

# IP HOT TOPICS

The Podcast | Episode Transcript



## Innovation Conversations: Paul Reed Smith

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### Trey Powers:

Welcome back to Innovation Conversations, a special series of Sterne Kessler's IP Hot Topics podcast. I'm your series host Trey Powers, a director at Sterne Kessler's litigation and biotech practice groups. Joining me today as a guest host is Don Featherstone, a director in Sterne Kessler's electronics practice group.

For our fifth episode, we're delighted to be joined by Paul Reed Smith, the founder of PRS Guitars and a modern-day Stradivarius to the guitar world. Paul has built instruments for internationally famous musicians including Carlos Santana and John Mayer, utilizing his fundamental grasp of how to incorporate physics, woodworking, practical engineering, graphic mathematics, and art into world renowned products.

Thanks for joining us Paul and welcome to our listeners. Paul, our first guest on Innovation Conversation Walter Isaacson, said that real innovators are at the intersection of science and humanities. And when I look at your bio, I really see that intersection. And I want to talk to you about how your love for music and woodworking together with your ability to incorporate physics and practical engineering led you to be an innovator in the guitar space.

### Paul Reed Smith:

Guitar making is a black art. It has electrical engineering, mechanical engineering, chemical engineering, industrial engineering, physics, woodworking, it goes on and on and on and on and on. And I was not trained classically in college as all those. I would have been a quadruple major or something. But in the end I had to go find out about all of it because I wanted this art form making guitars to live.

And one of the reasons I got involved in intellectual property stuff was because once we got a beginning of a foothold in the marketplace, they started copying it. There were guitars caught at the border yesterday by the inspectors. They've gone as far as to put our logos on everything. I didn't know that that was going to be something I needed. I didn't know that I was going to need an understanding of capacitance and inductance and electrical engineering. I did have an idea about the woodworking part, but it's a jack of all trades and I just had to jump into each one and find a teacher for every single one. And I had an original teacher in this genre for a trademark rights and patent rights, intellectual property, and I was taught.

**Trey Powers:** Let's talk about your origin story. How did you go from being a regular guy who likes guitars to one of the premier guitar brands in the world? What was the opportunity that you recognized and how did you jump on it?

**Paul Reed Smith:** I see myself as still a regular guy, a guy that loves guitars who likes to be involved in it. What you're talking about is what the company did. The company, in order to have sales had to do thousands of articles, thousands of these kind of podcasts, of interviews, clinics, you name it. And so the fundamental basis of this building still is the guitar making part that was started in a little Garrett shop in Annapolis. That part I understand. But when Leo Fender died, Fender continued on. When Orville Gibson died, Gibson continued on. My hope is that this is a stable, long long-term company that was started by guitar makers and then there's guitar makers along the way. So how did it get there? If you want to get to the mall, you can get in a car and go there, or you can walk in baby steps. And the way we did this company's growth and this reputation you're talking about was done in little teeny baby steps.

**Don Feathersone:** Paul, can you tell us any specifically interesting story from the early days and interaction with a guitar god?

**Paul Reed Smith:** Yeah, I'll tell you a story. It's a great story, actually. So in Washington, DC, we have a lot of beautiful places to play music, one of them's Constitution Hall. And I had made a guitar for Carlos Santana and he was using it and he'd ordered a second one. And I went and I showed all the roadies and the guitar, the second one. He had ordered the second one with a tone control, same as the first. And I got a chance to play through his amplifiers before he got there and it sounded like a Moog synthesizer. It didn't sound like a guitar amp. I'd never heard anything quite like it. It literally sounded extraordinary plugging into this amp.

Anyway, so Carlos walks out on the stage and they give him the guitar and he goes, "My guitar has no high end" and turns around, pretty strong to the guitar tech. He says, "My guitar has no high end." The guitar tech says, "Turn up the tone

control." He turns around, he goes, "My guitar doesn't have a tone control, turn up the high end." And he turns back around and the guy says, "Turn up the tone control." And Carlos looks at the guitar and realizes that he had no idea from the sound or feel of it, that it was a different guitar. It just said it was different. And he goes, "Where's Paul?" And I popped up from behind him and I waved at him. He played that guitar all night long. That was the guitar that was on late night TV. In our world at that time, Tom Snyder was late night TV and there was 30 minutes show and 20 minutes of it was a close-up of that guitar. It changed my life. Not that I got orders, but I could then get an appointment to talk to somebody about getting an order.

Carlos would call me every single Christmas and thank me. He was more consistent than I was. He made me earn his respect. He did not give me his respect. He made me earn it over and over and over and over again. I remember when I first got an order from him, I woke somebody up at six in the morning. They said, "Paul, it's six in the morning." I said, "Yeah, but I just got an order from Carlos Santana, you got to wake up."

**Trey Powers:** Paul, music is always evolving and does the rise of electronic music in your mind pose any threat to businesses selling instruments that musicians actually play and what opportunities exist for continued innovation in electronic guitars?

**Paul Reed Smith:** I've seen Eminem's band with a guitar player in it recently, so guitar is back. It comes and goes, and electronic music always has its place and it makes guitars come and go. There was another recession for electric guitars. All the women like Jewel were playing acoustic guitars on the radio, and we weren't selling any electric guitars. And then Carlos Santana and Creed came back playing electric guitars on the radio, we're back. So it comes and goes. Electronic music has its impact. Other kinds of music have its impact.

As far as innovation with the electric guitar, a pickup is a piece of electrical engineering, the parts in it are passive electrical engineering. The guitar is being used more as a synthesizer controller than a guitar now. What these guitar players have is they have the guitar and you're plugged into 20 pedals on the floor. That's called a pedal board and they turn up these pedals on and off with their feet, just like Hendrix used to do with a wah-wah pedal and a Univibe and an Octave Divider and a Fuzz Face. So they're using the guitar as a synthesizer controller these days, which is a form of a guitar electronic music, to answer your question.

**Don Feathersone:** Paul you mentioned innovation, let's talk about intellectual property. How has the PRS guitar company used intellectual property to protect and grow its brand through patents, trademarks, trade dress, et cetera?

**Paul Reed Smith:** So there were several ways that the government gave me to protect my guitar so there weren't copies. There were dead copies stopped at the border in New Jersey yesterday, have PRS logos all over them. And thank God for trademarks, thank God for these intellectual property rights. So I thought somebody was going to try to steal the stuff down the road so we trademarked the name, my name, Paul Reed Smith, or the Headstock, and it's worldwide at this point. And so if somebody puts that name on a product, it's not coming from us. If they're putting it on there, we have the right to stop them. And you know how big our trademark and patent portfolio is. It's some safe in my office and it's full of ribbon copies and I used to talk at the patent office and I showed a bunch of ribbon copies to the examiners, they'd never seen one. I passed them around to show them what the final document looks like when the inventor gets it.

So I was taught well. Sterne Kessler has done an extraordinary job helping me protect my ideas. So Monica Talley is the Sterne Kessler trademark attorney in charge of our account. And we have a consistent once a week phone call with her. We have a grid in which we go over all the ways in which we are trying to protect the marks or get new marks. John Mayer just came out with a new guitar and we need to trademark the name of that guitar. And then can we just trademark it by itself or do we need the word PRS with it? And all those discussions happen. But we track it very, very, very carefully. I also work with Don Featherstone very closely, and we are in the process of working through a squibble with an examiner. Thank God the government's given somebody like me a way to protect my ideas.

**Trey Powers:** How has the growth in online commerce, e-commerce and globalization changed how you protect and enforce your brand and designs?

**Paul Reed Smith:** I don't think that e-commerce has changed the way we protect it hardly at all. But what has changed with e-commerce is how we sell them. Some of the first guitars to be sold over the internet with PRS is because people trusted the quality, the original McCarty models that were being done sold over the internet. So right now about 70% of our sales are through dealers through the internet. And I think we don't send hardware copies of our trademarks out to the dealers, it's all being done by email, it's all being done by file. It's all being done electronically these days, but the guitar's not made electronically. It might be sold over the internet, but they still get a box and they still open it up and they play it. So I don't think it's changed my approach to intellectual property, but it's absolutely changed how we sell guitars.

**Don Featherstone:** In addition to PRS guitars, you started a separate company called Digital Harmonic. Can you describe what the company is and tell our listeners what got you interested in the concepts and the math behind the technology? What are the applications for the technology?

**Paul Reed Smith:** All right, so I'm a guitar maker, but my father was a applied mathematician for the Air Force and the Navy, one of his jobs when he was around 24 years old was to get radars made that had been invented by the English and get them on all the submarines. And he had to start a company because GE had made copies of those radars that the English sent us one of them and they didn't work. So my father's Admiral said, "Listen Jack, build a company to make these things immediately." And he hired trumpet companies to make the copper tubing for the cable so they were shielded, which I thought was pretty cool. I said, "How long did it take you to get the radars on the subs dad?" He said, "Two weeks." I said, "You couldn't do that in 10 years." He says, "No, now I'd take you longer." He says, "Paul, we were at war. We didn't have any time. We didn't have time to bill each other, we were going as fast as we could."

So my father and I started to work on some ideas about how to get a guitar synthesizer to work correctly. And we ran across something we didn't understand, although he understood the math and he had to teach me the math and we had to get definitions for ideas that we had that we didn't even have words for. And eventually we were at, I call it a pre-Sterne Kessler patent attorneys office. And when that remarkable attorney retired, I took the entire patent portfolio over to Sterne Kessler and Sterne Kessler has done an extraordinary job getting the 22 patents that we needed to start Digital Harmonic. Now what those patents do at this point are take any video or photograph and be able to dig information out of it that you want to see just like they say they can do in the movies. It does that extraordinarily well.

We have a machine for measuring the vibration of cells. It does that well. We have a way of combining FFTs into a matrix that we got a patent on called the precision measurement of wave forms which is extraordinarily broad. The video patent is extraordinarily broad. These are all what we call seminal ideas. They're the beginning of something new. In the patent world you can have seminal patents, you can have great improvement patents, you can have improvement ones. You can have barely improvement ones and junk ones. There's a whole bunch of levels of patents. And you know, I have been very lucky to have you on my side, Don, to get the seminal patents issued because when a seminal patent comes across an examiners desk, it's not so easy to understand. It's a completely new idea.

**Don Feathersone:** Paul, what does the imaging patent do?

**Paul Reed Smith:** Well, all right. So let's imagine that you have a table, big, big conference table, a square one in front of you, and you've divided it up into pixels. So it's just like a photograph and each of the dimensions picks up, down left, right, and their number inside, which is how loud it is. Imagine for a second that you throw salt all over the table, and then you throw negative salt all over the table. Things that

would cut a little hole on a table, the piece of a salt and the piece of salt that's stuck above the table. From six feet back, you can't see anything, but a computer can make each one of those a needle. And now you see a three-dimensional picture.

And so what it does is it finds these micro peaks, either negative or positive, and amplifies them. We're not making up information, we're not predicting information. What we're doing is we are getting the computer to find real information and then beautifully exaggerate it and then we're using machine learning to move the knobs. It takes an expert to move all hundred knobs in the code to get the picture to look right. But machine learning is doing it in one 30th of a second in one frame. It takes about 6 billion calculations to do each photograph. But with gaming cards, that's a joke. So that's how it works.

**Don Featherstone:** Paul, we all know that musicians are really hurting right now because live in-person concerts basically aren't happening, which is something all of us desperately miss. What are musicians doing to cope and how has COVID affected your business? And what do you see in the horizon from the music industry in 2021?

**Paul Reed Smith:** My heart's with them. I don't know how you just get a year's worth of income just stripped out from underneath you in one day. It's horrible. So how are they coping? By trying to cobble it together but it's barely. Now that happened to me in 2009, the mortgage crisis just about tried to kill the guitar business. And because people weren't buying guitars anymore and I had to cobble together a living here and we did it by playing every trick in the book, Don. Now, how has COVID affected us? Of all weird things it's been better for us. We were shut down for two and a half months, but when we reopened, people were buying guitars like crazy, because it was like the drug of choice for being stuck at home and people were buying guitars, go figure? I figured it was going to shut us down. It made the guitar sell faster.

And COVID made everybody really examine what brand they really wanted to play when they were home. And so we did well that way. So COVID has affected our business positively. The third question was what is the horizon for the music industry? Hopefully everybody's vaccinated by the fall and they're going to start playing again. I can tell you that we've been doing trade shows virtually, and it seems to be working. It may affect trade shows. I can tell you that there's a lot of musicians going to release a lot of records because what do you think they've been doing? They've been writing songs and recording, writing songs and recording. I know some very famous people that are going to come out with some very powerful CDs when this all is over. The horizon for the music industry is I hope that we slowly get back online and a year from today, that's a thing of the past.

**Trey Powers:** And Paul, last question. Will you please share with us something that you enjoy doing like a hobby or a pastime that most folks don't know about you or might find surprising?

**Paul Reed Smith:** Well, I like catching really big barracudas on a fishing rod. They go 35 miles an hour, they get angry. I've seen them come out of the water after the fishermen. For me it's like racing cars. Now if I got in a race car, I'd die. And a lot of people going after these big toothy animals might not be a good idea, but I love doing it. I broke the world record with a 15-pound fly rod tippet with a 40-pound fish. Beat the world record by seven pounds but let the animal go and you have to kill the animal to get your award, but I didn't do that. Although we did weigh it and was 40 pounds and my wife gave me a mound of it. It's a big plastic fish on my wall.

**Trey Powers:** Thanks to our listeners, Don Featherstone for joining as my cohost and thanks to Paul Reed Smith for joining as our guest.