# My CTO Can't Explain His Invention to Me.

# But He Is the Smartest Guy in the World.

## This Patent Stuff and My Semiconductor Business – Part 9

*Welcome to this post about patents and chips. Not a lot has been written about this combination, but there is a lot to know, especially for the innovators and entrepreneurs themselves. In this three-weekly series, I talk about various aspects, from my dual points of view of a patent agent and a semiconductor entrepreneur. If you like the article and read it on LinkedIn, give it a thumbs up, and/or click on Follow. If you like to work with us for your next patent, "contact us" info is on [www.icswpatent.com](http://www.icswpatent.com). You can also subscribe/unsubscribe for short email alerts when the next post is available.*

He can't, or he won't? If he's not at least willing to try, then you've got a problem that I should recommend you solve, but I can't help. If he really can't, then there is of course a communication problem. It won't be that you're too dumb to understand his genius, but it is very possible that he has no idea how to explain it in a way that a normal educated person can understand, and it is even possible that he knows he's got something new, but can't put his own finger on exactly what makes it different. Or, he may not be able to explain why it works. I've seen these cases several times, and the way to get through it is asking examples, trying to reconstruct what is going on, asking questions, listening to the explanation why your question was "wrong", trying again to reconstruct what is going on, etc., until you get to the heart of the matter. Of course, it helps a lot if you have the technical background, but personally I don't think that that is always necessary.

In the explanation you may come across a point where he can only tell you that some relation is just the way it is. *You would have known if you were an expert* means *I have no bloody clue myself*. When you get to such a point, it can be annoying, because it means that if you truly want to understand, you need to separately find out if, and in what circumstances, this particular part is true. It also means that on this issue, there is likely going to be a gap in your company's internal documentation of the new technology. And, at some point in future you could expect users to run into some problems, because applying the invention may not be limited to the circumstances in which the assumed relation holds true.

For a patent, an assumed relation is risky. A patent practitioner cannot fully defend the application if (s)he cannot stand in the inventor's shoes—there is usually a combination of legal issues and technical issues that leads to rejections of claims and various objections by the patent office. When there's a need to explain a relationship that the inventor himself cannot explain properly, it may be sufficient to refer to public documentation (ideally, available on Internet without the need to be an IEEE member or so) that has a clear and comprehensive explanation of the issue. You could also set that

as a minimum standard for internal documentation (I know, it can be hard for a CEO or department manager to move a technical team to meet minimum standards for documentation).

Why do I think understanding an invention is so important? I'll get back on this issue later in this series. But there are a couple of reasons.

One of the four main (US) laws on patents says that to get a patent you need to describe the patent in a way that your description enables a person who is skilled in the art to make and use your invention. If you leave something out of the description, you cannot add it later. When you file your patent application, you know that there is a good chance that you will need to modify the claims before the examiner can accept them. But of course, you don't know what modifications should be made until you've read the examiner's findings. So you need to be able to move something from one claim to another, or you need to be able to use something from the description to fix a claim. If you need to use something that you haven't described, then you have a major problem. You also have a major problem if the examiner rejects the description or a drawing because he or she doesn't understand it. If a practitioner doesn't understand it either, then the last fallback is to get the inventor to explain it. If the inventor can explain it, and you can refer to text in the description that fully supports the inventor's explanation, then you're in good shape. Unfortunately, that is seldom the case. Thus, the only way to file a patent application with low risk is by having the practitioner fully understand the invention, and fully write the application. Of course, when challenged there are still many other ways to end up with a patent, for instance by dropping one or more claims, or by narrowing the scope of a (range of) claim(s), or by finding some legality somewhere—but this can reduce the patent's value significantly. This is no issue if for your company the quantity of patents is more important than the quality, but otherwise a serious waste of money.

Can you mitigate or even avoid these problems? I believe so. Quite a few CTOs are very creative, but they may loathe wasting time on ironing out every last detail, documenting stuff, making a product ready for production in large quantities, or modifying their stuff to something that is useful for a customer. They like to get a problem, find a nice crazy solution that nobody else has come up with, and then prove that it works. Like in a university, for them proof of concept can be more important than anything. Anything else can be a distraction to them. But not every CTO has the academic urge to work out all the mathematics, to review all other potential solutions, and to document things. So if your CTO has a gap there, you may need to complement his team with an academic who fills the gap. If your CTO doesn’t like all steps of going from (proof of) concept to product, then you need to further enhance his team with product engineers, or assign productization responsibility to another department. When the CTO and his team come up with something new, get a patent practitioner who's not satisfied with what (s)he's being fed—but who requires that the whole story is explained.

A side benefit is that once the patent is being pursued and the patent office sends out an office action, the practitioner should usually be capable of defending the application without disturbing your team. Or better, sometimes, instead of a first office action you will immediately get a notice of allowance. You will get a quality patent without spending a ton of time.

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