

# Inventors



AUGUST 2016 Volume 32 Issue 8

DIGEST

## RESEARCHING THE MARKET

14 LOWER-COST  
ALTERNATIVES

## SAM ASANO

HE'S STILL CHANGING  
THE WORLD AT 81

## HIGH-GEARED DESIGN

BUILDING A SAFER,  
LIGHTER RACING TIRE

# Helmet

# IMPACT

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## Invention to the rescue—again

It's been raining body blows on the NFL these past couple of years. A number of embarrassing incidents ranging in scope and severity have had the billion-dollar entertainment empire in a perpetual state of damage control, from "Deflategate" to Cam Newton's post-Super Bowl "Incredible Sulk" to domestic violence incidents involving two superstar running backs.

But the issue with the greatest potential for ongoing, long-term damage to players and the league's reputation is the rise in documented head trauma cases, dramatized in the 2015 movie "Concussion" and a concern at all levels of the sport.

Invention and innovation are racing to the rescue via updated safeguards inside and outside of the helmet. Former NFL punter Zoltan Mesko's mission to reduce helmet impact via the EXO1, documented in this issue, is one of the latest attempts to protect players ranging from children to NFL veterans. A story by patent attorney and IPWatchdog.com founder Gene Quinn and regular IPWatchdog contributor Steve Brachmann explains what happens to the brain inside a helmet, along with innovation companies' recent attempts to improve equipment and what players and the NFL can do to minimize more head injuries. Brachmann also details some of the recent patents involving safer helmet technology that have been issued by the U.S. Patent and Trademark Office.

Considering players' ever-escalating speed and strength—making collisions increasingly impactful and dangerous—it's possible that invention is the best hope for saving the game so many of you love.

Jeremy Losaw's story about The Morph furthers the August football theme. Former NFL tight end Nate Lawrie developed the product, a portable foam roller that helps relieve tight muscles. As with Mesko's EXO1 and other recent helmet safety inventions, The Morph has been well received by Lawrie's football peers.

**Our back-page Inventiveness feature begins this month** (page 46), part of our commitment to an interactive relationship with readers. We want to inform you, engage you, entertain you, congratulate you.

Our new Inventing 101 category provides short primers for beginning innovators. We're striving to provide more diversified content in both subject matter and story length, with shorter articles and "quick hits" while still providing the more leisurely reads with which magazines have long been associated. To help facilitate all of this, we've moved our Inventor Groups listings to the *Inventors Digest* website (inventorsdigest.com)—which is also being streamlined and improved.

We hope you appreciate the fine-tuning! Please send Letters to the Editor and other correspondence to reid.creager@inventorsdigest.com.

—Reid



# INGENUITY IS AMERICA'S MOST VALUABLE RESOURCE.

**DON'T TREAT IT LIKE A CHEAP COMMODITY.**

America has been on the cutting edge of innovation for over 200 years because of a strong patent system. If Congress passes harmful patent legislation, it will devalue the system that has helped turn America's best thinking into our nation's #1 export. That will mean fewer new ideas brought to market, fewer jobs and a weaker economy. We can't maintain our global competitive edge by undercutting our greatest asset.

**SAVE THE  
AMERICAN  
INVENTOR**

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**ON THE COVER**  
Zoltan Mesko of  
Impact Labs;  
photograph by  
Matt Chiancone

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Focus on the Fun and Fascinating

# BRIGHT IDEAS

“People will consider you off the wall. If that bothers you, don’t be an innovator. That’s part of the badge you wear.”

—BYRON DONZIS, INVENTOR OF THE FLAK JACKET FOR NFL PLAYERS



## Classon smart bike helmet BLIND SPOT DETECTION

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

Bike safety is intuitive with this smart bike helmet invention that warns the rider of approaching cars while gathering videos and providing hands-free navigation.

Through front and back cameras that scan the environment, the Classon helmet alerts the rider when cars are in his or her blind spot. This information is interpreted by an algorithm and communicated to the rider via a visor interface. A non-disruptive light under the visor blinks in the rider’s peripheral vision as cars approach from behind. The Classon also activates turn signals and brake lights through your body movements; brake lights turn on automatically at reduced speeds.

The helmet can also provide navigation information when paired with a smartphone. The estimated retail price is \$299 (an earlybird Kickstarter special quickly sold out), with a scheduled April 2017 delivery.

## Qore Performance

### HYDRATION SHIRT SYSTEM

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

We drink water during athletic activities because hydration helps our endurance, power and recovery while lessening the chance of injury. The technology (inspired by emergency responder protocols) in the base layer of the Qore Performance shirt can keep athletes up to 40 percent more hydrated.

The clothing has heat-absorbing inserts at specific pulse points to help wick heat from the wearer’s body—a possibly huge competitive advantage, given that research shows the body uses about 75 percent of its energy to fight heat. You can charge the inserts by placing them in ice water for about 15 minutes, and they can be recharged indefinitely.

The shirts are made of the softest and most durable high-performance stretch fabrics to ensure maximum comfort. Safety Vonn Bell of the New Orleans Saints has been training for the 2016 season while wearing the Wearable Hydration Technology.

Long-sleeve shirts cost \$179, short sleeves \$149.







## Octopus watch

### TEACHING KIDS GOOD HABITS

[octopus.watch/joy](http://octopus.watch/joy)

The Octopus is a watch that helps teach children ages 3-8 about the concept of time and how to develop good habits.

Because the watch gives the time using icons, kids can read and understand it. The Octopus teaches kids how parents expect them to use their time, using three stages of childhood development.

The first mode, meant to help kids understand time by association, displays a large icon that's linked to a task to be

accomplished according to a schedule set by a parent. Parents can program visual reminders from their smartphone that display on the child's watch. Accomplishing these tasks can give the child a sense of responsibility and accomplishment. The second and third modes teach kids to read digital and analog clocks; an optional gamification feature lets them unlock virtual rewards such as special badges based on their progress.

The Octopus may still be available for a \$59 pledge on Kickstarter, where the watch was recently on pace to draw 10 times its original funding goal of \$50,000. Shipping is set for March 2017.

## AiraWear

### INTELLIGENT MASSAGE SWEATSHIRT

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

Billed as the world's first massage hoodie, the AiraWear is an on-demand massage that you wear. Its ultra-thin acupuncture technology—which makes the device barely noticeable—tracks and improves body posture in real time with integrated sensors while targeting muscle and pain points to relieve tension from sitting and slouching at a computer. It also collects data through a companion app with the goal of improving your posture permanently.

With six air-powered massage modules, the AiraWear automatically inflates to massage the lower back whenever the wearer adopts a poor position. You can use it for up to three hours and re-charge it via a micro USB cable.

Among its features are adjustable massage intensity; a Velcro adjustment to fit various body types; a detachable inner massage unit for cleaning; and four different massage settings that include Relax, Shoulder, Lower back and Sleep.

The vest retails for \$159, the hoodie \$199. After doubling its initial funding goal on Kickstarter, AiraWear has an estimated shipping date of January 2017.





# Still Changing the World

AT 81, INVENTOR OF MODERN, PORTABLE FAX MACHINE IN '61 IS INNOVATING FOR SENIORS

BY EDITH G. TOLCHIN

**I** learned about Shintaro “Sam” Asano in an article, “10 Inventions out of MIT That Changed the World.” His inexpensive and portable version of the modern fax machine in 1961 led to MIT naming him one of the top 10 inventors of the 20th century.

I read more about him in other publications and made it a mission to interview this tireless, innovative 81-year-old. Asano also invented a version of today’s data tablet, and quite a few other innovations.

**Edith G. Tolchin:** Please tell us about your background, education, and how you became an inventor.

**Sam Asano:** I graduated from Waseda University in Tokyo in 1957 and started to work at Japan’s Radio Regulatory Bureau, Ministry of Posts and Telecommunications. Two years later, I won a Fulbright (all expenses-paid) graduate scholarship and was accepted at MIT (Massachusetts Institute of Technology), where I specialized in image processing technology.

**EGT:** How did the modern, portable fax machine invention come about?

**SA:** Upon earning my master’s degree, I went to work for NASA’s Orbiting Astrophysical Observatory (OAO)—the predecessor of the Hubble Project—and I became the designer of an x-ray-sensitive TV camera to be launched with rockets to observe the x-ray radiation of celestial bodies. In preparing to launch the rocket, I had to converse with launch tower technicians in a very noisy, harried and tense environment. These technicians



were all from Huntsville, Alabama, and I had a really hard time understanding their Southern accent. An idea to develop a small and inexpensive fax machine capable of communicating hand-drawn graphics came to my mind. I built prototypes, and they worked. At that time, nobody at NASA thought the idea was worthwhile. I named it the QIX.

The first fax machine was invented about the turn of the 20th century. The machine didn't change its mechanism for a long time. It was very complicated with many motors, precision gears and timing chains. The transmitter and receivers did not use any automatic feedback circuitry. Therefore, it depended on high precision.

They were very expensive, not reliable, very large and heavy.

The story of why I came across the modern fax machine was in itself a piece of luck, being in the right place at the right time. To make a very long story short, it involved NASA, where I worked at the time. I eliminated all that hideous complexity by using a servo circuit and eliminated all the motors except one. So, I am not the original inventor of the fax. What I developed was a first disruptive product—just like the iPhone by Steve Jobs. I am nowhere as good as he was, though.

**EGT: What does “disruptive” mean in an inventing context?**

**SA:** Many products and systems stay without any changes for decades at a time. Disruptive doesn't mean new, revolutionary technology. It can be a combination of many conventional technologies. Every once in a while, a product or system pops out and creates an entirely new dimension of uses.

As mentioned, my fax machine used servo mechanisms—never before used back then—which resulted in a very simple circuit, and thus was very cheap to make. The initial run cost somewhere between \$500 and \$800 in 1970, while the conventional fax machines used by the weather bureau and other governmental markets, including military, cost between \$10,000 and \$13,000 per unit. This created a vast new area of use. The Japanese and Chinese were the first to jump on this product, as their language structure benefited from a fax.

**EGT: Who handled your patents, then and now?**

**SA:** My patent applications were handled by Wolf Greenfield of Boston. Currently, my patent works are being done by Morse, Barnes-Brown & Pendleton, also in Massachusetts.

**EGT: You also invented a tablet?**

**SA:** My data tablet was expandable in size, and our firm used to supply tablets from 11-by-11 inches in size to as large as 48-by-48. Our chief clients were in

“I am not the original inventor of the fax. What I developed was a first disruptive product—just like the iPhone by Steve Jobs.”

— SAM ASANO

the fledgling computer graphic field, such as Applicon, which was a General Electric subsidiary, and Kanematsu-Gosho, Ltd., Japanese shipbuilders.

**EGT: What obstacles did you overcome with your inventions?**

**SA:** In all cases of my inventions, it was I who stood between the thought and execution. Brooding, instead of just doing it, is often the largest obstacle. “Just do it,” like Nike would say.

**EGT: Have you licensed any inventions?**

**SA:** The Japanese government's phone company, Nippon Telegraph & Telephone Public Ltd., became my first licensee for

the fax machine. They took everything to Tokyo to license several Japanese manufacturers in turn. This was 1971, and Japan soon captured 100 percent of the fax market share based on my design, plus their improvement work.

**EGT: Did you manufacture any inventions on your own?**

**SA:** My company, Shintron Company, Inc., became my manufacturing base. It had a wide range of image processing equipment for the TV broadcasting industry, and at one time it was the largest supplier of small production switchers at small TV stations worldwide. All of my products have been manufactured by my own companies: Shintron Company, Inc. (sold to Mitsubishi Electric Ltd.), America Takeout, Inc. and Cablynx, Inc.

**EGT: You are quite emphatic about bringing back manufacturing to the U.S. How do you encourage this?**

**SA:** I have been working hard to attempt to create the “American Renaissance,” or return of America as the top manufacturer of the world, like it was in the 1950s through the 1970s. I encourage inventing among youth by lecturing and writing a weekly newspaper column in the New Hampshire Union Leader called, “Let's Invent.” I teach classes in inventing and make presentations in colleges and high schools.



Sam Asano just finished a prototype of FallSafe, which he says works failure-free in reporting people's falls.



## TIME TESTED

### EGT: Are you retired from industry?

**SA:** Not at all. I work a regular day as an inventor. Currently my automatic fall-detector, called FallSafe through my company Umelink, is going through a field trial.

### EGT: What is FallSafe?

**SA:** I just finished a prototype of a fall detector that works failure-free in reporting people's falls. There are 1 million falls in America every month, and about 45 percent of people who fall cannot press a button, as they have passed out. My system works automatically and produces no false positives or false negatives, which might cause people not to use the system.

As the population of elders covered under the Americans with Disabilities Act (ADA) rises from 49 million today to 100 million in 2050, this device will have an exceedingly large market. Here's a video link: <https://www.youtube.com/watch?v=xKCnCnB90QA>. I would call this invention another disruptive one.

### EGT: It sounds like FallSafe is part of a larger vision you have through Umelink.

**SA:** Umelink ([umelink.com](http://umelink.com)) is a recently incorporated startup firm at which I am the

CEO. In this country, there's a cultural gap between our parents' generation and the second generation. My goal would be to close this gap, as much as possible. The name "Umelink" stands for "you and me."

Umelink is an online retailer of specialty goods, devices and systems to enrich seniors' lives with respect to security (including fraud protection), safety, comfort and knowledge. Our website will be designed specifically to be user-friendly, using the elderly as a consumer focus group.

### EGT: Any final thoughts?

**SA:** I push every day and pray that we Americans build our nation back again to the top manufacturing position, which is the only and true means to create real wealth. I strongly believe in this culture, which we somehow lost. 🇺🇸

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



American family watching TV, 1958

## INVENTOR ARCHIVES: August 20, 1930

**Philo Farnsworth** was granted a patent for the first working all-electronic television system—the beginning of a sad saga.

His son Kent Farnsworth has said that as early as 14 his father imagined using a lens to direct light into a glass camera tube, where it could be analyzed in a magnetically deflected beam of electrons

that would be dissected and transmitted one line at a time in a continuous stream. Around this time, while plowing a potato field in Idaho, Philo Farnsworth looked at the row after row of evenly parallel lines and contemplated an image sliced into such rows and transmitted in one sequence.

He was 21 when he produced the first electronic television transmission in 1927. Three years later, he rewarded his wife, Pem, for her tireless contributions by making her the first human to have an image transmitted on TV.

But the stress of a protracted legal battle soon followed. According to a 2000 story by MIT Technology Review, RCA President David Sarnoff—hungry for the mega-dollar potential of this new invention—hired Vladimir Kosma Zworykin, head of television research and development at Westinghouse, and had Zworykin visit Farnsworth's San Francisco lab in 1930.

"Dr. Zworykin was there for three days, and he saw everything," Pem Farnsworth said in the story. Philo Farnsworth hosted the visit because he hoped Westinghouse might license his patents during a desperate financial period in our country. When Zworykin's visit produced no competitive advantage for RCA and

Farnsworth later rejected a \$100,000 offer by Sarnoff to buy his company, RCA launched almost four years of legal challenges to Farnsworth's TV system patents.

Farnsworth's TV patents expired in 1947. His ideas became public domain. Some say he never received proper credit or rewards for his invention (though he was the subject of a U.S. commemorative stamp in 1983 and is in the National Inventors Hall of Fame). He battled depression for decades and died in 1971 at age 65. Pem Farnsworth and her four children lived modestly; she died in 2006 at age 98.

Many credit Zworykin with inventing television because in 1923 and 1924 he received patents for the iconoscope camera tube



Some say Philo Farnsworth never received proper credit or rewards for his patent of the first working all-electronic television system.

and the kinescope picture tube, which together formed the first electronic television system. Zworykin said TV's invention was the product of many.

Farnsworth, who once had high hopes for TV's educational potential, ultimately had little use for it. According to his son, he said: "There's nothing on it worthwhile, and we're not going to watch it in this household, and I don't want it in your intellectual diet."

Zworykin, asked to comment on TV's content a year before he died in 1982, said: "Awful." — *Reid Creager*





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## PART 2 OF 2

# Inventing on a Shoestring

## 14 LOWER-COST WAYS TO RESEARCH THE MARKET

BY JACK LANDER

**T**he objective of market research is to determine whether you or your prospective licensee can profit from the sale of the eventual product your invention will become. Here are 14 ways to evaluate your invention's market potential (one more than I promised you last month), many of which are affordable with some better than others:

### 1 Survey Monkey

For a few hundred dollars, [surveymonkey.com](http://surveymonkey.com) surveys qualified evaluators and tell you what it really thinks.

### 2 Mall surveys

Mall surveys are just that. Go to the mall with an inconspicuous questionnaire, and start asking people questions such as: "If you saw this item in a catalog, would you buy it? How much do you think other people would be willing to pay for it?" Don't ask more than three or four questions. People get "itchy" if they feel they are going to be delayed for more than a few seconds, and they may say anything just to get away. Survey at least 100 persons so you can have a reasonable statistical base.

Important: Mall surveys tend to be fairly objective if you don't reveal that you are the inventor, or that you have an interest in the success of the product. (It's a product, not an invention! And you are an independent market surveyor, not an inventor.)

### 3 Amazon.com

I can't tell you how many times I hear an inventor say, "There's nothing else like my invention on the market." If true, that's dangerous. It means that you will have to create the market yourself. Remember, you're an inventor, not an entrepreneur. It's much more difficult and costly to create a market than to create a product. And if Amazon doesn't sell a product that does approximately what yours will do, chances are that you truly don't have a market.

Typically, you'll find a significant number of products that compete with yours. That's often a good sign. It means people are looking for a product like yours. You have a chance to sell it, and gain a share of the market, if you intend to produce it. However, if you find a great many similar products, a potential licensee may feel that there is too much competition, and one more entry will not be sufficiently profitable.

### 4 Patent searching

Use the patent search as a kind of overview of the market, and its possible response to your invention. If you find an abundance of prior art, you must ask yourself three questions: Do the devices that are patented perform substantially the same function as mine? If so, do I have a niche in this market, or can I modify my invention so that it fills a niche? And if my invention isn't original, why aren't many of these inventions being marketed?

The patent search alone is not a conclusive indicator of marketability. But it is often a sobering revelation about the number of similar inventions that preceded yours. The most popular website for searching patents is [www.google.com/patents](http://www.google.com/patents).

### 5 Academic

Academic evaluation means submitting your invention to a university that does such evaluations, has no further expensive services to sell you, and therefore will produce an objective assessment. Southwest Missouri State University, the University of Wisconsin at Whitewater and Baylor University offer marketability evaluations.

### 6 Focus groups

In my opinion, focus groups are too fancy and too expensive to be practical for inventors. However, you might get a local college or university marketing department to handle such a process at an affordable cost. Caution: Focus groups may be dominated by one or two strong voices and may not give you the objective and broad information that your own mall survey can give you.

### 7 Buyers who work for print or internet catalogues

Catalog buyers generally have a good sense of which products will succeed and which won't. By submitting your invention proposal to them and receiving a positive response, you'll have





one of the best possible ways of reassuring yourself that you have a market.

Approach catalog buyers with a sell-sheet (single page sales brochure) that focuses on the benefits of your product to the consumer. Include a cover letter (and make it brief) because it is customary. Include all of the benefits and other details in your sell sheet, and don't repeat them in your cover letter. Your cover letter is like a calling card: contact information and little else except a polite greeting. Be sure to call or email ahead to get the name of the buyer who buys your kind of product. Address your letter specifically to this person. Letters that begin "Dear buyer" command far less attention and suggest a mass, impersonal mailing.

Submit simultaneously to as many appropriate catalogs as you can. Twenty is good; 50 is better. But stick with catalogs that sell items roughly in the same league as yours.

## 8 Buyers who work for retail stores

Generally not a great idea. Local chain store managers typically are inventory managers and not experienced at selecting or introducing new products. Chain store home office buyers are not easy to interview and are often impatient with very small companies or inventors.

## 9 Free publicity

Free publicity is another good method of marketability assessment, especially for technical or non-consumer products. Consumer magazines are difficult to get into, especially if they have a large circulation. People are also more attracted to news articles than to ads, and more inclined to read the entire copy. The new products section of many magazines often attracts more readers than the articles. People want to keep up with what's new.

Editors know that many of the so-called new product press releases reaching their desks cover mere rehashes of older products and prototypes of new products that are months away from production (if ever!). As long as you have no intent to defraud your customers, you need not feel like a criminal for producing a news release covering your "product" that is not yet in full production.

Be careful with your wording, of course. Conclude your release with something like this: "For more information, contact ..." Never imply that you are ready to take orders. If you start receiving orders that you can't fill and you don't offer to return your customer's money within the first 30 days of receiving the order, the Federal Trade Commission can fine you severely.

## 10 Crowdfunding

This is the latest in financing inventions. Basically, you can legally solicit an investment from strangers via the internet in exchange for a token payback—often one of the products that your invention will become if successfully funded. Alternatively, you may offer equity in the company you are forming. The feedback you receive in the form of finance may be the most authentic form of evaluation you can get, short of actual sales of your product.

Amazon.com has many books on this subject. Don't attempt crowdfunding without reading two or three of these books. There's too much at stake to risk blundering.

## 11 Advertising

Finding the right "formula" for advertising takes experimenting, patience and money—so your money is probably better spent elsewhere in the early stages of marketing. Always try free publicity first.

## 12 Trade shows

Trade shows are excellent if you can afford to exhibit at them, and if your invention is patented. But if your invention is not close to the production phase and it's a hot item, you might get knocked off by exhibiting it.

Attending, not exhibiting, is an inexpensive and excellent way to meet the key people in the industry that is appropriate for your eventual product. Avoid giving competitors information about your product. Contact people who have complementary products. Collect a handful of business cards. Make notes on the back. Show your new mousetrap to a manufacturer of rat poison who doesn't yet distribute mousetraps—not to a mousetrap manufacturer. Find trade shows on Google.com.

## 13 Invention partnering firms

Except for Edison Nation, a highly reputable affiliate of this magazine, this method is frequently and notoriously disappointing. First, the initial evaluation is generally not nearly as good as what you can do for yourself at a fraction of the cost. It is also a self-serving attempt to "work you up" to the next stage. And second, these firms' list of services sounds good, but their success rate doesn't justify the \$10,000 to \$15,000 that many of them charge. Always ask this: "What percentage of your clients have made more money than they paid you?" It is fraudulent for the firm to lie about the answer, which is nearly always less than 2 percent. Your local casino offers much better odds.

## 14 Friends and family

Friends and family are generally too polite to tell you that your invention stinks. Or they are not risk takers, and fearing that you may fail may try to discourage you. So if you must show your invention to them, don't ask what they think. Just show it, and don't put too much stock in their opinions.

## Conclusion

None of these methods is foolproof. But two or more used together is better than blind optimism. Good luck. 🍀

**Jack Lander**, a near legend in the inventing community, has been writing for *Inventors Digest* for 19 years. His latest book is *Marketing Your Invention—A Complete Guide to Licensing, Producing and Selling Your Invention*. You can reach him at [jack@inventor-mentor.com](mailto:jack@inventor-mentor.com).



# How's Your Invention Management?

# USE GOOD PRODUCT STRATEGY TO AVOID BECOMING A BAD STATISTIC

BY JOHN G. RAU

**Spoiler alert:** The statistics are scary when it comes to the success rates of new ideas and subsequent inventions. But placing them in the proper context can help ease the sting and even motivate you to achieve where others fail.

According to inventionstatistics.com, 1 of every 5,000 inventions has a successful launch—a 99.9 percent failure rate. Only 2 percent of all patents earn significant dollars. Less than 5 percent of patents are commercialized. Only 10 percent of those making prototypes end up making money.

There are many reasons we see such dismal results. I contend that many times new invention products fail because of a lack of good product management—or, in this case, a lack of good invention management.

It's how you manage your invention that will eventually determine whether it is successful. You could have a great invention idea that could lead to a new and successful product, but if it is not managed properly it could be a failure.

## Management errors

Some of these mistakes are referenced in the blog titled “Why Do Products Fail?” at [tynerblain.com/blog/2012/02/08](http://tynerblain.com/blog/2012/02/08). Among common problems:

**The business case is flawed;** the product strategy is not profitable. You have three basic choices for commercialization of your new product idea: (1) license your new product idea, (2) manufacture and distribute your new product yourself or (3) patent your new product idea and then sell the patent outright. If you can't find one or more licensees or you don't have enough money or know how to set up a company to manufacture and sell your new product—or, if no one is interested in buying your patent—you have “failed.” You could have had a good and potentially successful product for commercialization, but you didn't know how to successfully implement any of these three approaches.

**Your invention doesn't solve the right problem** or problems that enough people care about and/or are looking for a solution that they are willing to pay for. Your new product might not be good enough, doesn't solve the problem(s) completely or even



has a bad design. This is where prototype development is important: It will enable you to check out the functionality of your new product idea and verify and validate how well it solves the problem(s) being addressed.

**You have focused on the wrong target market** (example: the Segway PT, which was advertised as the future of transport but was a product and not a solution, with no clear need or target market), or you may be trying to enter the “Red Ocean”—where there are many competing products and competitors fighting for market share. All inventors must ask themselves the key question of whether their new product is innovative enough to make it in the target market.

**Your positioning and sales approach is wrong.** Examples of what could happen: Your potential customers don't think of your new product as a solution to their problem(s), even though it is; your potential customers appear to have decided not to purchase when they should have; or your potential customers have never heard of your new product because you haven't employed an effective means to tell them about it (that is, you haven't successfully conveyed the "why you?" story). Lee Iacocca is quoted as having said, "You can have brilliant ideas, but if you can't get them across, your ideas will not get you anywhere." You need to invent something that has a high "wow" factor, not just a "me, too" product.

**It takes too long for your new product to enter the marketplace** because of a well-defined marketplace with existing competitors and well-established distribution channels (a Red Ocean issue). Your new product may very well fit, but it will be difficult to “slip in” and establish your niche.



## Overlooking information

Many inventors fail to get enough information or utilize resources that can provide crucial insight into the potential of their product or idea. *Inventor Insights* discusses some of these challenges and mistakes:

**Inventors get too caught up in their enthusiasm** to objectively evaluate the viability of their product. “When someone invents something, they believe they have a product no one has, the best ever made, and everyone will want it. It is their baby. They are emotionally tied to it and because of that they don’t always make sound business decisions. When you tell them their baby isn’t going to work, that it is a bad child, they get angry and don’t believe it. Getting a patent is easy compared to getting that patent to market.”

**Many fail to get solid market research information** about their target industries, a main cause of product failure. *Inventor Insights* says: “The toughest two things about getting a product to market are conceptualization of your idea into a final product and learning the industry that you’re in.”

**Some fail to get information about their competition** and competing products, as well as major players in that target industry.

“Undoubtedly, lack of capital has prevented many product ideas from going beyond the drawing board. But judging by the experience of inventors who have made it, information rather than money is more often the decisive factor in the success of a new product. Knowing how an industry works and who its major players are can help an inventor spend money where it will do the most good.”

**Many become too independent** or are unaware of how to take advantage of inventor resources, such as local inventor groups and inventor networks. Look for inventor-type clubs and organizations in your area; there’s a good list at [InventorsDigest.com](http://InventorsDigest.com). Getting input and experienced advice will be extremely helpful in getting you started in successful management of your new product.

As *Inventor Insights* concludes, “The ideas are easy to come up with. Making them a commercial success is the hard part.” This is where good invention management is vitally important. 📞

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



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Nate Lawrie first realized the effectiveness of a foam roller while recovering from a back injury in 2006.

## Retired NFL Player Gets Inventive

PORTABLE FOAM ROLLER, THE MORPH, HELPS RELIEVE TIGHT MUSCLES

BY JEREMY LOSAW

**N**ate Lawrie played only 26 games in the National Football League spanning five seasons. His brief career is the norm in this violent sport—the NFL Players Association says the average career of a player is 3.3 years—but his post-playing career promises to be much longer and helpful to others.

A back injury shortened Lawrie's career. The former tight end used his experience on the treatment table to create a new workout aid, the Morph, that brings the function of a foam roller into a portable package.

### How the Morph works

Foam rollers are often used as an aid for self-myofascial release (SMR), which is essentially self-massage. SMR is a way to relieve tight muscles after a workout to restore their elasticity. It can

be done with a hard ball like a baseball or even your hands, but foam rollers are the preferred method of many trainers and athletes. The rollers' nubby texture works muscles like a meat tenderizer to restore blood flow to muscles and aid in their recovery.

The Morph (\$68, [brazynlife.com](http://brazynlife.com)) is a collapsible foam roller that can be used as a workout or recovery aid. It has a nubby foam skin like a standard foam roller but is designed to collapse flat for easy storage. Under the foam are slats of bamboo tied together with a tough textile. The hubs on each end of the roller are segmented and hinged. A simple pull of the cords connected to the hubs expands the roller into its cylindrical shape. Despite being made from many pieces, it can hold up to 350 lbs.

You can collapse the device by pushing the ends of the hubs toward the center of the roller. The Morph comes with a carrying case and a workout card that shows sample moves for its use.

PHOTOS COURTESY OF NATE LAWRIE



Stretchable fabric skins, sold separately, help keep it free of sweat and debris.

## Injury begets innovation

In 2004, the Tampa Bay Buccaneers made Lawrie the top selection from an Ivy League school in the NFL Draft after an All-American season at Yale, where he set individual and career records for receptions by a tight end. His NFL career began slowly with little playing time before he signed with the New Orleans Saints in 2006.

Led by quarterback Drew Brees, the Saints were charging toward the NFC championship game and Lawrie was getting quality playing time. However, Lawrie was sidelined by a back injury with a month left in the season and watched the playoff loss to the Chicago Bears from a hospital bed. Determined to bounce back, he started physical therapy and realized the power of a foam roller while working with a Pilates guru.

"She taught me a few techniques and moves that I could do. After that, I started using it religiously. ... It was an easy way for me to stay on the field," recalls Lawrie. But traditional foam rollers were too bulky and hard to transport. One day, while sitting on the massage table at an away game, he contemplated the possibilities of a portable foam roller. The Morph was born.

## A plan in action

The idea stewed for a few years before he started the development process. After retiring from the NFL, Lawrie moved back to Connecticut and transitioned to helping out his father-in-law, Val Luca. A serial inventor, Luca created a product called the Touch 'n Hold door closer. Lawrie spent a couple of years growing the business and helped sell more than 9 million units of the product.



**"I did the fateful first test to see if the idea would work, and it held me. After that, I knew I had something I could continue to develop."**

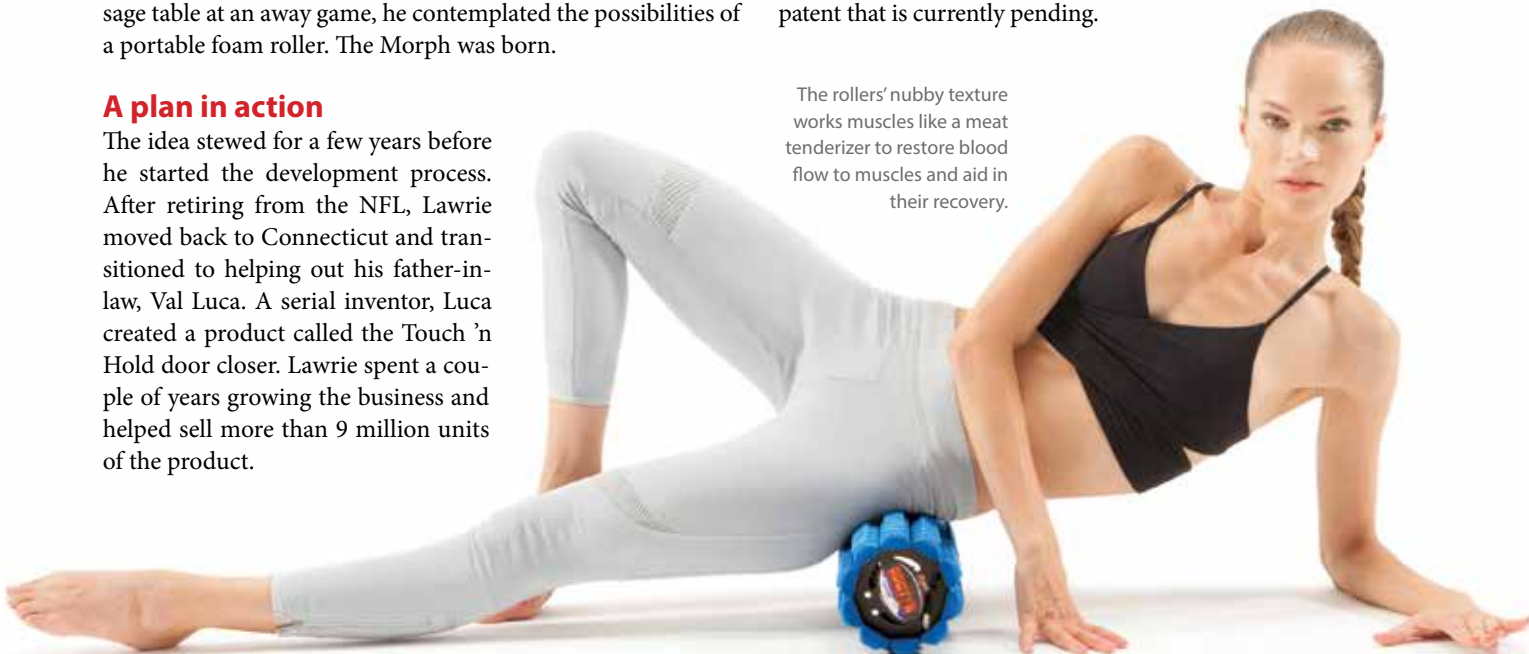
— NATE LAWRIE

The foam roller idea simmered in his head. Once things calmed down with the Touch 'n Hold, Lawrie found some time to start prototyping. He got some supplies at Home Depot, including a basement column cover that had hinged wood slats and some discs for hubs. After an hour of gluing it together, he had his first prototype. "I did the fateful first test to see if the idea would work, and it held me," he says. "After that, I knew I had something I could continue to develop."

Lawrie continued to prototype and refine the idea until it was ready to patent. He bought a sewing machine and did more prototyping at home. To help with the more technical parts of the product, he secured a federal innovation grant that provided funding to engage an engineering firm to help with design. After 25 iterations, the product had a hinged foam pad backed with bamboo strips and a spar connecting the outer hubs that allowed it to collapse. Once he was optimistic that the design had the potential for commercialization, he enlisted a

patent attorney to file a provisional. This gave him a year to conduct more testing and consumer outreach. He received positive feedback and converted the filing to a full utility patent that is currently pending.

The rollers' nubby texture works muscles like a meat tenderizer to restore blood flow to muscles and aid in their recovery.





Under the foam on The Morph are slats of bamboo tied together with a tough textile. The hubs on each end of the roller are segmented and hinged. A pull of the cords connected to the hubs expands the roller into its cylindrical shape.



The next challenge was finding a manufacturer that could handle the unique design. Fortunately, Lawrie's in-laws had a ready-made solution. Luca owns a factory in Romania that makes parts for jet propulsion systems. After a recent expansion of the facility, Luca had some extra space to set up a manufacturing line for the Morph. This gave him access to manufacturing engineers and gave Lawrie extra control over the process to ensure maximum quality.

Lawrie has made numerous trips to the facility to guide the process and get production samples. The first production run of a few thousand units was slated for July of this year. The goal is to make a few runs in Romania before transferring production to a location where it can be made less expensively.

## Promising future

The unique and robust design of the Morph has garnered industry awards, athlete endorsements and eager customers. Lawrie launched the product on Kickstarter in November 2015, a success

with 739 backers and \$65,382 that helped fund the production run. Numerous athletes have been given pre-production samples and praised the product, including Brees; Tyler Clutts, who has played two seasons with the Dallas Cowboys; the U.S. women's ice hockey team, and the U.S. rugby team. The Morph was also a finalist for the 2016 Inc. magazine Iconic Design Awards.

Lawrie is not standing still. He's working on deals to get the Morph into big-box retailers, as well as line extensions that will help make athletes' lives easier. He's working with his father-in-law on some other business ventures, including a new method to de-ice aircraft. 🛩️

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







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# Out

Zoltan Mesko co-developed the EXO1 technology, a leaf spring device for the outside of the helmet that mitigates impact.



# side the Norm

ONCE-CONCUSSED FORMER NFL PUNTER DEVELOPS HELMET-SAFETY DEVICE

BY REID CREAGER

**Z**oltan Mesko heard there could be times during the inventing process when he'd be beating his head against a wall. But he never imagined it literally happening—or that he would enjoy it.

While testing his EXO1 helmet device, designed to mitigate impact to football players' heads, "I taught myself how to do 3D design on CAD software and started kicking out different iterations via 3D printing. I put the device on my helmet and it obviously wasn't the final product but has the same physics component to it. When I hit my head into the wall or the doorframe it was like, 'Wow, this thing works!'"

The former NFL punter got a bigger kick out of watching a room full of lawyers doing basically the same thing. "It's kind of like having a mini-trampoline on your head," he says. "The funniest part was talking to the patent attorneys and having them put the helmet on with the device on it and having them hit their heads into the table."

"I'm thinking, 'I can't believe we're doing this—a bunch of PhDs and attorneys in the room!' Everyone was laughing. This is how I knew I had a good product."

He quickly turns serious on the subject of head trauma in football, an increasingly alarming issue highlighted by the growing incidences of concussions in the NFL and the resulting public and

media scrutiny. Mesko, who played for the New England Patriots, Pittsburgh Steelers and Cincinnati Bengals from 2010 to 2014, wants to help make the sport safer at all levels.

## Firsthand impact

He has personal experience with the pain and shock of a concussion, and the head injuries that so many players never disclose. While playing in the 2010 Senior Bowl to complete his career at the University of Michigan, Mesko pursued a punt returner near the sidelines and was propelled into the air before landing face-first and sliding three or four yards. "I looked like a rag doll," he says.

Mesko recalls a very short blackout, not being able to feel temperature for the rest of the game, and having headaches that night and the following morning. He didn't disclose the concussion because he didn't want it to affect his chances of being chosen in the NFL draft. "I can't even count how many similar stories I have from former teammates," he says. Former NFL linebacker Bill Romanowski has said he sustained hundreds of concussion-causing hits throughout his career but that a lot of them went undiagnosed.

However, it's not the long-term effects that Mesko saw. "What I saw was more so the temporary headaches, the sensitivity to light that I saw my teammates undergo for weeks and weeks after they sustained a more massive, traumatic brain injury that motivated



**“Right now our design, to go to market with this, is to help on the practice field first. That’s where 76 percent of concussions occur, during practice and camp when kids are trying to prove themselves.”**

me to think: ‘If this happens to adults with a mature mind, what happens to kids and how much is their brain health deviated even in the short term? If you can’t think right or can’t even be in a well-lit room like a classroom, you’re going to fall way behind.’”

He and fellow Michigan alum Benjamin Rizzo developed the EXO1 technology, with Rizzo bringing together six Harvard MBA, medical and law students who are part of a company called Impact Labs. “When I met this group, ‘I felt like I was the dumbest in the room—which puts me at ease,’” says Mesko, who has a business degree and a master’s in sports management. “If I’m going to partake in a business, I cannot be the smartest in the room.”

Their innovation differs from the vast majority of helmet safety inventions that focus inside the shell. A patent-pending leaf-spring device for the outside of the helmet, the EXO1 is a reference to the exoskeleton (the external skeleton that supports and protects an animal’s body). The “1” foretells of possible subsequent incarnations in a series of products, with future potential for use in other sports. A leaf spring, often made for use in the suspension of wheeled vehicles, is made up of a number of strips of metal curved slightly upward and clamped together, one above the other.

The outside component not only separates the EXO1 from other products, “it enables us to work as a collaborator and not as a competitor to the helmet companies,” says Rizzo, the business leader of the project and a chemical engineering major. “We’re saying that together, we can do a better job.”

Currently the plan is for five interconnected leaf springs per helmet, pending final design and choice of materials later this summer and further third-party lab criteria in order to

produce the first externally attachable helmet device for football helmets to have certification from NOCSAE (National Operating Committee on Standards for Athletic Equipment). Then comes deployment to high schools, Pop Warner leagues and some colleges for pilot testing. Impact Labs aims for a product launch in summer or fall next year.

According to Mesko, at least 40 current and former NFL players have said something in support of the EXO1. Advisory board members include former Michigan football coach Lloyd Carr and Vin Ferrera, who founded Xenith helmets.

### Behind the design

Mesko says the company has conducted secondary prior art searches with promising results. “Our international utility patent that has been filed basically covers all iterations that would be covered on the helmet. We’re covering the side that has been researched to be hit the most (just above the right earflap) at all positions except the quarterback. The quarterback, after a sack, has kind of that whiplash effect where he hits the back of his helmet.

“Right now our design, to go to market with this, is to help on the practice field first. That’s where 76 percent of concussions occur, during practice and camp when kids are trying to prove themselves.”

Mesko says the EXO1 essentially mitigates impact by increasing the time to decelerate an impact. “Besides coiled springs, what else is there to mitigate impact? I looked at locomotives and bigger semi-trucks. You have the leaf





spring system to take on the suspension process. This is basically that. It's a leaf spring sliding alongside the top of a helmet. It's a simple design.

"The leaf spring is basically screwed into the helmet and just slides along, with a latch mechanism you can pop on and off that's coming later. There is no cover to the leaf spring, though we could easily implement one. ... In third-party lab testing, we were able to reduce impact force by 55 percent, which is four times more effective than the leading competitor."

He cautions that the device does not promise to stop concussions: "We want to increase the threshold for getting a concussion. We have to be careful with our claims. We are not going to prevent concussions. We are going to mitigate impact force, which has a direct correlation with concussion causation."

## Bigger picture

The NFL was merely a stop in Mesko's life odyssey. Born in Timișoara, Romania, on the Hungarian border, he spent Christmas Eve 1989 ducking on the floor of his parents' apartment in Romania to avoid cross-fire during the revolution. He and his parents finally got out of the country when they won America's green card lottery in 1997, when he was 11.

He speaks five languages; the Wall Street Journal dubbed him the NFL's most interesting man. His parents, both engineers, passed that practical-thinking mentality to him even though physics is his favorite subject. He works in predictive analytics in his job at IBM, "so a lot of projects are very intricate. It's about connecting people within a company sometimes. ... I feel like that is the definition of creativity: taking something and applying it to something else, or taking multiple components and combining them."

The invention portion has been the easiest part of the process for him. Adapting the startup entrepreneurial mind-set—the business plan, go-to-market strategy, talking to investors—"I'm getting better at it. It's a great exercise for me ... but it's the same principles: What value does this product bring? It's been getting easier as we've been getting traction and commitment from the investment side."

The EXO1 is currently in seed-round fundraising, "getting commitments from professional angels who bring a good strategic point of view to us, whether it's manufacturing, design, marketing or from the football aspect." He

## TELLING TOTALS

**67%** of parents find current solutions inadequate

**185,000** concussions a year among youth and high school football players age 6-18

**84%** of parents expressed interest in purchasing a device like the EXO1

Helmet with EXO1 has **55%** reduction in cumulative-impact forces



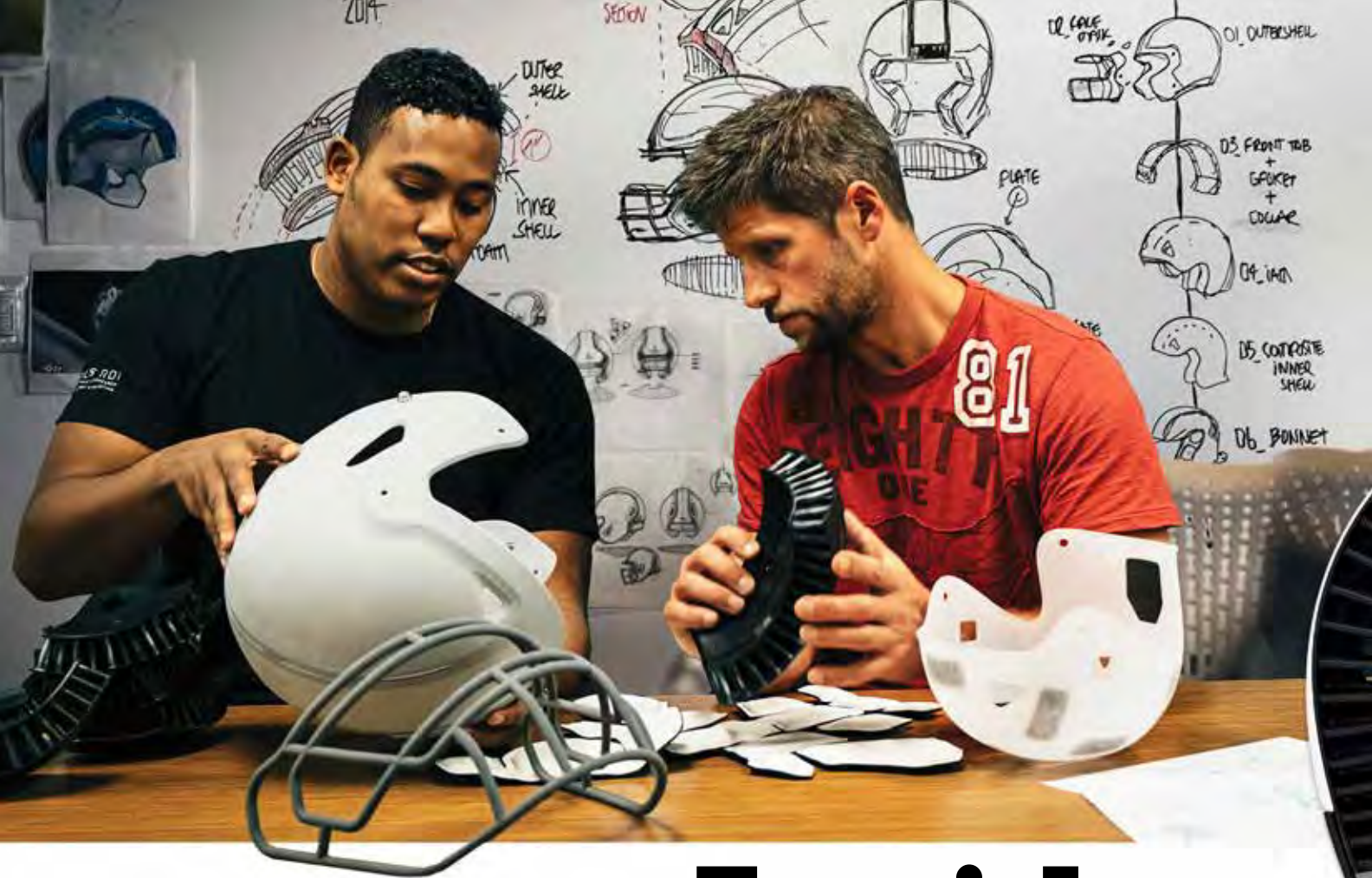
says Rizzo, as project business leader, has provided invaluable help on many aspects. So has the Harvard team that includes Brian Powers, medical and research; Tyler Biddix, finance and control; Alec Williams, legal and regulatory; and Kari O'Neil, sales and marketing.

Impact Labs is also excited about the product's educational benefits for football players of all ages. "The area our device covers, the front one-third of the head, is a precious area and one we want young athletes to know they need to protect," Rizzo says. "In combination with offering a technical solution of 'If a player gets hit in that area, here's the impact reduction we can offer,' we're also developing an education package of practice drills and coaching to learn about proper tackling techniques and ways not to hit with that area."

Mesko says that if the EXO1 makes money, so be it. "But I wouldn't have designed for 11 hours per day at times if I didn't have the vision of driving by a Pop Warner practice and seeing kids being helped out by this." 🏈

Zoltan Mesko and fellow University of Michigan alum Benjamin Rizzo (near left) are part of a company called Impact Labs that includes six Harvard MBA, medical and law students.





# Inside the Helmet

SAFETY INNOVATION FACES CHALLENGES AS NFL CONCUSSIONS CLIMB

BY GENE QUINN AND STEVE BRACHMANN

**D**uring the National Football League's 2015 season from exhibition games through the playoffs, the league's 271 diagnosed player concussions represented an increase of 32 percent over 2014. In regular-season games alone, diagnosed concussions rose by 58 percent to 182 diagnoses, the highest such number in four years according to ESPN. Of those regular-season concussions, virtually half (92) were caused by contact with another helmet.

It seems reasonable to suspect that new concussion protocols—heightened screening measures adopted by the NFL for

in-game evaluation of players potentially suffering head trauma—are at least part of the reason for the significant increases. It seems equally clear that football players are regularly suffering a great deal of brain trauma, with long-term effects that are at best uncertain and at worst dangerous.

Without more effective protective measures against concussions, football players are at a heightened risk of developing chronic traumatic encephalopathy. CTE affects those who have a history of repetitive brain trauma, including subconcussive hits to the head that don't result in concussion symptoms.





OPPOSITE PAGE: ZERO1 VICIS members Travis Glover (left) and Kurt Fischer inspect one of their helmets.

LEFT: The ZERO1's columnar structure decelerates impacts.

BELOW LEFT: A cross-section of the helmet.



This repetitive trauma can cause a progressive degradation of brain tissues leading to impaired judgment, issues in controlling impulses and dementia. In September 2015, a joint study conducted by Boston University and the Department for Veterans Affairs found that among 91 samples of brain tissue from deceased NFL players, 87 tested positive for CTE.

Those brains tested for CTE may have been donated by players and their families because they had reason to know or suspect a problem. There is no known test for CTE in a living brain. The question remains how many football players have developed the condition or will. Many football players live long, productive and normal lives after leaving the game; many do not.

As the debilitating effects of repeated concussions become better understood, the problem may become a much greater financial hurdle for the NFL. In addition to a \$1 billion NFL settlement for concussion lawsuits, upheld by a federal appeals court this past April, insurance giant AIG (an NFL sponsor) announced in June that it will cease its coverage against head injuries suffered by NFL players, although it will still insure against non-brain-related injuries.

## What happens in a helmet

When designing a helmet, the goal is to reduce brain injuries. But that is where the simplicity of helmet design ends.

“Brain injuries occur when the brain rattles within the cerebrospinal fluid inside the skull, often caused by rapid acceleration or deceleration,” explained Laith Abu-Taleb, a patent attorney with Finnegan, Henderson, Farabow, Garrett & Dunner in Washington, D.C., who has a master’s degree in bioengineering. Prior to joining Finnegan, Abu-Taleb founded a company to research novel solutions to preventing concussions in NFL, NCAA and high school football.

“Think of it as an ice cube floating in a glass of water. You move the glass too fast, the ice cube is bound to hit the sides of the glass. If you move it slowly, you have more of a chance for the cerebrospinal fluid, or water, in our example, to protect the brain before impacting the side of the container.”

According to Abu-Taleb, the way helmets are designed, either with hard plastic or light metals, they “mainly serve the purpose of protecting the player from blunt impact. The inner part of the helmet is usually made up of a softer, foam-based material, which enables the helmet to absorb as much force from the blunt impact as possible.”

Today’s helmets are reasonably good at protecting from blunt impact but still have serious problems. “A major weakness in helmets is that they do not protect from any ‘twisting or torsion motion’—for example, when a wearer suffers an impact that forces his neck to rotate at a substantial speed,” Abu-Taleb explains. “This is a major cause of concussions, as the brain rattles within the cerebrospinal fluid inside the skull as soon as the rotating comes to a stop, causing multiple potential points of impact between the brain and skull.”

A harder, more unbreakable helmet is not the answer. The harder the helmet, the more likely it will transfer the power of any blow through to the brain. It may seem counterintuitive, but the softer and more malleable the material, the more protection it offers the wearer’s brain. That said, designing a helmet that would transfer the power through the helmet and not to the head and ultimately the brain is much easier said than done.



Windpact's design utilizes Crash Cloud technology, which involves a series of vents and springs producing self-recovering airbags.

"Cars have specific 'crumple zones,' which break and bend during crashes," Abu-Taleb explains. "The breaking and bending of the car at certain places dampers the force before it reaches the actual cabin. Unfortunately, it's much more difficult to design crumple zones for helmets, because you're working with much less space. Ideally, you would have a large helmet with a 2-foot radius and airbags, but that wouldn't really be practical."

### Improving equipment

There's a strongly held belief that no matter how much time and money is invested into research and development, there will never be a helmet that is truly concussion-proof. Part of the issue, the prevailing opinion states, is that the physics involved in an accelerating force striking a head cannot be prevented; the force of impact has to go somewhere.

Not everyone says the problem of football-related head injuries is insurmountable. One such firm is Seattle start-up VICIS. The company is developing a flagship helmet known as the ZERO1, which has a deformable outer shell surrounding a unique column structure, hard plastic and form-fitting memory foam

layers. This May, tech news publication GeekWire reported that the company has closed nearly \$20 million in financing since opening operations two years ago and plans to use those funds to increase production and commercialization of the ZERO1. GeekWire also reported that 25 NFL teams and another 30 National Collegiate Athletic Association teams have expressed interest in evaluating the ZERO1.

Because science has not established a correlation between impact force reduction and concussion risk, VICIS has made a point of refraining from making concussion-related claims.

While many former NFL players have spoken out about the debilitating effects of concussions and CTE, former punter Zoltan Mesko isn't the only one to respond via innovation that results in a safer football helmet. Shawn Springs, who was a cornerback for the Seattle Seahawks, Washington Redskins and New England Patriots, is the CEO and co-founder of Windpact. The company's product design incorporates what it calls Crash Cloud technology, which involves a series of vents and springs producing self-recovering airbags. These airbags are designed to absorb the force of a hit and effectively disperse that force to minimize skull impacts during a tackle.

While a helmet can be effective in preventing skull fractures, it's not necessarily designed to reduce or prevent concussions caused by high-impact contact between athletes. Westport, Conn.-based Q30 Innovations recently announced the results of studies on its Q-Collar product, performed by researchers at the Cincinnati Children's Hospital Medical Center.

The Q-Collar, by Q30 Innovations, is worn around a player's neck with the ultimate goal of reducing brain movement.





The Q-Collar is a device worn around a player's neck that puts light pressure on the jugular vein to increase the amount of blood in the cranium, tightening the fit of the brain within the cranium and reducing brain movement. Researchers found that local high school football players who did not wear the Q-Collar showed significant alterations in their brain's white matter over a course of the season, while those wearing the Q-Collar did not experience white matter changes consistent with brain injury. A study involving hockey players produced similar results.

## What can be done?

One of the biggest problems facing the NFL is the need for players to stop using their head as a weapon. Leading with the head in order to injure other players or knock out the football places players at significant risk. That is why the NFL has spent considerable time and effort working on the Heads Up Football® initiative, meant to improve player safety. In the meantime, until head-to-head contact is substantially limited, better helmet technology will be a crucial factor for survival of the game and its players.

Crumple zones could also be employed to some extent in helmet technology, which could have an influencing impact on players. "Not only would crumple zones be able to reduce deceleration times, but the helmets would also enable players to better integrate impact management into his or her playing style by seeing the damage certain hits cause," Abu-Taleb says. "This may be an incredibly expensive solution, though, as helmets would have to be switched out after every major hit."

The helmet that would best protect a player's head and brain would become unusable after a hit of sufficient magnitude, as with a motorcycle helmet. At some point, however, the NFL will have to ask itself whether having the absolute best protection is desirable even if there is added cost.

"Other solutions being implemented include various sensors within the helmet to monitor the force and acceleration acting on the head. Real-time sideline wireless monitoring systems may help coaches and medical staff to pull players out after hits of a certain threshold, potentially before any concussion symptoms begin to present themselves," Abu-Taleb says. "The sensors also help players adapt by allowing them to determine best practices for various tackles and hits, changing their game play to a safer and more effective means." 🐕

**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.



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



## RECENT PATENTS SEEK TO PROVIDE HELP

More innovations in helmet design engineered to reduce brain traumas caused by athletic impact can be found in some patents recently issued by the U.S. Patent and Trademark Office.

One such technology, which aims to take a proactive approach instead of waiting for an impact, is reflected within **U.S. Patent No. 9,289,022**, titled Biomechanics Aware Helmet and issued this March to Brainguard Technologies of El Cerrito, Calif. The technology protects a helmet with two shell layers separated by a shear mechanism that allows the outer shell to rotate up to several centimeters in relation to the inner shell. A chin strap featured in the design maintains the position of the inner shell layer on the skull during a rotational impact. There are also impact transformer layers that reside between the helmet's outer and middle shell, and also between the middle and inner shell.

**U.S. Patent No. 9,332,799**, entitled Protective Apparatus and Method for Dissipating Force, was issued in May to Helmet Technologies of Novi, Mich. It claims a helmet protecting a user's head from the application of force with the use of a series of substantially elastic structures provided between interior and exterior surfaces. The invention is capable of quickly dissipating impact forces and recovering fast enough to dissipate another impact, which occurs only microseconds after the first impact.

Injuries from helmet-to-helmet collisions could be reduced

thanks to the invention disclosed in **U.S. Patent No. 9,119,431**, titled Helmet for Reducing Concussive Forces During Collision. Issued last September to solo inventor Juliana Bain of Arlington, Va., it protects a retrofitted helmet having a plurality of discrete padding shapes made of polyethylene foam or moleskin material, each of the shapes covered with a low-friction, thin molded PETG plastic to form a contiguous protective space of air between the helmet's plastic exterior and the outer surface of an inner football helmet.

A technology that can identify and treat traumatic brain injuries (TBIs) as they occur, even asymptomatic injuries that don't result in concussions, is seen at the center of **U.S. Patent Application No. 20,160,100,794**, titled Real Time Brain Trauma Treatment. This patent application was filed last October by inventors Landon Miller of Tuscaloosa, Ala.; Scott Behrens of Noblesville, Ind.; and Kevin Butterfield, also of Noblesville. It discloses an automated method for rapidly introducing treatment to patients suffering TBI by providing a wearable array of electroencephalography sensors in communication with a processor controlling a cooling mechanism, detecting stress forces experienced by a wearer and releasing coolant in a series of tubes throughout the cooling mechanism to cool the brain in response to a stress event. The use of the cooling agent provides a net 4-degree reduction in the wearer's brain temperature. —Steve Brachmann

Cara Adams, senior project engineer for race tire development at Bridgestone Americas Tire Operations, inspects tires during Indy 500 practice.





# HIGH-GEARED DESIGN

BRIDGESTONE RACE TIRE ENGINEERS  
DEDICATED TO INNOVATION **BY REID CREAGER**

**C**all Cara Adams a gearhead, and she'll happily agree. Whether she's working thousands of hours with compounders and chemists to research and prepare a tire for a race or walking eight miles in the pits during the Indianapolis 500 while getting feedback from engineers and technicians, she loves every day of it.

Her 2002 Bachelor of Science degree in mechanical engineering, with a concentration in vehicle dynamics at the University of Akron, eventually led to her becoming senior project engineer for race tire development at Bridgestone Americas Tire Operations. She joined the company in 2003; today, her primary design responsibility is the IndyCar superspeedway tires for Firestone.

When she started in IndyCar, she was the only female technician traveling with the series. She and Dale Harrigle, a 20-year motorsports veteran and chief engineer of Bridgestone Americas Motorsports, work 15 or 16 races a year.

Their contributions continue a tradition of consumer and racing tire innovation dating to Firestone's founding in 1900, when the company supplied pneumatic tires for wagons and buggies. Today, Bridgestone Corp., which bought Firestone in 1988 and is the world's largest tire and rubber company, is the parent firm; Firestone is the brand that's used for competing in the Verizon IndyCar® Series.

We talked with Cara and Dale about racing tire innovation, as well as her role in a male-dominated sport.

**Reid Creager:** Did you always dream of doing this?

**Cara Adams:** I never imagined I would be working in racing back when I was in high school. When I was very young, my mom taught neighborhood science camps. So I developed a passion for how things work, how things are put together. Growing up, I would take things apart and put them back together. I got in trouble for that, unfortunately!

When I went into mechanical engineering at the University of Akron, I went down to the machine design shop where they put together the Formula SAE (Society of Automotive Engineers) car. It was a competition where you design and build your own race car and I started working with that group. ... I kind of picked up the bug for racing then.

**RC:** What goes into the design of a world-class racing tire?

**CA:** There are a lot of things that go into a racing tire that would go into a passenger tire. Some of these things are not as important in a race tire, like snow and ice performance, but we have to design a tire that is durable, lightweight, and can maintain the speeds and loads that we see at tracks like Indianapolis and some other race tracks. At some race tracks you can see over 3,000 lbs. on the right front tire, so that's quite a bit of load.

So we put in a lot of work as a team even before we get to the race track into the designing of a tire with the lightest weight and heat-efficient materials

that we can. It's not just one person who designs a tire. We have a whole team of engineers. Racing is actually part of our advanced tire engineering group, which is really good for us so we have access a lot of smart engineers and people who work with computer simulations and modeling, things like that.

**RC: Which specific materials link with consumer tire innovation?**

**Dale Harrigle:** One key is the fundamental polymers and the rubber formulations in the race tire. A lot of those fundamental polymers that we use to try to deal with the heat generated by the racing tire or racing application translate to the consumer side, like the tractor-trailer running through the Arizona desert on a 100-degree day. Also, you need to concern yourself with how much heat the tires are generating and how to reject that heat.

Another key way that the two correlate is, we do a lot of modeling and simulation work with our race tires now, as Cara alluded to, with the team that's part of our advanced tire engineering group here in Akron as well as within race tire development ourselves. We've actually pushed the people who develop those tools to improve those tools, be it wet performance or a certain type of construction or how much load we can model, how quickly and how much speed the model can return valid results for. When we increase those models' capabilities, those capabilities also translate to other tire types and eventually to consumer tires.

**RC: How many patents does Bridgestone/Firestone hold for racing tires or innovations?**

**CA:** In racing, you have the patents versus trade secrets. We're very much on the side of competition, so everything is more toward the trade secrets side. So we have a couple patent-related things that are visible within the tire. We talked about the transfer from racing tires to passenger tires; we also have a pattern that we borrowed from passenger tires moving to racing, like visual wear indicators. Something like that is patentable, and we have patents on things like that. But most of our stuff is more toward the trade secret side.

**RC: If you can, take readers inside a day in the pits.**

**CA:** You have a very long pit lane, and halfway in the middle of pit lane you have the area where we hang out. We're in communication with our engineers. We have engineers and performance tire technicians at each one



**"We put in a lot of work as a team even before we get to the race track into the designing of a tire with the lightest weight and heat-efficient materials that we can."**

— CARA ADAMS

of the pit boxes. They're communicating to us what the tires look like when they come off the car, what the pressure is, what the temperatures are. Dale and I will walk back and forth looking at the tires after a pit stop: how they're wearing, what the performance of the tires is.

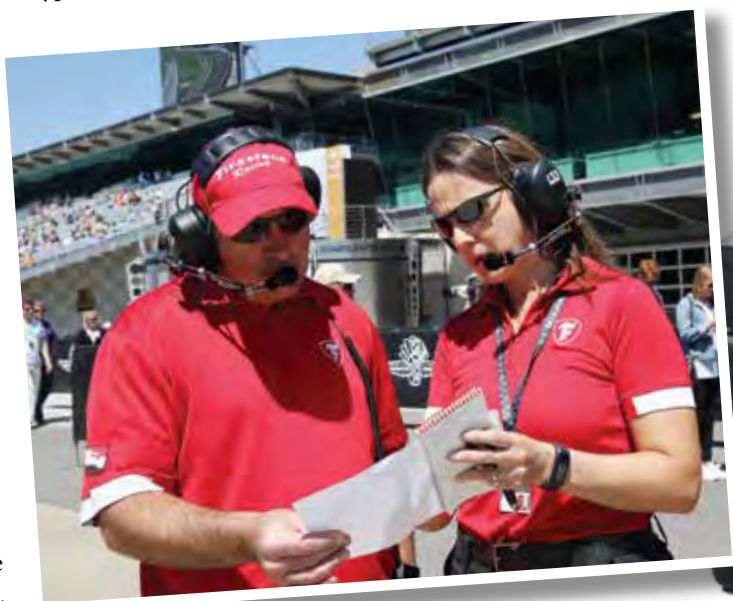
**RC: And what kinds of feedback do engineers want back from you?**

**CA:** If they happen to have a tire that might look like it has too much camber (wheel angle), maybe that's something that we would pass along to them. Or, if they have something that we look and see from their tire that they might be able to adjust their suspension a little bit, we can pass that information along. ... I never want to give an unfair advantage to just one team. We want to make sure the information we get helps everyone.

**DH:** In general, the way we try to operate is to make sure all of our work is pretty much prep work. We're at the track to monitor and make sure we get accurate feedback so as to make improvements for the following year. Realistically, when we're at the track, we aim for that to be the easy part of our job.

**RC: Any other kinds of feedback you're involved with?**

**CA:** One of the things I'm able to do in my role is provide something called force and moment data (information on vehicle



Dale Harrigle (left), chief engineer of Bridgestone Americas Motorsports, checks data with Cara Adams.



handling situations). We take our tires to a large machine at a facility called Calspan in Buffalo. We subject the tires to grueling loads of speeds like the tire would see on the race track and we get out a mathematical model. So we have gotten a lot of feedback from race teams as to whether that's helped them set up their car in a way that they have been successful at the race track.

**RC:** How do different racing tracks require different tire designs?

**DH:** The Verizon IndyCar Series is the most diverse series in motorsports. We run on street courses, road courses, short ovals, medium ovals and all the way up to a 2 ½-mile track like Indianapolis. So for the 16-race season in 2016, we'll actually make 59 different specifications of tires. The reason there's so many specs is that on the road street courses we run in the rain, and we also use an alternate tire that has more grip but wears out quicker to give an element of strategy to the races and allows the teams to choose what tire they want to use.

Every time the car is on the track, every tire on the car is unique. Even though they may look the same, they have different constructions and different compounds based on the loads each tire sees as it navigates the track.



**"Even though they (the tires) may look the same, they have different constructions and different compounds based on the loads each tire sees as it navigates the track."**

— DALE HARRIGLE

**RC:** Cara, what are the most important things you've learned from Dale?

**CA:** When I started in the group, I was the road and street course engineer, and Dale was the oval course engineer. I learned a lot about the engineering of the tires, but even more important have learned how to work with a team to help us develop the best product possible.

**RC:** A question you must get a lot: Have you ever driven one of these cars?

**CA:** One of the things I got to do a few years ago was go to Bridgestone Racing Academy. These are open-wheeled cars. You have this car with all of this power. It's just amazing to me as a tire engineer to see how much grip these tires are able to have when you're pushing the limits. It was a lot of fun.

**RC:** Tell us about the \$100 million technical center that Bridgestone Americas opened in Akron in 2012.

**CA:** It's really helped us have a culture shift toward innovation. We have an open atrium where you can't help but run into other engineers. It really makes for an open environment to share ideas and talk

about innovation and ideas where we'll be able to work together as a team. 🏠



# 5 Questions for Novice Inventors

AN HONEST ASSESSMENT IS A GOOD PLACE TO START **BY DIANE FORSTER**

**A**s someone who's been through the daunting process of inventing, I know that you have to keep calm, believe in yourself and your product, and have an unwavering commitment. This helps you navigate the essential tactical steps involved.

Perhaps most important, you need honest self-assessment that includes some of the above requirements. Beginners should start with these five questions:

- Does my product, service or idea solve a problem?
- Do I know my customer audience?
- Do I know what I would be willing to pay for something like this?
- Do I believe enough in the need, demand and benefits of this to see it through?
- Am I willing to do what it takes to make this happen?

Your answer to all of these questions must be a resounding “yes” if you want to proceed. If you don't fully believe in your invention, how would you expect others to see the need for it and want it?

## Early tactical steps

The second step is to make sure this product isn't already out there. If it is, make sure your modified or revised version of it doesn't exist. You can apply for a provisional patent for as little as a few hundred dollars to find out. Go to [uspto.gov](http://uspto.gov), peruse the site, do some searching, then apply.

If you feel more comfortable using an attorney, that will cost you more—usually in the \$2,000-3,000 range. I know many inventors use an attorney because they feel more protected.

Filing a provisional patent allows you to use the term “patent pending” on all of your documents, drawings or prototypes associated with the product for one year. This is your next step because once you can say it's patent pending, you can feel free to talk about it with others.

I completely understand your fear in the beginning: “Hey, I have this great idea, except I can't talk to anyone about it because someone might steal my idea and walk away with all the money!” Protect yourself, and you won't have to worry about that.

## 2 Strategies to speed up your patent examination

**BY ERIC AMUNDSEN AND JENNIFER WANG**

**Y**ou conceived of an invention. You spent considerable time, energy and money on prototyping and testing. Your patent attorney prepared and filed your application with the United States Patent and Trademark Office. Yet there it sits ... and sits ... and sits.

Due to a tremendous backlog of cases at the USPTO, patent applications in the mechanical technologies space can wait an average of almost two years before being examined. But you can do something about the delay.

### Track One Prioritized Examination

At the time of filing your utility patent application, you can request “Track One Prior-

itized Examination,” which advances your application to the front of the examination queue for a fee of \$4,000 (large entities) or \$2,000 (small entities).

The USPTO defines a small entity as (1) a person, (2) a business concern that does not exceed 500 employees, including those of any affiliates, or (3) a nonprofit organization, provided that the person, business concern or nonprofit organization has not and is not under an obligation to assign, grant, convey or license any rights to the invention to an entity that would not qualify for small entity status. A large entity is any entity that does not meet these requirements.

Under prioritized examination, your newly filed patent application may be examined as soon as one to three months

after filing, and the current average time to reach a final disposition is approximately six months—shaving significant time off the regular examination process. Prioritized examination should be considered when your product is being brought to market quickly and early patent protection would be valuable. In addition, if your product is expected to have a relatively short life cycle, as is sometimes the case with consumer products, you may want to be able to assert your patent rights while the product is still hot on the market rather than wait until it has become outdated.

Typically, you request prioritized examination when you file your application, though it is possible to request prioritized examination later when filing a Request for Continued Examination (RCE) or a continuation application. Prioritized examination can be requested for utility or plant applications, including continuations, continuations-in-part and divisionals. Applications using prioritized examination are limited to four independent claims and 30 total claims.



Making a prototype is the next step, which takes you into the development stage. If you are so inclined and are talented enough, you can make your own prototype if it's a product. If not, do some research to find out who can make it for you. You can look up local prototype manufacturers; surely you'll find a few in your area.

If it's a service, write out your vision. Do as much of this process yourself, because no one else sees your vision as clearly as you do. Your assignment is to present it in a way that everyone else can see your vision as clearly as you can. Write as much as you can about it: What are the features and benefits? Why would someone want this over something else? What makes this unique? What about this adds value or quality to someone's life?

### Time and resources

These three tasks shouldn't take very long. You can accomplish them in the course of a couple of weeks if you have a lot of time, and about a month if you don't. Be sure to schedule enough time for these steps.

I also recommend picking up a few books on the invention process. They are filled with many resources, such as Non-Disclosure Agreement Templates and other forms. Invention books are also filled with website links and other useful tools to help educate you about the process.

Another strong recommendation is that you get a bound notebook and start writing all of your ideas, then progress throughout

**After your self-assessment, you'll need a provisional patent and a prototype.**

in that book. Be sure to write the date on all of your entries. It will keep you organized; most important, if a dispute arises that someone else thought of an idea first, you'll have documentation to back up your idea timeline.

Put everything in that book—sketches, documented phone conversations, your daily action steps taken, etc. This also serves

as a reminder of your progress and how much you've accomplished along the way, which will have a positive effect if you are ever feeling overwhelmed.

The important thing is to get beyond the idea stage and start making progress to move your innovation to fruition. You'll see that once you start bringing your idea to life, it begins to take on a life of its own. Others will want to hear about it and help you in any way they can. Remember, there's no such thing as a bad idea. Every idea gets you closer to something else that has the potential to be even bigger and better than you could have imagined.

I'm glad you're ready to take action! I was lucky enough to get some great guidance, so it's important to me that your needs are met and your questions answered. 📧

**Diane Forster** is the president/CEO of Diane Forster Innovation in San Diego, a company that designs, manufactures, licenses and distributes consumer goods products focused in the kitchen ware industry. Contact Diane at [diane@dianeforster.com](mailto:diane@dianeforster.com).



An application's prioritized status does not last forever. Once a final rejection is received or the applicant requests an extension of time to respond to the USPTO, the application loses its prioritized status.

### Patent Prosecution Highway

The Patent Prosecution Highway (PPH) is an examination acceleration option to consider when you have corresponding foreign or PCT patent applications.

A PCT, or the Patent Cooperation Treaty patent application (also called an "international" application), preserves your right to seek patent protection simultaneously in each of a large number of countries. For each PCT application, an International Searching Authority performs a patentability search. The ISA creates a written opinion regarding the patentability of the invention.

When patent claims are deemed allowable by a foreign patent office or an ISA, the PPH allows the U.S. claims to be examined earlier if the applicant aligns the U.S. claims with the allowable claims. The

**Patent applications in the mechanical technologies space can wait an average of almost two years before being examined.**

applicant must amend the U.S. claims to make them substantially identical to the allowable claims and file a request for entry into the PPH at the USPTO. Significantly, no additional USPTO fees are required to make this request.

The PPH can only be requested in the U.S. if patent examination in the U.S. has not begun. Additionally, applications in other countries can be put on the PPH based on a finding of allowability by certain patent offices or the PCT examining authority. PPH availability varies by situation and by country, though most major patent offices participate in at least one PPH program.

For example, if a U.S. application claims priority to a Canadian application that has been deemed allowable by the Canadian patent office, you can request to enter the PPH in the U.S. Once the request is granted, the corresponding claims in the U.S. application advance to the front of the examination queue and receive a U.S. examiner's opinion on the merits within approximately two to three months. Therefore, the Patent Prosecution Highway can be a good option when corresponding claims are deemed allowable by a foreign patent office or a PCT International Searching Authority.

Depending on your situation, one or both of these strategies may be viable options to speed the examination of your patent. They should be carefully considered with your patent attorney to determine the best way to obtain the necessary protection for your invention—sooner rather than later. 📧

**Eric Amundsen** is a shareholder and Jennifer Wang is an associate in the mechanical technologies group at intellectual property law firm Wolf Greenfield in Boston.

# An Inventive Fix, for Kicks

CREATIVE MORNINGS LECTURE SERIES  
HAS A SUMMER CAMP FEEL

BY JEREMY LOSAW



ABOVE: Jeremy and a fellow attendee visit before the lecture.

LEFT: Matt Olin is founder and emcee of Creative Mornings Charlotte.

OPPOSITE: Audience members build new products from broken 1980s consumer products in the pre-lecture game.

**M**y Creative Mornings addiction is so acute that it almost wrecked my Memorial Day. While at Myrtle Beach, I put both of my kids on the beach at the edge of the water. I watched one of them run toward the ocean and the other toward the house while I stared at my iPhone, frantically hitting “Refresh” on my browser to ensure that I got a free ticket to that Friday’s Creative Mornings meet-up back home. Fortunately, no one was bitten by the tiger shark that was spotted in the area, so I was able to get my fix sans guilt.

My first Creative Mornings meeting in February was just a fun way to get out of the office for a couple of hours. Now I’m a devotee of the lecture series for the creative community, with chapters around the world, that meets on the first Friday morning each month in Charlotte. It is free to attend, and being a living human being proves your status as a creative.

## Comfort, inspiration

The meetings have the feeling of the first day of summer camp with a hint of TED (Technology, Entertainment, Design) talk. You get free coffee and breakfast, and time to mingle. The Charlotte chapter has a featured musical guest, followed by a “Price is Right”-style audience participation game. Then a member of the community gives a short 20-minute lecture on the topic of the month.

I am glad that I took some beach time to register for the June meeting, which was relevant to me on a number of levels. The month’s theme, “broken,” was perfect. After years of being a tinkerer and an engineer, I have plenty of broken machines, prototypes and mechanisms left in my wake. In the last couple of months, we broke a postal scale in the office; my lawnmower ran for exactly 22 minutes before it vapor locked; my oven shut off if I opened the storage drawer under the oven cavity; the face





of my shift knob in my car broke off the stick shift; and I overflowed the toilet in my upstairs bathroom, wrecking the floor as well as the ceiling underneath. You could say that broken and I are better friends than rum and Coke.

It was also interesting because the guest speaker was Monty Montague (@montymontague), founder of the design firm Bolt that is also based in Charlotte. He talked a lot about design thinking, the design process and how to use design as a tool to help our communities. The video of the talk is available on the Charlotte Creative Mornings website ([creativemornings.com](http://creativemornings.com)), so I will not rehash it all. But Monty made a couple of points that resonated with me.

The first was the concept that designers are suburban anthropologists. I am rarely the customer on most of the products for which I am involved in the design process, and a lot of the work is understanding the problem and the environment where the product lives.

Our team is currently working on a manicure product, so a couple of us went to a local nail salon to observe the process. I ended up coming home with pages of notes and a green acrylic pinky nail. On another project, I was 25 feet up in a tree doing research for a hunting tree stand. The “undercover” research is a necessary, if not scary, part of the gig.

The second key point was the concept that good design is never leaving well enough alone. Engineers are often of the “if it ain’t broke, don’t fix it” mind-set. But designers often think, “if it ain’t broke, look again.” If it were up to engineers, the telephone

would have never made it past a rotary dial, let alone gone mobile or smart. “Look again” is a good mind-set to get into when trying to come up with the next big innovation.

### Olin makes it happen

The Charlotte chapter was the 123rd to join the movement. I caught up with the founder, Matt Olin (@mattolincreates), to learn how he brought it to the Queen City. A Charlotte native who’s a freelance copywriter with a passion for theater, he moved to New York City in 2009 after producing a play called “The Other Place” (based on the life of a Charlotte woman with Alzheimer’s). The play eventually made it to Broadway in 2013. After he met his wife, Sarah, they had a daughter and decided to move back to Charlotte to be close to family. On the closing night of “The Other Place,” Olin’s apartment was packed up and he was headed back south.

After being out of town for so long, he was out of touch with the local creative scene and was searching for a way to meet with his peers. He had heard about Creative Mornings while living in New York, thought Charlotte should have a chapter, and eventually took it upon himself to get one started. He was granted a chapter in July 2015; the first meeting was in November.

Although Creative Mornings does not technically have anything to do with product development, I encourage you to check out a meeting in your area. You may get a nugget of inspiration or meet some peers working on similar creative pursuits. At the very least, there is free coffee, music, and food to get your morning kicked off right. ☺



# Why Are Patent Applications So Expensive?

AS CHALLENGES GET EASIER, PROTECTION BECOMES MORE VALUABLE

BY GENE QUINN



ent matters, most specifically the then-pending patent reform legislation. In his prepared remarks, he said: “In 1988 when I was first on the court, the patents usually involved relatively simple technologies. Often the applications were less than five pages long and included less than 10 claims.”

Patents litigated in 1988 were likely issued five to 10 years earlier, on average. If you go back even further, you would see that patents and patent applications were even shorter, perhaps with a page or two of drawings and maybe several pages of double-column text. Claims to patents issued 100 years ago read little more than what we would today call an omnibus claim, which basically says what is claimed is what has been described. Omnibus claims are not allowed in the United States, and long gone are the days when a simple claim could be used to cover what everyone honestly would understand the patented invention to be.

**P**reparing and filing patent applications in the United States can be daunting because of the high cost. There are bargain-basement discount providers on the internet, but does anyone think that in an industry that has only time to sell by the hour or by the project that you’ll get the same quality if you pay \$1,500 for a non-provisional patent application instead of \$15,000?

Sophisticated inventors, knowledgeable corporations and even newbies who have their wits about them know that generally, the more time you spend on a patent application, the better.

I always tell clients and prospective clients that they will run out of money before we run out of the ability to make the patent application better and more complete, but that’s life. The more time you spend, the better the ultimate work product will be—but more time equals more expense. Spending the proper amount of time and not going beyond the point of diminishing returns is where you want to be. Of course, if you can afford to work with a patent professional, you should.

But why does it cost so much to prepare and file a patent application? There’s no simple answer.

In February 2011, former U.S. Court of Appeals for the Federal Circuit Chief Judge Paul Michel testified to Congress on pat-

## How we lost simplicity

Somewhere along the way, patents started becoming exceptionally valuable. That means there is big business in enforcing patents and in trying to get around issued patents so that you are not infringing, or at least so you don’t have to pay much of a license fee or damages after the fact.

The federal circuit was formed in 1982 with a purpose to establish coherent and stable patent laws that would be uniform across the United States. As the federal circuit settled patent law and issued patents really came to be presumed valid, it became far more of a challenge to defeat a patent by arguing that the claims should never have been issued because the invention was not new, because it was obvious or because it wasn’t properly described at the time the patent application was filed. What this has led to is the near-exponential growth in what is included in patent applications, in terms of quantity and quality.

As patents became more valuable, increased litigation led to an abundance of case law, which in many cases found the patent claims invalid. Patent attorneys went back to the drawing board, learned from the mistakes courts pointed out, and did things differently. Over time with more rulings—rulings dealing with the written description as well as nuances of claims—patents had to become longer, more technically dense, and the never-ending



march of archaic and often nonsensical rules continued. Like a snowball rolling downhill, patents have only become more complicated and harder to read and understand.

In the last decade, it has become increasingly easy to defeat patents as the tide has turned away from innovators. The Supreme Court is most to blame, thanks to its extraordinarily restrictive (and changed) view of what constitutes patent-eligible subject matter.

As patents have become easier to challenge, patent attorneys have had to do even more work when preparing applications to ensure there is a dense technical description of a tangible invention that could never be legitimately characterized as being abstract. This is a challenge in many regards, because at some level every innovation starts as an abstract idea. This is further complicated by the fact that the Supreme Court has not defined the so-called abstract idea doctrine in any satisfying way, but it gets used liberally to find inventions patent ineligible. Left with no definition for the key term “abstract idea,” patent attorneys are left to do whatever we can to ensure the inventions we describe are anything but abstract. So the snowball continues downhill, and patents continue to become far more complex than even a generation ago.

**Somewhere along the way, patents started becoming exceptionally valuable. That means there is big business in enforcing patents and in trying to get around issued patents so that you are not infringing.**


### First application is key

It is essential to describe an invention thoroughly when you file your first patent application, due to the concept of new matter. New matter is defined by first considering what is fairly described in the text, claims and drawings filed. That makes up your disclosure. Whatever is not in your disclosure is considered “new matter”—and under no circumstances is new matter allowed to be added to pending patent applications. If you want to add new matter, you must file a new patent application, but that means a new priority date for that being added for the first time. That new priority date means there will be additional prior art you need to consider and define around. With few exceptions, what comes after your priority date cannot be prior art against you; therefore, you want to have the earliest priority date possible.

(Continued on page 44)

# Sav-A-Lot™

## SEEKING JOINT VENTURE PARTNERS



The first version is shown. The marketable version, which will be mass produced, is almost ready.

**Sav-A-Lot™**

This attractive, stainless steel, hygienic refrigerated device dispenses three types of milks (whole, skim and half & half), as well as three varieties of loose sugars (regular, Splenda and equal). Intended for use in coffee shops and fast food restaurants, the Sav-A-Lot gives customers one-touch convenience. The milk is kept cool via NASA-developed, compressor-less technology. Store-brought milk containers and supplied straws are disposed of after the milks are dispensed completely.

**MAJOR COST SAVINGS INCLUDE:**

- 1 lb. loose sugar costs about \$2, 1 lb. packaged sugar \$15
- Prevents people from pilfering Splenda packets
- Milk never touches the dispenser; no need to fill and clean the flasks

We are seeking joint venture partners to commercialize this patent-pending, business-to-business product. Technology and mass manufacturing are by the inventor, who has vast experience in these areas. **OUR GUARANTEED BREAK-EVEN FOR THE BUSINESS IS LESS THAN 6.5 MONTHS WHEN THE DEVICE IS BOUGHT AT MSRP \$2,995.** The product is manufactured in the U.S. (Flemington, N.J.) at less than a third of MSRP.

[WWW.INVENTIONS-OASIS.COM](http://WWW.INVENTIONS-OASIS.COM)  
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# Hit your target

**At *Inventors Digest*, invention and innovation are all we do.** Other national magazines merely touch on invention and innovation in their efforts to reach more general readerships and advertisers. Your ad may speak to its narrowly defined audience—or it may not.

Since 1986, *Inventors Digest* has been solely devoted to all aspects of the inventing business. Tens of thousands of readers in print and at [InventorsDigest.com](http://InventorsDigest.com) enjoy:

- Storytelling that inspires and engages
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# Supreme Court Keeps Medical Test Patent Ineligible

WRIT DENIED TO SEQUENOM; FEDERAL CIRCUIT DECISION STANDS

BY GENE QUINN

**O**n June 27, the United States Supreme Court denied certiorari to Sequenom, Inc., which will let stand a United States Court of Appeals for the Federal Circuit decision that ruled a revolutionary medical test to be patent ineligible. Certiorari is a writ or order in which a higher court reviews the decision of a lower court.

The discovery at the heart of the innovation in question resulted in a test for detecting fetal genetic conditions in early pregnancy that avoided dangerous, invasive techniques that are potentially harmful to the mother and fetus. The federal circuit concluded that the discovery was “a significant contribution to the medical field,” but that did not help its patent eligibility.

The invention, which became embodied in U.S. Patent No. 6,258,540, claimed certain methods of using cfDNA. The patent teaches technicians to take a maternal blood sample, keep the non-cellular portion (which was “previously discarded as medical waste”), amplify the genetic material that only they had discovered was present, and identify paternally inherited sequences as a means of distinguishing fetal and maternal DNA. The claimed method does not preempt other demonstrated uses of cfDNA.

## Mayo ruling set tone

Richard Linn, senior United States circuit judge on the U.S. Court of Appeals for the Federal Circuit, wrote a separate concurring opinion. He explained that given the unnecessarily sweeping language of the Supreme Court’s decision in *Mayo Collaborative Services v. Prometheus Laboratories*, he was constrained to agree that the patent claims at issue were ineligible. Judge Linn explained that the Supreme Court lumped all post-solution conventional activity together as if it necessarily had to be qualitatively the same. He wrote:

“The Supreme Court’s blanket dismissal of conventional post-solution steps leaves no room to distinguish *Mayo* from this case, even though here no one was amplifying and detecting paternally-inherited cfDNA using the plasma or serum of pregnant mothers. Indeed, the maternal plasma used to be “routinely discarded,” because, as Dr. Mark Evans testified, “nobody thought that fetal cell-free DNA would be present.” Judge Linn concluded “Sequenom’s invention is truly meritorious.”

In March, Sequenom had filed a Petition for Writ of Certiorari

in the Supreme Court, challenging the decision of the federal circuit in *Ariosa Diagnostics, Inc. v. Sequenom, Inc.* “We think that there is a compelling case for the Supreme Court to step in,” said Sequenom’s counsel Thomas Goldstein, the founder of the widely popular SCOTUS Blog, at the time the petition was filed. “The issue turns entirely on how to read the court’s cases. The stakes could not be higher for the life sciences. And this is undoubtedly a breakthrough invention that illustrates the harm from the federal circuit’s ruling.”

The single question presented by Sequenom in the petition for certiorari denied by the Supreme Court was: Whether a novel method is patent eligible where: (1) a researcher is the first to discover a natural phenomenon; (2) that unique knowledge motivates him to apply a new combination of known techniques to that discovery; and (3) he thereby achieves a previously impossible result without preempting other uses of the discovery?

If the Supreme Court had taken the case, it would have been required to reconsider the overwhelming breadth and scope of its prior ruling in *Mayo*. It is not ready to do that.

**The federal circuit concluded that the discovery was “a significant contribution to the medical field,” but that did not help its patent eligibility.**

## It’s up to Congress

For innovative companies in the life sciences space, the only possible short-term relief will come if Congress chooses to amend 35 U.S.C. § 101 to undo the damage done in recent years by the Supreme Court. Efforts within the industry have been underway on multiple levels to rally support for a legislative fix that would overrule the Supreme Court’s recent forays into patent eligibility, but time is short for the 114th Congress and the Obama Administration would not be receptive anyway. Perhaps a new year, a new Congress and a new president with a more pro-patent view will result in a different outlook. For now, the industry will continue to suffer the consequences of the Supreme Court’s ignorance on the issue of patent eligibility. ☐

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PHOTOS BY SMITHSONIAN INSTITUTE

ABOVE: A competing team member works on a 3D prototype with a Tool Techs member.

LEFT: A Tool Tech member sets up an Ultimaker 3D printer to print a prototype for a team.



# Inventing Against the Clock

MAKE48 COMPETITION TESTS SKILLS UNDER PRESSURE **BY REID CREAGER**

**C**reating and finishing an invention can take a lifetime. But participants at the recent Make48 D.C. invention competition had 48 hours to come up with a product idea; sketch it out; make it come to life (with access to woodworkers, welders, graphic designers and more); create a short video to describe what the product does; and put together marketing materials such as signs, and a Powerpoint presentation to pitch it to judges from QVC, Pivot International, AnthroTronix and The Handy Camel.

The Lemelson Center for the Study of Invention and Innovation assisted in the organization and planning of the event, which took place at the Smithsonian's National Museum of American History. Speakers included Elizabeth Dougherty and Michael Razavi of the United States Patent Office, the latter who discussed how to obtain a patent. The Shark Tank All-Stars told their stories as well.

The winning invention in the competition, which featured a theme of eco-friendly household products, was a water conservation faucet attachment called Save Flow by Team 801. The next Make48 competition is Oct. 28-30 at the Kansas City Art Institute.

"Make48 is important to us," said Simon Parker of Grove-wood Ventures, a Make48 sponsor. "It is inspiring, insightful and offers fantastic networking opportunities. The guests the event attracts are unbeatable, such as the successful Shark Tank companies." 📱



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# Federal Court Again Backs Software Patent Eligibility

BASCOM SUCCESSFULLY APPEALS MOTION TO DISMISS **BY GENE QUINN**

**T**he United States Court of Appeals for the Federal Circuit recently issued a decision in *BASCOM Global Internet Services, Inc. v. AT&T Mobility LLC*, which provides much-needed good news for those who believe software should be patent eligible.

Writing the opinion for the majority was Judge Raymond Chen, who also authored the court's decision in *DDR Holdings v. Hotels.com*—one of the few cases to similarly find software patent claims to be patent eligible. Joining Chen on the panel were Judges Kathleen O'Malley and Pauline Newman, with Judge Newman concurring and writing separately.

## Dismissive tendencies

This case arrived at the federal circuit on an appeal brought by BASCOM from the district court's decision to grant a motion to dismiss under Rule 12(b)(6). In the majority opinion, Chen rightfully made much of the civil procedure aspects of a 12(b)(6) motion.

It is time that the federal circuit notice these patent eligibility cases are reaching it on motions to dismiss. In practically every situation throughout the law, judges are loath to dismiss cases on a motion to dismiss before there has been any discovery or any issues are considered on their merits—except when a patent owner sues an alleged infringer.

When a patent owner sues for infringement, many district court judges become all too willing to dismiss the case without giving the patent a presumption of validity (despite what 35 U.S.C. §282 directs by its plain language), and without construing the patent claims. How can you possibly know whether a patent claim is patent eligible if you don't construe the patent claim

in order to determine what the invention is that is being claimed?

It has become commonplace for district courts to dispose of patent infringement lawsuits on a motion to dismiss while also ruling the patent claims ineligible—with no consideration of the merits of the case or the substance of what is being claimed. There has been no discovery, no claim construction, and on a motion to dismiss the procedural laws forbid consideration of the merits.

Shocking, isn't it? The merits of the patent owner's case do not matter on a motion to dismiss, yet the merits of the patent claims that won't ever be construed by the judge do matter.

In any event, in the majority decision Chen explained that the court was giving all inferences to the nonmoving party (i.e., the patentee). In the patent sphere, the patent owner seems to rarely, if ever, be afforded even the most basic procedural rights available to all other litigants.

Chen is right to point out the procedural posture, but to my knowledge this is the first decision to actually apply basic civil procedure protections in the context of a 12(b)(6) motion that argues patent claims are ineligible. Thus, I think the story of *BASCOM* will be written only once we know whether other panels of the federal circuit begin to enforce the most fundamental rules of civil procedure, and also once we know whether district courts actually get the message.

## The invention

The invention described in U.S. Patent No. 5,987,606 relates to a method and system for content filtering information retrieved from an internet computer network. The patent explains that the advantages of the invention are found in the combination





of the then-known filtering tools in a manner that avoids their known drawbacks. The claimed filtering system avoids being “modified or thwarted by a computer literate end-user,” and avoids being installed on and dependent on “individual end-user hardware and operating systems” or “tied to a single local area network or a local server platform” by installing the filter at the ISP server. Thus, the claimed invention is able to provide individually customizable filtering at the remote ISP server by taking advantage of the technical capability of certain communication networks.

The claims of the ‘606 patent generally recite a system for filtering internet content. The claimed system is on a remote ISP server that associates each network account with (1) one or more filtering schemes and (2) at least one set of filtering elements from a plurality of sets of filtering elements, allowing individual network accounts to customize the filtering of internet traffic associated with the account.

## Patent eligibility

The *Alice/Mayo* framework adopted by the United States Supreme Court requires reviewing courts to ask and answer a series of questions before determining whether a patent claim constitutes patent-eligible subject matter. The first question is whether the patent claim covers an invention from one of the four enumerated categories of invention defined in 35 U.S.C. §101 (i.e., is the invention a process, machine, article of manufacture, or composition of matter?). If the answer is no, the patent claim is patent ineligible. If it is yes, as with the claims for the ‘606 patent, move on to the next inquiry.

The second question asks whether the patent claim seeks to cover one of the three specifically identified judicial exceptions to patent eligibility. Although there is absolutely no textual support for the creation of any judicial exceptions to patent eligibility, the Supreme Court has long legislated from the bench and ignored the clear language of the statute. The three identified judicial exceptions are: laws of nature, physical phenomena and abstract ideas. If the claim does not seek to protect one of those judicial exceptions, the claim is patent eligible, as was the case in *Enfish v. Microsoft*. In this case, the federal circuit agreed with the district court that the filtering of content is an abstract idea because “it is a long-standing, well-known method of organizing human behavior, similar to concepts previously found to be abstract.”

In the case when the patent claim seeks to cover a judicial exception to patent eligibility, the final question asks whether the inventive concept covered in the claimed invention was “significantly more” than merely the judicial exception. In this case, the question was whether the claim added significantly more, such that more than a mere abstract idea would be captured. The federal circuit ruled yes; therefore, the claims are patent eligible.

But remember, no court has ever defined the term “abstract idea” or the term “significantly more.” Both remain characterized as a “we know it when we see it” undefined standard.

## Conflated obviousness

Perhaps one of the most significant aspects of the federal circuit’s decision in *BASCOM* is the circuit’s explanation that the district court’s analysis conflated obviousness with patent eligibility. This is hardly a unique observation. In fact, the Supreme Court’s decision in *Mayo v. Prometheus* actually mandates the conflating of obviousness (and novelty) with patent eligibility. What is unique here is that the federal circuit has called it out as inappropriate.

“The district court’s analysis in this case, however, looks similar to an obviousness analysis under 35 U.S.C. §103,” explained Judge Chen in the decision. “Indeed, it does look similar to an obviousness inquiry in some ways, but without any of the limitations or protections limiting how and under what circumstances a proper combination can lead to a conclusion of obviousness. In other words, when obviousness is conflated with patent eligibility, the test becomes even more subjective and is wholly without boundaries.”

Ultimately, the federal circuit held that the “claims do not merely recite the abstract idea of filtering content along with the requirement to perform it on the internet. ... Nor do the claims preempt all ways of filtering content on the internet.”

**When a patent owner sues for infringement, many district court judges become all too willing to dismiss the case without giving the patent a presumption of validity, and without construing the patent claims.**

## Newman concurrence

In a concurring opinion, Judge Newman wrote that she sees no good reason that district courts should, or must, start cases by determining whether patent claims are patent eligible. Newman sharply criticized the practice of piecemeal litigation: “Initial determination of eligibility often does not resolve patentability, whereas initial determination of patentability issues always resolves or moots eligibility.”

She is correct. The problem, however, is that disposing of patent infringement litigation on a motion to dismiss has nothing to do with proper administration of justice and has everything to do with rigging the system in favor of the defendant. Nowhere else in the law is it so easy for a defendant to prevail on a motion to dismiss. But the Supreme Court seems to want district courts to dispose of patent infringement cases without ever considering the merits of the case, construing the claims, providing a presumption of validity, or giving the owner of a constitutionally protected property right his or her day in court. 🐾

# Risk-Takers Thrive When Incentivized

WORK AND SACRIFICE—NOT GOVERNMENT—DRIVE PROSPERITY

BY GENE QUINN

**C**onservative columnist **George Will** recently renounced his membership in the Republican Party and announced that he will not support or vote for Donald Trump in the November presidential election. Many are probably less aware of Will's recent article, brought to my attention by Peter Harter, in which he explained that Mitch Daniels is the president America needs.

Here, Will reminds us of President Obama's controversial speech in which he emphasized government's role in building infrastructure over the role of entrepreneurs: "You didn't build that. Somebody else made that happen." Will is leaving the Republican Party not because he is enamored of the Democrats, but because the Republican Party has left him.

Will's article quotes the former Indiana governor, now the president of Purdue University, telling the graduating class of 2016: "I hope you will tune out anyone who, from this day on, tries to tell you that your achievements are not your own." Obviously, Daniels' remark is directed at President Obama's comments and anyone who believes that the government is responsible for prosperity rather than individuals.

Since taking over at Purdue, Daniels has emphasized commercialization of research and has led the university to record numbers of new patents, technology licenses and start-ups based on Purdue innovations. Such an aggressive pro-innovation, pro-patent agenda creates a stark contrast between his philosophical approach to innovation and the one favored by the White House, many members of Congress, and perhaps even the United States Supreme Court.

The fatalistic "you didn't build that" belief system removes the virtues of work and ignores the sacrifices it takes to succeed. Worst, such a worldview belittles risk-taking, which is an absolute prerequisite to business success—particularly with respect to innovation. America has always innovated most and best when stable rules are in place that incentivize risk-takers to imagine the impossible and attempt to bring it into being. Simply stated, America works best and innovates most when government stands behind a stable property rights regime and gets out of the way.

## Patent system's benefits

The entire premise of an intellectual property system, like the United States patent system, is that an individual will give up some of his or her rights (i.e., the right to keep the innovation secret) in exchange for the government enforcement of those



private property rights so that society can benefit. Society benefits in multiple ways.

In the near term, it benefits through diffusion of the innovation by way of publication of the invention in a patent; and if the product or service is commercially desirable, society reaps the rewards from availability of the technological advance, as well as jobs and the associated economic advantages. In the long term, after the patent expires, anyone will be able to freely use the innovation and all obvious variations of the innovation. With many patents lasting as little as four years, others only eight years and only relatively few of the most commercially valuable lasting the full patent term, this is a great bargain for society.

Of particular interest within the industry, as has been pointed out by attorney Robert Greenspoon, within the past 15 months all eight justices on the Supreme Court have signed on to an opinion that includes a statement calling patents an important private property right. Yet at the same time, the Department of Justice and the solicitor general, in particular, suggest patents are a public interest. So which is it?

Increasingly we hear stories that those who meet with the DOJ and other parts of the current administration are asked questions that seem to defy reality. "If your patents are so valuable to you, then why are you afraid of defending them in CBMs (covered business methods)?" "How can you tell me that America would not be better off if we did not have patents?"

Let's be clear: Covered business method review is little more than a dog and pony show. The Patent Trial and Appeal Board is abusing its authority and instituting CBMs on patents that do not qualify as business methods and/or that have a technical component, either or both of which disqualify them under the statute.

## Look at other countries

Look around the globe. Where there are no patent regimes, there is no economic activity. If a weak patent system were the answer, you would expect countries that have a weak patent system or no patent system at all to have runaway innovation. What you see, however, is the exact opposite. As Professor Stephen Haber of Stanford University has found, "there are no wealthy countries with weak patent rights, and there are no poor countries with strong patent rights."

The next few years will be pivotal for the U.S. patent system. Will we continue down this path to oblivion, or will attitudes change? 🐾

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# Clinton Initiative Bodes Well for Patents

AGENDA STATEMENT IS RELATIVELY DETAILED **BY GENE QUINN**

**O**n June 28, presumptive Democratic presidential nominee Hillary Clinton released her Initiative on Technology & Innovation on her campaign website.

"You are looking at a 14-page detailed document. There is a lot of thought put behind this agenda," said Todd Dickinson, former director of the United States Patent and Trademark Office under President Bill Clinton, who was reached by telephone for comment. "Other campaigns will be hard pressed to match the depth and thoughtfulness of these proposals," said Dickinson, who has been an adviser to the campaign regarding intellectual property matters.

Although the Clinton technology and innovation agenda may seem light on details to those intimately involved with the various aspects of the technology and innovation industries addressed, this agenda statement is relatively detailed given where we are in the campaign. Generally speaking, in the past at this stage of the game most presidential contenders have had significantly less to say on technology and innovation issues.

With respect to patents, Hillary Clinton begins by saying that she wants to improve the patent system to reward innovators. "Since our country's founding, the United States patent system has been an envy of the world and has helped propel inventions from the cotton gin to the computer."

Her proposal for accomplishing this goal would be twofold: to reduce excessive patent litigation through additional patent reform; and strengthening the operational capacity of the USPTO by allowing the USPTO to keep and spend all fees it collects.

## Clinton on patent reform

The Clinton technology and innovation initiative explains: "The Obama Administration made critical updates to our patent system through the America Invents Act, which created the Patent Trial and Appeals Board, and through other efforts to rein in frivolous suits by patent trolls. But costly and abusive litigation remains, which is why Hillary supports additional targeted rule changes. She supports laws to curb forum shopping and ensure that patent litigants have a nexus to the venue in which they are suing



**If she's elected, a proposal from a President Hillary Clinton to accept legislation targeting demand letters would likely pass with little or no serious opposition.**

require that specific allegations be made in demand letters and pleadings; and increase transparency in ownership by making patent litigants disclose the real party in interest."

For those in the industry who are against additional patent reforms, the immediate reaction will be negative. If you carefully parse what Clinton is saying, it isn't bad even for those opposed to broad-based patent reforms currently pending before Congress—as embodied in the Innovation Act in the House of Representatives and the PATENT Act in the Senate, both of which target patent trolls.

"The patent reform list is a consensus-driven list that is modest but appropriate, and reflects a desire to get things done that can get done," Dickinson explained. "I think there would be broad consensus that could lead to enactment. Others will want to put all sorts of other things on; that could cause difficulties, of course."

Dickinson is again correct. Virtually no one disagrees with doing something to stop abusive and fraudulent demand letters. In fact, that could pass Congress immediately if those supporting patent reform wanted that legislation.

Such legislation won't pass, however, because it is deemed a fallback position

that is hardly worth the effort. So the Innovation Act and PATENT Act remain frozen because those supporting patent reform seem to prefer all or nothing. They will get nothing with the 114th Congress unless they budge, but a proposal from a President Clinton to accept legislation targeting demand letters would pass with little or no serious opposition—assuming it doesn't become a so-called "Christmas tree" with hidden items.

With respect to venue, there is again broad-based consensus that something can and probably should be done. The issue to watch is whether venue reforms are narrowly tailored and about procedural fairness, or if they become perceived as just an opportunity for the so-called infringer lobby to make it difficult (or impossible) to bring patent infringement actions in some of the few district courts where patent owners actually fare well.

*(Continued on page 44)*



## EYE ON WASHINGTON

### Why Are Patent Applications So Expensive?

(cont. from page 37)

So the first patent application filed is critical. It has to describe the invention to the fullest extent possible. If it does, it will lock in an early priority date and limit the amount of prior art that can be used against you when it comes time to evaluating whether your claimed invention is new and non-obvious in light of the prior art.

But wait—can't you add claims after filing a patent application? Yes, but that is different than adding new matter. Issued patent claims define the exclusive right that the federal government has granted. Patent rules, however, require the claims to be no broader than the specification. That means the claims precisely point out the right that the patent office has given you, but the claims cover a subset of what the rest of the disclosure defines. So you can add claims to pending patent applications without adding new matter because the claim has to necessarily be a subset of what you have disclosed elsewhere. The law states: "An amendment to the claims or the addition of a new claim must be supported by the description of the invention in the application as filed."

**What you get for what you pay can be enormously valuable.**

This is where it pays to spend the money for a high-quality patent application. Those who offer rock-bottom prices for preparing and filing patent applications describe exactly what the inventor says he or she invented—nothing more. If an inventor walks in with a right-handed monkey wrench, there will be no effort made to determine whether the device could be used by left-handed people, regardless of whether there might need to be structural alterations made. Figuring out the alternatives and the fullest extent of what can be protected takes time; describing all alternatives and what you are entitled to receive takes even more time. Time is not something bargain-basement service providers offer.

As I've explained in the past, there is nothing inherently wrong with a narrow patent. What makes narrow patents problematic for inventors is that they typically don't think they are getting a narrow patent. They don't understand that because of the bargain-basement price they pay, they are leaving claim scope on the table—exclusive rights that they will think they possess but do not own. Even worse, you have a narrow patent with narrow claims and your written description offers no ability to get any additional claims.

If you accept a narrow patent, you almost universally will want to circle back with a continuation to get broader claims later. This is a common strategy and perfectly fine, but you likely will never be able to execute this strategy if you hired a bargain-basement service provider.

### Remember three things

In conclusion: First, describe anything that works in your patent applications, no matter how crudely. Second, describe variations to the invention that knock-off artists will likely employ in an attempt to rip you off without actually infringing. Third, remember that a patent doesn't give you the right to do anything other than exclude others—so you don't just protect what you are doing or what you want to do. You want to describe everything you can think of and describe with enough concrete details.

You must describe not only what has been invented but the various possible combinations, permutations and alternatives. That is how patent applications can get rather large for even relatively simple inventions.

The cost of getting a patent is typically considered to be significant by nearly all estimations. What you get for what you pay can be enormously valuable. Because patents are valuable to have, there will always be those who seek to get around your rights. The patent attorney's job is to ensure to the greatest extent possible that this doesn't happen. That requires a lot of time and energy, which translates into money. 🦍

### Clinton Initiative Bodes Well for Patents

(cont. from page 43)

The USPTO has been working on the issue of transparency in ownership for some time, so that litigants know who is the real party in interest. The mechanics of such a system needs to be fleshed out, but in principle this hardly seems controversial.

### Clinton on USPTO funding

Hillary Clinton has also said she believes the USPTO should be able to keep and spend all of the fees it collects. Sadly, this is a revolutionary idea.

The Clinton initiative explains: "Hillary believes it is essential that the PTO have the tools and resources it needs to act expeditiously on patent applications and ensure that only valid patents are issued. That is why she supports legislation to allow the PTO to retain the fees it collects from patent applicants in a separate fund—ending the practice of fee diversion by Congress, and enabling the PTO to invest funds left over from its annual operations in new technologies, personnel, and training."

Said Dickinson: "I believe that this is the first time at the presidential level there has been support for fully funding the PTO and legislation to that effect. That is the best thing in this announcement from an IP perspective."

I agree wholeheartedly. Congress raiding the USPTO and preventing the agency from using the fees it collects has been an enormous problem since at least 1992 but rose to new heights with the balanced budget deal in the mid-1990s. Former directors of the USPTO identified fee diversion as the biggest problem facing the office during the 225th anniversary celebration of the U.S. patent system.

The devil is always in the details, but from a patent perspective the Clinton Initiative on Technology & Innovation seems positive. Clinton seems interested in consensus issues and has steered clear of controversial issues, although some will undoubtedly want more information on her venue proposals and will be leery of such a proposal. Still, after many years without a serious, high-ranking, influential champion, perhaps a Clinton presidency would be a net positive for the patent system. 🦍



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## You wrote

*Editor's note: When students at Lincoln Elementary in Franklin, Ky., discussed possible careers just before the end of the school year, fourth-grader Alex Embry showed an interest in becoming an inventor. His mother, Erica Cowles, and school counselor Shalee Mann shared his curiosity and imagination in this letter sent to Inventors Digest.*

Hello, Inventors,

How do I practice to be an inventor? Who can teach me where I do not mess up? Is there a college that can teach me how to build robots and video games for Lelyn and my other friends? Do I need to go to college or will I need to learn from you and other inventors? Will you help me to achieve my dream because I want to invent stuff for everybody in the universe and become famous! Who can help me on my dream and help me make stuff to help the military and police officers? Can you tell me anything to help me with my future?

Sincerely,  
Alex Embry

## Wunderkinds

Fourteen-year-old **Taylor Rosenthal** of Opelika, Ala., made national news recently when he turned down a \$30 million buyout opportunity for his computerized vending machines that dispense first-aid products. He later said his asking price to sell the vending machine company, RecMed, is \$50 million.

The machine dispenses first-aid packages for ailments such as cuts, sunburns, bee stings and blisters (\$5.99 to \$15.95) or individual supplies such as bandages, gauze pads and rubber gloves (\$6 to \$20). Rosenthal hopes to sell the machines to major amusement parks and sporting venues.

## What IS that?

Finally, a dog muzzle that's all it's quacked up to be. Made by Japanese designer pet supplies company Oppo, the duck-billed dog muzzle (starting at \$13.57 on Amazon) replaces those traditionally ugly and menacing-looking devices with a cute, fun look. This product for curbing a dog's aggression in a non-threatening way has a simple name: Quack.

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## It's an honor

**Command Partners**, a digital marketing agency, won Business Marketing Association awards in the Search Engine Marketing and New Launch Product/Company categories.

# 1,085

The number of patents granted to **L I Wood** that broke Thomas Edison's 82-year record for American inventors. According to Intellectual Ventures, Wood—who turns 75 this year—not only broke the record last summer, at that point he was named as inventor or co-inventor on at least a couple thousand more U.S. patent applications. As of last year, the former struggling student averaged one new U.S. patent granted per day.

## WHAT DO YOU KNOW?

**1** The Cincinnati Bengals' first year in pro football was 1968; their first year in the NFL was 1970. In what year was the name Cincinnati Bengals trademark registered?

- A) 1967      B) 1968  
C) 1970      D) 1977

**2** Which invention came first—the microwave or the TV remote?



**3** True or false: Wendy's founder Dave Thomas introduced the KFC trademark sign that features a revolving red-striped bucket of chicken.

**4** Which celebrity from among this group never filed a patent?

- A) Julie Newmar  
B) Charlie Sheen  
C) Marlon Brando  
D) Christie Brinkley  
E) All of them filed patents.

**5** True or false: The paper bag, windshield wipers, electric drill and circular saw were all invented by women.

### ANSWERS:

1. D; 2. An early microwave, "The Radarange," was first sold in 1946, four years before the first wired TV remote; 3. True; 4. E; 5. False (the electric drill is credited to Arthur James Arnot and William Blanch Brain of Melbourne, Australia, in 1889).



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