellectual property for an automated childhood tradition device. This means Enchanted Traditions is what Lyons refers to as a "tech-enabled family traditions" company, not just another toy manufacturer.

With sales strong, Lyons' next goals are to wholesale, get more colors for the box and write other books—all part of the company's enduring mission to "make life easier and make childhood more magical."

Black Enterprise magazine and People of Color in Tech (POCIT) have featured Lyons and the Enchanted Tooth Fairy Box, also citing her community efforts as founder of the nonprofit S.C.O.R.E. with her sister to encourage girls to pursue S.T.E.M. careers.

Drew Lyons' comments revealed the same kind of larger vision and the energy the two get from one another—their own real-life fairy tale.

"Every day, I get a front-row seat to her genius, dedication and perseverance, but this is bigger than having successful traits. It hit my soul in a deep way that this is the most authentic version of her, and I wanted to do my part to see that come to fruition.

"I prefer to be on the right side of history!"

Details: enchantedtraditions.com
The magical story of the Tooth Fairy and the Enchanted Tooth Fairy Box: youtube.com/watch?v=ii5StTY4wVw

HOW THE BOX WORKS

- Turn on the box, using the switch on the bottom. The LED light will glow, indicating the box is on.
- Open the box and remove the small pouch, fold a bill and make sure it's small enough to fit inside the pouch. Place the pouch into the compartment in the center of the box.
- Locate the small black button on the back of the box, press and hold for 3 seconds. The floor of the box will slide, making the pouch with the bill disappear while revealing another empty pouch for inserting the tooth.
- The box is now preloaded. Turn it off until the night you and your child are ready to insert the tooth into the pouch.
- For the big night, turn the box on using the switch on the bottom. Put the tooth into the empty pouch and place the pouch back inside the box.
- To set the six-hour automatic exchange timer, press the small button on the back of the box with two rapid pushes. The LED light will flash three times to indicate your box is ready.

Instructional video: *youtube.com/watch?v=NW3D1xCkwbs*

BRIGHT IDEAS

D01

VISUAL, WIRELESS,
PORTABLE SOLDERING IRON
kickstarter.com

Its makers say the D01 is the world's first Wi-Fi-connected soldering iron—with 50 times zoom and a built-in LED light that delivers 800 lumens of shadow-less, 80-degree, wide-angle brightness.

Real-time Wi-Fi video on your phone or tablet lets you solder small components clearly and comfortably while sitting upright.

Other features include 9-second rapid heating and five precise, professional temperature settings. An HD display allows you to clearly see even the tiny numbers and fine details on the circuit board directly on the screen. Three bevel tip options are available.

Fusion Lab was offering the D01 to early crowdfunding backers for around $100, with delivery set for May. The future retail price is uncertain.

Tembo

PLAYFUL, INTUITIVE
MUSICAL INSTRUMENT
musicalbeings.com

Tembo is a playful magnetic step sequencer and sampler for everyone from children to music professionals that lets you jam and create loops in minutes. Add effects, sample your own sounds, even record your sessions.

What looks like eight columns is actually a full, 16-step sequencer. Stack two magnets in one column to trigger the first and second 16th notes for true 16-step resolution. Flip a magnet upside down to shift it to the off-beat (real 16th note) and add syncopation.

Tembo includes over-the-air firmware updates that keep the instrument improving long after it arrives. With a future retail price of $550, Tembo is to be shipped to crowdfunding backers in January 2027.

Jiffy 75

ERGONOMIC SPLIT KEYBOARD
Jezailfunder.com

The natural split provided by Jiffy 75 encourages your arms to rest in a neutral, relaxed position when typing, reducing hand and wrist strain by letting your body dictate posture.

Unlike its predecessor, last year's Cornix (also by JezailFunder), the Jiffy 75's two halves retain a more familiar key layout, with a few changes: It retains the first four function keys, moving them to the left side of the left half of the keyboard, and keeps the navigation keys in their normal location.

The Jiffy 75 supports Bluetooth and 2.4-GHz wireless connectivity. The left and right halves of the keyboard have their own batteries.

Jiffy 75, set for shipping to crowdfunding backers in May, will retail for $249.

"Our ancestors have invented. We can at least innovate." —AMIT KALANTRI

Vivoo Smart Toilet

URINE ANALYSIS DEVICE
WITH HYDRATION TRACKING
vivoo.io

The Vivoo Smart Toilet attaches to the rim of your bowl and features an optical sensor on the inside, as well as an external suction mount on the outside to collect a small sample of your urine and provide you with real-time updates on your hydration levels.

Before urinating, connect the sensor to the Vivoo mobile app using Bluetooth. The app asks you to urinate once it's ready to take measurements and flush the toilet once measurements are complete.

Details about your hydration levels and ways to improve them are shared within 45 seconds. Vivoo says the data is encrypted and stored securely. The device can last for more than 1,000 tests, the company says.

With a launch price of $99, the device is to ship in July.

The 101 on Section 101

Updating the uncertainty on patent eligibility and pending legislation that could provide needed clarity **BY TOM COWAN and ALISTAIR McINTYRE**

For more than a decade, 35 U.S.C. § 101 (Title 35 of the United States Code that governs patent law, Section 101) has posed challenges to inventors seeking U.S. patent protection. Inventors in software, diagnostics, biotech, business methods and AI routinely face uncertainty about whether their inventions are patent-eligible.

The Supreme Court's 2014 decision in *Alice v. CLS Bank International* reshaped the patent-eligibility doctrine and still drives much of the current eligibility analysis. The proposed Patent Eligibility Restoration Act, along with recent U.S. Patent and Trademark Office guidance, indicate where patent eligibility may be heading and how inventors can prepare.

The cost of uncertainty

What is § 101, and why does it matter?

Section 101 is a gatekeeper. The courts have interpreted it to not permit patenting abstract ideas, laws of nature or natural phenomena. Eligibility under § 101 is distinct from novelty and nonobviousness requirements, which look to prior art to determine whether the claimed invention is sufficiently inventive.

When § 101 is uncertain, inventors face higher prosecution costs, greater litigation risk and tougher conversations with investors about enforceability. For particular industries, 101 issues often shape how patent practitioners describe and claim their technology.

Alice and § 101

The Supreme Court's decision in *Alice* related to patents on reducing settlement risk in financial transactions and set forth the modern 101 analysis. The earlier *Mayo Collaborative Servs. v. Prometheus Labs., Inc.* (2012) and *Myriad v. Association for Molecular Pathology* (2013) applied a less formal 101 analysis to diagnostics and natural products.

Alice defined a two-step framework to assess patentability that the USPTO and the courts still apply:

1. Determine whether the claim is directed to a judicial exception (an abstract idea, law of nature or natural phenomenon)
2. If yes, look for "something more" like an "inventive concept" in the claim that transforms the exception into a patent-eligible application. Improvements to specific technology, use of a particular machine, and non-conventional solutions typically qualify as an "inventive concept."

Crucially, the Supreme Court did not define "something more" or an "inventive concept" with a high level of precision. That gap produced years of inconsistent decisions by the United States Court of Appeals for the Federal Circuit decisions and uneven examiner practice, leaving inventors and practitioners to navigate a shifting landscape.

Further, in practice, the Step 2 "non-conventional" solutions inquiry often resembles a novelty/nonobviousness analysis, as examiners often cite prior art to assess whether a given solution is well understood, routine, or conventional to the industry.

Impact on inventors

Section 101 has affected certain industries more than others, three in particular:

- **Software.** Claims that read like algorithms or logic are frequently labeled "abstract" unless tied to a specific technical improvement (for

When § 101 is uncertain, inventors face higher prosecution costs, greater litigation risk and tougher conversations with investors about enforceability.

example, improved memory management, faster data throughput, or novel hardware interaction).

- **Diagnostics and biotech.** Correlations between a biological marker and a condition are often treated as natural phenomenon, making correlation-based diagnostic claims particularly vulnerable.
- **Business methods and financial technology.** Business-oriented claims are often rejected unless they demonstrate a concrete technological solution. Claims that read like mental processes or organizing human activity are often labeled "abstract."

The real-world impact of *Alice*'s interpretation of § 101 is potentially narrower patent claim scope and more challenging prosecution. Investors may discount portfolios with weak eligibility prospects, and patent litigation can often involve § 101 challenges.

101 and PERA

The Patent Eligibility Restoration Act (PERA) would remove and replace the current judicial exceptions under 101 with five specific statutory exclusions:

Mathematical formulas that are not part of a useful process, machine, manufacture, composition of matter, or an improvement to one of these;

Processes that are substantially economic, financial, business, social, cultural or artistic, even if at least one step in the process refers to a machine or manufacture;

Processes that are performed solely in the human mind or occur in nature independent of human activity;

Unmodified human genes;

Unmodified natural materials.

PERA also explicitly prevents consideration of whether the claimed technology is conventional in the 101 analysis, primarily shifting consideration of prior art to separate novelty and obviousness considerations.

If PERA is enacted, software, AI inventions and diagnostics that currently struggle under the abstract idea or natural phenomenon exceptions may be more likely to clear the eligibility gate. It is less clear that PERA would alter the 101 analysis for business methods.

The potential business impact is that costs to get a granted patent may decrease, as allowance would be less likely to be held up by 101 rejections. For patents, broader claim coverage may be available in the industries discussed above.

Additionally, litigation and prosecution disputes would likely focus less on § 101 issues.

Inventors should temper their expectations, however. PERA's fate in Congress remains uncertain.

Sen. Thom Tillis (R-North Carolina) introduced the bill in May 2025, and it has yet to pass in the Senate or House. Several other 101 reform efforts have failed to pass in the past decade.

Recent USPTO guidance

In an August 2025 guidance memo, the USPTO again clarified § 101 analysis. It reminded examiners: Claims that cannot be practically performed in the human mind, particularly those encompassing AI, should not be classified as abstract ideas.

Additionally, the USPTO emphasized that if it is a "close call" whether the claim is eligible, the examiner should only reject the claim under 101 if it is deemed more likely than not to be ineligible.

The updated guidance appears to be borne out in recent USPTO Patent Trial and Appeal Board statistics. Although the PTAB's reversal rate for § 101 rejections hovered around 10 before August 2025, this rate climbed to above 20 percent from last October through January.

In other words, during that recent time frame, examiners

were about twice as likely to get reversed on a § 101 rejection of a patent as they used to be.

These developments offer cautious optimism. Even if PERA does not pass, the USPTO's current § 101 policy appears to be a little more inventor friendly.

Strategies for inventors

For now, § 101 remains a moving target. These strategies can protect value today while preparing for legislative and administrative changes tomorrow:

- Hope for the best; expect the status quo. Monitor PERA but draft claims that survive current § 101 analysis.
- Tie claims to concrete technological improvements, specific hardware or steps using specific hardware.
- Emphasize technical improvements in the specification and claims. Include detailed, real-world examples, if possible. Develop fallback positions in dependent claims that still yield valuable claim coverage.
- Consult patent counsel early. This is especially important for AI inventions where eligibility questions have been evolving rapidly.


Tom Cowan is partner and chair of the Mechanical Engineering Practice Group at Knobbe Martens, a legal firm specializing in IP and technology law. Alistair McIntyre is a Knobbe Martens associate whose practice includes patent prosecution and portfolio management), competitive landscape analysis, and patentability, infringement and invalidity investigations.

A Lifeline Amid Disaster

Yemen native develops communication platform that restores cellphone and internet coverage **BY CYNTHIA UNDERWOOD**

When disaster strikes—whether from war, earthquakes or other natural catastrophes—often one of the first systems to fail is communication.

Without cellphone or internet coverage, people cannot call for help, coordinate rescue efforts or reconnect with loved ones.

Inventor Tayseer Alhibishi set out to solve that problem.

Originally from Yemen and trained at the Massachusetts Institute of Technology, Alhibishi developed a solar-powered, high-altitude communication platform designed to restore cellphone and internet coverage when traditional infrastructure collapses. His invention, protected under Saudi patent KSA 8419, provides emergency connectivity so people affected by disasters can reach emergency responders and relief organizations.

> **"I dream of the day when all people affected by disaster can easily send a distress call to emergency service providers on every inch of the earth."** —TAYSEER ALHIBISHI

He founded his company, Nawras, in 2015 (Nawras means "seagull" in Arabic). His invention is part of the global race for high-altitude communications systems, like SpaceX and Google's Project Loon.

"I am a specialist in natural disasters," Alhibishi said. "I work on the development of innovative, high-altitude communication platforms that operate when disasters disrupt normal systems."

For Alhibishi, the goal is both technological and humanitarian.

"I dream of the day when all people affected by disaster can easily send a distress call to emergency service providers on every inch of the earth," he said. "My invention gives the opportunity for this."

As climate disasters and global conflicts continue to disrupt infrastructure around the world, innovations like Alhibishi's play a critical role in maintaining communication during emergencies.

Despite patent protection, Alhibishi (not pictured above) has faced huge barriers to bringing his invention to market. Living in war-torn Yemen, he has struggled to find the resources, stability and business infrastructure to manufacture and commercialize the technology.

Like many inventors around the world, his greatest challenge has not been inventing the technology but finding the support needed to scale it.

Creating the invention is often only the first step. Turning an idea into a real-world product requires funding, manufacturing partners and market access. These obstacles can be especially daunting for independent inventors and innovators.

Yet the spirit that drives inventors remains remarkably resilient. Around the world, innovators continue to design solutions to urgent problems, often under difficult circumstances and with little recognition.

Alhibishi's work reminds us that important ideas can come from anywhere, and that behind many inventions is the desire to help others.

See a demonstration of Tayseer Alhibishi's invention: youtube.com/watch?v=XI4ZtuKfgTI

Cynthia R. Underwood is a design patent examiner, painter and innovation advocate. She is co-creator of the "How Cool Is That?" video series, which highlights inventive objects and their stories. Her creative work is at cynthiaunderwood.com.

Working with Springs and Wire Forms

When using these classic elements in making prototypes, watch your temper **BY JACK LANDER**

Springs and wire forms are sometimes-essential components in making prototypes. The art of determining their temper and forming them are the main aspects of their successful production.

Temper is the degree of hardness or elasticity of the material used in shaping a piece of material for use as a spring. We must know how far we can bend it, stretch it, compress it or torque it to prevent permanent deformation. You can conduct simple tests on the bench.

For coil springs, you test for the limits of extension, compression or torque. Most springs can be purchased and tested by working the spring past the dimensional limit to which it will be stressed.

An extension spring may be stretched to about 40 percent or 50 percent beyond its intended working length to assure no permanent deformation, for example.

Compression springs are a bit more difficult to assess. They can "bottom out" and return to size without a safe indication of whether you have reached the limit of permanent deformation. The only way to be sure is to make or buy springs of the same diameter wire and the same external wound diameter but longer, and test them.

At some point, the increased length will reveal a spring's extension limit. Adding 40 percent or 50 percent to its length will assure a safe dimension.

You can buy coil springs in assortments. One such assortment of compression and extension springs offers 200 pieces for 10 dollars. The advantage, other than having various lengths of essentially the same spring, is that you can change the diameters of wire and the diameter of the coil to meet your safety factor.

If you intend to bend your own spring—practical if only one or two turns for torque are needed—you can clamp your setup to your bench or to a board and repeat bending and increasing the resulting degree of bend until permanent deformation occurs. This setup requires that you carefully select the radius around which you will bend. The larger the radius, the less deformation stress on each turn.

When to use wire or flat stock is a matter of the physical design of the mechanism that requires the spring. Flat stock is, after all, merely wire that has spread out due to rolling.

All stress principles that apply to wire also apply to flat stock.

Take a wind-up clock or watch, for example. We could use the torque from a typical wire spring to drive the gears, but that would mean placing the coil at 90 degrees to the plane of the

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face and gear assembly—possibly exceeding its dimension. Therefore, clock designers chose to use a flat spring wound with each turn on top of the other instead of alongside each other, as in a coil spring.

Theoretically, the spring materials would weigh the same for a given amount of torque and yet fit within the assembly's width limit.

Wire forms

Wire forms range from a straight shape to an array of curves, circles, angles and square shapes. Windows, air vents and structural strength subassemblies are common forms. Wire of about 1/8 inch in diameter is generally a good size for prototyping, although smaller diameters are obviously easier to form.

For much of my own prototyping, I have used old coat hangers. For those that I make for my customers, I buy stainless-steel wire—widely available in soft, hard or spring hardness—and steel and stainless steel in 12-inch lengths, and on order in 36-inch lengths and longer.

I make simple jigs for bending, consisting of 2-inch-thick board, 2 by 6 inches or wider, and standard 2-inch-long dowel pins, often 1/4 inch in diameter. The dowel pins can be found in a variety of fractional diameters. Lay out your bend shape in ink on the board and bend accordingly. Your dowel or rod diameter is your bend radius.

For most bends, use a backup dowel mounted close to your bend-radius dowel to keep your bends neat.

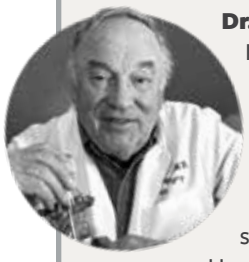
I find that a piece of 1/4-inch diameter thick-wall tubing or pipe about 12 inches long used to grip the piece you bend is essential to keep it from deforming.

Many assemblies are made in separate pieces and welded together. It is much easier to hold overall dimensions. Welding is often a form of spotwelding that requires a high-wattage welder—not common to prototypers. Brazing is a reasonable method. Brazing materials and a torch are affordable and not difficult to master.

In a pinch, soft solder can be applied using a heavy, 100-watt soldering iron, but such prototypes can only be used for an appearance model and photography. Soft solder has little structural strength. ◆

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

FOND FAREWELLS



Dr. Thomas J. Fogarty, a National Inventors Hall of Fame inductee who invented the groundbreaking balloon catheter, died December 28 in Portola Valley, California. He was 91.

At 15, he developed his first invention, the centrifugal clutch for motorized scooters that is still the industry standard. He created the balloon catheter before completing medical school at the University of Cincinnati. The tool, which helps remove blood clots, was the first minimally invasive surgical device.

Fogarty has also been credited with medical device inventions that include a tissue heart valve and an aortic stent graft, which are credited with making surgeries safer, more cost-effective and more accessible. He was awarded the Presidential Medal of Technology and Innovation in 2012 and granted the Medical Design Lifetime Achievement Award, the Lemelson-MIT prize, and the Icon in Surgery Award from the American College of Surgeons.

Gladys West, who formulated pioneering models for the shape of Earth that helps inform the technology of global positioning systems (GPS) for navigation, died January 17 in Alexandria, Virginia. She was 95.

Among her honors were Induction into the Air Force Space and Missile Pioneers Hall of Fame in 2018; the Prince Philip Medal by the United Kingdom's Royal Academy of Engineering in 2021, and the National Museum of the Surface Navy's Freedom of the Seas Exploration and Innovation Award in 2021.

West reportedly said she used GPS on a "minimal" basis. "I prefer maps," she said.

Maxing Out Your Gift

Creative people stay energized by knowing why they do what they do, and making it fit into their lives **BY APRIL MITCHELL**

Can't turn it off?

Does your mind constantly go and go? Is your creativity always running, or you can't stop trying to solve problems? Feel like you just can't slow down and take a break from inventing or creating?

I've had a couple people tell me they could not survive in my head—that it would be exhausting. The truth is, it can be exhausting.

But I think of this as a gift and know that I was created to create: Hence, the name of my column. It's a gift to think outside the box, to wonder why, ask questions, solve problems, think of ways to help others and bring joy to people.

I believe we all have some form of creativity in us. Some people may just need to work harder than others.

The central question

What matters most to you?

Why are you doing this? Why are you spending precious time and effort, and most likely money, to invent or create?

Is it for the hope of a big break that will boost you financially? Maybe you are just trying to make the world a better place. Or maybe you just want to use the creativity you've been given and work on passion projects, no matter the outcome.

Maybe it's a little bit of everything.

I recently met with a gentleman to discuss a project of his, which he invented out of necessity after an accident.

This product can help others like it helps him. He doesn't care about the money; he just wants to help people in need. I truly felt that as we chatted. We discussed the different ways he can get his product to others. All of the answers involved lots of time and research on his part.

The common denominator

I have been asked so many different questions throughout the years from other inventors and designers wanting help. Part of the answer to every question involves time and effort—and most often, the effort is also some kind of research.

These are the common denominators no matter what project you are working on, no matter what industry the product is in, and no matter whether you are a seasoned designer or just starting.

Most products do not fail or not get licensed because they are bad products. They don't make it because people don't put in the time and effort needed, usually giving up too quickly. I've coached many inventors who had amazing products that never made it to the market because of this.

A seasoned approach

Now here's the hard part—making it all work and fit into your life.

You want to invent or create because that is a part of who you are. You want to bring something to life and leave something behind one day as well. How do you do it all?

The answer for me has been "seasons."

There have been seasons when I hustled like that was my middle Name, which included constant late nights and lots of travel. Lately, I have had times of the year when I slow down and concentrate on my family—and it feels like I am hardly working.

I urge you to remember that you have a gift. Gifts are not for us to keep but to share with others. So, put in the time and effort to share your creativity with the world because you never know how many lives you can affect.

April Mitchell of 4A's Creations, LLC is an inventor in the toys, games, party and housewares industries. She is a two-time patented inventor, product licensing expert and coach who in 2024 won the TAGIE Award for Game Inventor of the Year.

NOW STARRING: IP

Shatner, others missed the residuals enterprise

Having long ago recorded the worst version of "Mr. Tambourine Man" and "I Will Survive" known to anyone in this galaxy, it may be just a mild surprise that 94-year-old William Shatner will release a heavy metal album this year.

The album will reportedly feature Shatner's "staccato talk-singing growl" in collaborations with 35 metal artists including Henry Rollins and Zakk Wylde, and will include covers of classic metal songs as well as original compositions. It's not known whether the recording—consistent with Shatner's track record of not taking himself seriously—is inspired by whimsy, financial considerations, or both.

The latter would be expected on the heels of another recent disclosure by Shatner: He never got a dime in residuals for his iconic portrayal of Capt. James T. Kirk in the original "Star Trek" TV series in 1966-69.

"The concept of syndication only came in after 'Star Trek' was canceled," he told *The Daily Telegraph*.

Shatner's situation mirrors those of many who starred in 1960s TV shows—a time when many actors were much less savvy about leveraging their creative works and intellectual property rights.

The cast of "Gilligan's Island" was in the same boat (pun intended). Showbiz Cheat Sheet reported that when co-star Dawn Wells got sick at age 80, her hairdresser set up a GoFundMe page for her to help pay her medical and tax bills. Celebrity Net Worth said her net worth was $50,000 when she died in late 2020 at age 82.

By contrast, the leading cast members from "Friends" make $20 million a year from residuals. Yeah, but can any of them artfully butcher some of the most beloved pop songs of all time? *—Reid Creager*

Reading, Writing and … IP

Why intellectual property education belongs in every school—and how to make it happen **BY ANDREA L. ARNDT**

Even though intellectual property has become a central element of innovation, entrepreneurship, engineering and creative industries, and even though students encounter intellectual property issues long before they enter the workforce, most receive little or no instruction on how ideas are protected or how rights are assigned.

As technology and collaboration tools expand, the absence of basic intellectual property literacy limits students' ability to innovate responsibly and protect their own creative work. Schools at all levels can address this gap by introducing age-appropriate concepts early, reinforcing them throughout secondary education, and preparing high school and college students for the practical realities of employment and commercialization.

When to start?

Exposure can begin in elementary school. Students who write stories, build simple inventions or create artwork already engage in activities tied to authorship and ownership.

Introducing the idea that creators receive credit and that copying without permission is not appropriate lays a simple but meaningful foundation. These early lessons help students understand that ideas have value.

In middle school, teachers can connect intellectual property concepts to hands-on projects. Students who build devices in a robotics club or develop prototypes in a design course can document their progress, select names for projects and consider which details they prefer to keep confidential.

Through guided activities, students can learn the basic differences among patents, trademarks, copyrights and trade secrets without legal terminology.

High school and college students often complete engineering, digital media, business and entrepreneurship courses and programs that closely resemble early-stage product development. At this level, students benefit from structured instruction in prior art searching;

disclosure timing; nondisclosure agreements; open-source license obligations; the differences between patent protection and trade secrets, and copyright risks and protections.

Because many student projects are published online or shared at competitions, understanding the risk of premature disclosure becomes increasingly important.

Even young professionals such as artists, engineers and startup founders benefit greatly from at least a basic knowledge of intellectual property. Their future work will likely involve invention, collaboration or product development.

Understanding intellectual property helps them understand their creative rights, evaluate stock options, negotiate employment terms and avoid unintentional disclosure. This provides them with tools to enter professional life with awareness and confidence. It also helps them understand how intellectual property influences company valuation, particularly in early-stage

startups that rely on their intellectual property portfolios to attract investment.

Reducing intimidation

Intellectual property appears technical and inaccessible to many teachers and students.

Teachers who lack formal training may feel unprepared to teach the subject. Although legal details can be complex, the fundamentals can be explained through straightforward examples that relate directly to student work.

Teachers do not need to answer detailed legal questions. Rather, they need sufficient understanding to guide students, identify when outside expertise is needed, and incorporate IP awareness into existing, project-based learning.

For example, teachers should be able to teach that a trademark protects a name or logo of a business's goods and services; a copyright protects a photograph or video created; a trade secret protects an undisclosed method or information, and a patent protects a new shape of a product or a technical solution if documented and filed appropriately.

When intellectual property is framed in this manner, it becomes practical rather than intimidating.

Guest experts can play a significant role in reducing intimidation. Intellectual property attorneys, technology transfer professionals, startup mentors and engineering organizations can provide short lectures, workshops or office hours to explain concepts to students and answer questions in more detail. Their involvement reinforces classroom learning and connects students to real examples from industry.

Because these sessions supplement rather than replace instruction, teachers retain control of the curriculum without carrying the full burden of having expertise in intellectual property rights.

Teaching the teachers

Most educators have never received formal intellectual property training. A sustainable approach involves three components: teacher microcredentialing, external partnerships, and accessible instructional materials.

Teachers do not need to answer detailed legal questions... only sufficient understanding to guide students.

A microcredential or short training program can equip teachers with the essential distinctions among patents, copyrights, trademarks and trade secrets. It can also introduce the importance of record-keeping, confidentiality prior to publication, and the need to evaluate license terms.

Once teachers develop a basic understanding of these topics, they can embed intellectual property concepts within engineering, business, computer science, music and art programs.

External partnerships supply added depth of knowledge. Organizations such as Women in Science and Engineering, engineering societies and startup incubators often support outreach programs. Universities can provide legal clinic office hours or presentations on intellectual property fundamentals, including professionals in the industry.

These collaborations allow students and teachers to learn from professionals who routinely address intellectual property issues.

To do this successfully, instructional materials must be easy for educators to integrate into the curriculum. Schools can adopt simple templates such as inventor logs, disclosure checklists and flow charts explaining protection choices. These tools can align with classroom activities and highlight intellectual property considerations that arise naturally during the development of projects.

Additionally, materials on contracts can prepare students to read employment agreements, identify invention assignment clauses, understand confidentiality obligations and recognize the implications of open-source licensing.

Ethics considerations

Ethics is an important component of intellectual property education.

Students regularly interact with artificial intelligence tools, open-source software, digital media and collaborative platforms. Each of these environments raises questions about authorship, credit, data ownership and the responsible use of others' work.

An ethics class can address plagiarism, misappropriation, proper attribution, the meaning of fair use and the distinction between inspiration and copying. As students progress into internships and careers, these ethical foundations help them navigate confidentiality obligations, research integrity and ownership policies with their employers.

It's crucial to start early

Intellectual property education is essential for preparing students to participate in a modern innovative economy. By introducing concepts early, supporting teachers through targeted training, integrating ethics and establishing partnerships with industry and academic experts, schools can provide students with the knowledge required to develop, protect and responsibly share their ideas.

This investment strengthens academic programs, supports entrepreneurship and equips future professionals with the skills needed to navigate a world in which ideas are valuable assets.

Andrea L. Arndt is a member of the Intellectual Property Practice Group at Dickinson Wright in Austin, Texas. She is a nationally recognized intellectual property attorney with extensive experience advising startups, Fortune 100 companies and market leaders on their intellectual property portfolios globally. Contact 737-484-5536 or AArndt@dickinsonwright.com.

THIN IS IN

Dyson's PencilVac, just 38mm in diameter, is the world's slimmest vacuum—among other firsts

As a publication that writes about innovative products and prides itself on being factual, *Inventors Digest* is careful to avoid superlatives: best; fastest; most efficient or convenient—also making sure to qualify a company's claims that its product is the first of its kind in the world.

In the case of Dyson's new PencilVac™, billed as the slimmest vacuum in the world, the claim can be made confidently. No other vacuum is known to be smaller than the PencilVac (38mm in diameter); and Analytics Insight, one of the world's foremost authorities on disruptive technologies, confirms the "world's smallest" distinction.

Now that you know the claim isn't just fluff, let's talk about Fluffycones™.

That's the name of the cleaner head acting as the vacuum's prominent performance feature. Four cones in two brush bars, one behind the other, rotate in opposite directions—causing the cleaner head to "float" across the floor. The bars prevent hair from tangling and allow for edge-to-edge cleaning. The also-trademarked Hyperdymium 140k motor, just 28mm in diameter, provides powerful suction.

PencilVac is also Dyson's first connected, cordless vacuum, teaming with the MyDyson™ app to provide real-time battery and maintenance alerts, including filter cleaning guidance. An onboard LCD screen shows the selected power mode and remaining cleaning time.

The new format also enables the vacuum to lie flat on the ground, flattening to just 95mm to clean under low furniture.

Other key features:

An air-compressing bin design compresses dust as it is separated from the airflow in the bin so it holds five times more dust and debris than its 0.08L capacity;

- A new hygienic syringe bin ejection system plunges dirt deep into the bin while wiping the shroud clean in the same motion;
- A swappable battery pack provides up to 60 minutes of fade-free suction;
- A magnetic charging dock gives quick and convenient access, with tool storage.

Two precision-engineered tools include a rotating, combi-crevice tool to clean up high, down low, and anywhere in between, including awkward gaps; and a conical hair screw tool for ejecting hair fast—ideal for use on carpets, sofas, mattresses and stairs.

"I have long wanted to make a vacuum of only 38mm diameter," said James Dyson, founder of Dyson. "But first, we needed to develop our most powerful Hyperdymium motor at only 28mm diameter to achieve such a slender machine. Then, a new dust separation and compaction system was developed.

"We have taken cleaner heads in a new direction with our four conical brush bars counter rotating, giving excellent cleaning in any direction."

Details: Dyson.com

Patent Pools' Big Splash

Collective licensing mechanism fills a market gap for some companies, provides passive income **BY LOUIS CARBONNEAU**

For those who have read this column for a while, you know I often distinguish between what I call "retail licensing" and "wholesale licensing."

The retail side is where individual inventors and small patent owners try—often heroically and just as often in vain—to convince large implementers to take a license to their patents. A politely worded demand letter goes out, a politely worded rejection comes back (if anything comes back at all), and the patent owner is left with a stark choice: Sue a company 50 times its size, or go home.

It's a bit like showing up to a poker game with your lunch money while the other side has a Bloomberg terminal and a team of lawyers who bill more per hour than you earn in a week.

On the wholesale side, you have the heavy hitters—Nokia, Ericsson, Qualcomm, Huawei, InterDigital—companies that have spent billions on R&D, contributed heavily to global standards, and built massive portfolios of standard essential patents (SEPs).

These are the players who can afford to go toe-to-toe with anyone. And yet, increasingly, many of them are choosing not to go it alone. Instead, they are pooling their patents into collective licensing platforms.

The question: Why would anyone with that kind of firepower voluntarily share the battlefield?

Big-name swimmers

A patent pool is a collective licensing mechanism in which multiple patent holders contribute their SEPs into a single platform, which then offers implementers a one-stop-shop license covering all contributed patents.

Think of it as a buffet rather than ordering à la carte: one license, one fee, coverage for thousands of patents from dozens of owners. No individual negotiations, no separate invoices, no wondering if you missed someone about to serve you with a complaint in the Eastern District of Texas.

The best-known example today is Avanci, which started in 2016 with connected vehicles and has since expanded into IoT, broadcast (ATSC 3.0), and video streaming.

Its 4G Vehicle program alone has licensed more than 130 million vehicles from over 80 automakers. Its 5G Vehicle program launched in August 2023 with 58 licensors on board, including Huawei, Qualcomm, Ericsson, Nokia, Samsung and InterDigital.

Mercedes-Benz was the first licensee (because of course it was). Sisvel is another major pool administrator, running programs for Wi-Fi, cellular IoT, smart grid and audio/video codecs. And MPEG LA has been doing this since the 1990s—arguably the granddaddy of them all.

The model: The pool administrator evaluates contributed patents for essentiality using

independent third-party evaluators, sets a single royalty rate, then collects and distributes revenues based on each owner's contribution.

Simple, right?

If only.

Dividing the pie

This is where things get more opaque, as you might expect when large sums are divided among parties with very different-sized portfolios. The methodology varies but generally involves: the number of patents independently confirmed as essential, the geographic breadth of those families (20 jurisdictions beats one), and sometimes a quality factor.

Avanci uses a "definitional approach." The license covers all essential patent claims of its licensors, whether individually evaluated or not. Allocation then relies on independently verified patents weighted across the membership.

Net/net: More confirmed essential patents with broader coverage means a bigger slice.

It is not a perfect science—critics argue these methodologies can undercount smaller contributors—but it has been transparent enough to attract the biggest telecom names and the blessing of the U.S. Department of Justice's antitrust division. When the DOJ tells you your licensing mechanism is pro-competitive, that is about as close to a gold star as this industry gets.

Lure for the big players

Here is where I want to challenge my own premise. Because intellectual honesty matters more than a catchy headline.

Large SEP holders have not abandoned bilateral licensing. Nokia, Ericsson and Qualcomm still run massive bilateral programs for smartphones and other high-value devices where per-unit economics justify the effort.

And there is one major advantage to going it alone: When you license bilaterally outside a pool, you are not necessarily bound by FRAND obligation—unless you have made such a commitment through a standards development organization. (*Editor's note:* FRAND—Fair, Reasonable and Non-Discriminatory—is a set of principles that govern the licensing of standard-essential patents.)

That freedom to set your own terms and play hardball is something the big players are not eager to give up where they have leverage.

Where pools have really come into their own is in new device categories where licensing infrastructure does not yet exist—connected cars, smart meters, EV chargers, IoT sensors, broadcast equipment. These are markets where implementers are often not legacy telecom companies (they are automakers and appliance manufacturers who until recently thought "SEP" was something you did on a dance floor), per-unit values are low,

and the sheer number of manufacturers makes bilateral licensing about as practical as herding cats across a six-lane highway.

Imagine Nokia negotiating individually with every smart meter manufacturer in southeast Asia. The transaction costs alone would eat the royalties alive.

So pools are not replacing bilateral licensing; they are filling the gap in markets where it is economically unworkable. You contribute your patents once, the pool handles licensing and collection, and you receive revenue from markets you might never have reached otherwise.

It is passive income from industries that would otherwise go entirely unlicensed—which describes most of the IoT world today.

The other driver is litigation fatigue. Even for well-funded SEP owners, global enforcement is expensive and unpredictable. Courts in different jurisdictions reach wildly different FRAND conclusions, and implementers have mastered delay tactics. Pools short-circuit this with a preset, publicly available rate that courts generally view favorably.

When Avanci says 80 percent to 85 percent of connected vehicles worldwide are under its license, that adoption rate speaks for itself.

Can the little guys play?

This is the question I get asked most at Tangible IP. The short answer: technically, yes; practically, it depends.

Most pools require at least one patent independently confirmed as essential. Avanci requires a claim chart accepted by an independent evaluator. If one claim is found essential, you are in.

But here is the catch. If you bring five or 10 essential patents to a pool covering tens of thousands, your royalty share will be correspondingly modest. You are not going to retire to Tulum when splitting proceeds alongside Nokia and Qualcomm.

That said, you are going to get paid—which is more than many small SEP holders can say when they try bilateral licensing and get stonewalled by implementers who know a company with a $50,000 legal budget cannot sustain multi-jurisdictional litigation.

Patent pools democratize access to licensing revenues, but they do not equalize it. For an inventor or small/medium enterprise sitting on a handful of legitimately essential patents, it may be the best deal in town—certainly better than sending demand letters into the void.

The bottom line

Patent pools have their critics. Some implementers argue that rates are excessive, governance lacks transparency, and aggregation gives pools outsized leverage. These concerns deserve scrutiny.

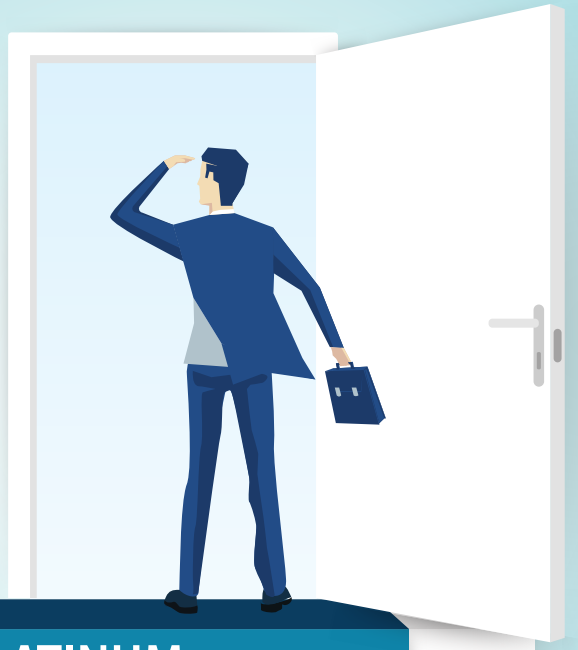
But the market is voting with its feet. The proliferation of pool programs—and the growing list of licensors and licensees signing on—suggests pools are solving a real problem that bilateral licensing could not.

For large SEP holders, pools offer scalable monetization across fragmented markets. For small patent owners, they offer access to revenues otherwise completely out of reach. And for implementers, they offer predictability, simplicity and the ability to budget for IP costs without fearing the next process server at the door.

Either way, the train has left the station.

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

Climb the Charts



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Make Puffery Go Poof.

Your patent application should include a lot of specific detail, but leave the selling to salespeople **BY GENE QUINN**

Although a patent application is not a sales pitch per se, most inventors find it quite helpful to list as many descriptive objectives of the invention as possible. However, as a general rule, stay away from laudatory language and puffery ("the perfect solution" or "using this tool is unquestionably the choice any professional would make").

When you puff, the tendency is to skimp on the descriptive details, which are essential to an appropriate patent application. Further, is anyone really likely to take your word for it being "the best"?

Describe the functionality of your invention, explaining in words and images how the invention works and why it is both superior and unique. Leave the selling, and especially the puffery, to the salespeople.

Focus on details, not sales

Many times, inventions are not one of a kind but improvements upon existing solutions. In this situation, it is common that the advantage of the new invention lies in that it is cheaper to make, easier to use, more efficient, less noisy, easier to clean, more durable, stronger, faster, more resilient, etc. You should include these factors in your disclosure, but frequently this type of patentably relevant information is not conveyed with as much detail as possible and appropriate.

In fact, many times the patentably relevant information is not described as well as largely irrelevant information about marketing strategies and likely consumer demand. Discussion of what makes an improvement better, stronger and faster should take precedent—and inventors should consider adding more of this type of information than they are generally accustomed to doing.

I always encourage inventors to ask this simple question: What are the advantages of your invention?

For example, perhaps one of the advantages is that your invention is smaller than comparable substitutes. If that is the case, you might want to specifically include a statement that explains that one of the objectives of the present invention is to provide a smaller, more compact, more lightweight, more easily transportable alternative.

Simple, straightforward and descriptive. This setup allows you to define a theme and build upon that to accentuate the positive. It also allows you to identify what you believe to be unique about your invention in a way that is free from any admissions that a patent examiner can and will use against you.

Similarly, if you have created a multi-use product where the prior art is all single use, you might want to explain that one of the objectives of the present invention is to provide a stronger, more durable alternative that provides enhanced functionality.

There are legions of patents on inventions that combine one gadget with another. Today, the mere combination of one gadget into another is likely not enough in and of itself to obtain a patent. You will need to be able to articulate the invention so that it does not seem to be a trivial variation or trivial combination of two known gadgets.

Focus your description on the counterintuitive, unexpected and ingenious. To do this, consider the problems you faced while creating the invention and tell the story of the invention in a positive way that describes the nuances without making them seem trivial or common-sensical.

Is the benefit non-obvious?

Another thing that inventors frequently struggle with is articulating the patentable feature and/or unique contribution the invention is making to the field. An all-too-typical crutch here is, again, puffing.

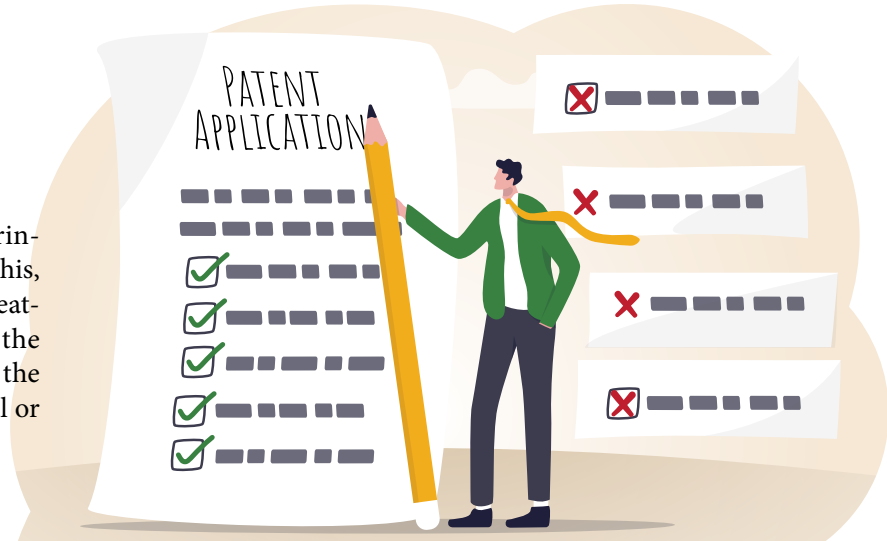
"I've searched far and wide, and this invention does not exist on the market anywhere," is not a substitute for describing the structural and functional uniqueness.

Even if that type of omnibus state is true, it does not inform the patent examiner of anything useful. You must have an invention that is different than the prior art. Pointing out that your invention is great and is unique because it doesn't exist on the market doesn't provide any concrete and tangible information that distinguishes the invention over the prior art that does exist—and there is always prior art for an invention.

Many times, inventors will describe their invention with great detail, and it quite probably is new—but they fail to articulate why it is different.

Defining the invention and then saying everyone will want one does not accentuate the positive. A good, thorough description is all that is required.

Many times after reading invention disclosures or draft patent applications, I am left wondering why the invention is both new and why it is non-obvious. This is a major problem, and one that occurs because, in my opinion, too much focus is placed on commercial discussion and marketing strategies at the expense of the more difficult to describe: the innate innovative uniqueness.



Simple, straightforward and descriptive. This setup allows you to define a theme and build upon that to accentuate the positive.

First, inventors should ask: What is unique about the invention? What sets it apart from what is already available in the prior art?

Here you should focus on the functionality, but you cannot limit yourself to this.

Saying that a hammer is superior to a screwdriver for hitting nails is useful information, but does this statement provide any useful information that structurally distinguishes the hammer from the screwdriver? No.

Conservative, safe drafting protocol is to assume the reader is not familiar with what you are describing. Define structure in writing and use illustrations to bolster the description. A picture can be worth a thousand words.

Second, it is important to understand that in order to obtain a patent, it is not enough that an invention be new and/or different when compared to the prior art. It must also be non-obvious, which means that one of skill in the art would not have thought to make the invention prior to seeing it described.

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.

Follow the Money

Information from Megan Pater, founder of Fund-Nation

The USDA Forest Service is offering a Wood Innovations Grant. It supports innovative technologies and manufacturing solutions that expand wood-based product manufacturing, sustainable materials and advanced building technologies, with funding up to $300,000 for most projects and up to $1 million for large wood energy systems.

U.S. businesses, nonprofits and universities developing wood-based manufacturing innovations are eligible; a 1:1 non-federal match is required. Filing deadline is April 22.

Details: *fs.usda.gov/science-technology/energy-forest-products/wood-innovation*

What IS That?

It's ... tiny hands to wear on each finger. In the spirit of the quiz at the bottom of this page, choose what is most hard to believe: A) Someone somewhere thought people might want these; B) The product has more than 3,700 global ratings on Amazon.

Wunderkinds

Luca Durham, a sixth-grader from Miami, Florida, discovered a way to make concrete stronger but more absorbent to reduce flooding during storms. He entered his project in the South Florida Science and Engineering Fair, where he won the Lemelson Early Inventor Prize. Luca chose sustainable materials that included oyster shells, seashells, charcoal, gravel and diatomaceous earth. He determined the best mix was 30 percent diatomaceous earth and 70 percent cement with gravel.

Get Busy!

The **NAB Show** (National Association of Broadcasters), April 18-22 at the Las Vegas Convention Center, is the world's largest media and entertainment technology event. Cameras, editing systems, transmission infrastructure, streaming platforms, AI-powered media tools—it's innovation heaven for many. *nabshow.com*

WHAT DO YOU KNOW?

1 **Actor Charlie Sheen, who patented a lip balm dispenser in 2001, missed a lucrative deal with ChapStick because he:**

- **A)** Insulted the ChapStick CEO
- **B)** Showed up drunk with the prototype
- **C)** Couldn't make the units cheaply enough
- **D)** Wanted too high of a percentage

2 **True or false: The TM symbol denotes a registered trademark.**

3 **M*A*S*H* actor Gary Burghoff was granted three fishing-related patents, along with another for a:**

- **A)** Toilet seat lifting handle
- **B)** Duck whistle
- **C)** Radar device
- **D)** Can opener

4 **True or false: You can patent a person's name.**

5 **Which first patent for these respective inventions came earliest—the fountain pen, or the rubber-lined fire hose?**

ANSWERS: 1. C. ChapStick wanted the cost of manufacture to be 7 cents per unit; he couldn't get it below $7.25. 2. False. The symbol only means something is being claimed as a trademark. The R-in-a-circle symbol, which means "registered," denotes a registered trademark. 3.A. 4. False. 5. Fountain pen, Romanian inventor Petrache Poenaru, 1827; fire hose, James Boyd, 1821.

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