So You Got This Great Idea That Will Wipe Out Competition. Now What?

This Patent Stuff and My Semiconductor Business – Part 1

Welcome to the first 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 monthly series, I talk about various aspects, from my dual points of view of a patent agent and a semiconductor entrepreneur. Please enjoy, and don't forget to give feedback via LinkedIn!

I think you have a business already. Maybe you're selling IP or chips already. Or maybe the company is in stealth mode. Maybe you are preparing to talk with angel investors and/or VCs—folks who don't sign NDAs. In any case, whether you've got 80 people or 3, you don't want to give away this totally disruptive—universe altering—invention that will wipe away all competition. What should you do?

You can be vague to investors and customers, but who is going to invest in something they cannot judge? Keeping it as a trade secret may not be an option. You got to be protected before you open up to investors, or to the lead customer you're eyeing who needs to sign a statement that his company will buy 5 million units the first year alone. You need a patent, don't you?

But you do have some prior experience with patents. You did one for your previous boss. It cost you three months of writing and documenting. Drawing pictures, graphs, providing measurement results. When you handed that over to the patent guys, they didn't really have a clue. The man assigned to you changed some of your language that showed he did not even remotely understand what you were writing about. He added some boiler-plate text, and sentences that no normal person would ever write. *Attention is now directed to FIG. 1, which provides a block diagrammatic illustration of an embodiment of an embodiment of a (whatever)*. "Block diagrammatic"—really? "An embodiment of an embodiment"—what does that even mean? That will sure impress copycats and keep them at bay! And then he wrote the claims—was that English? You gave up reading halfway claim 1. Anyway, three years later there was a patent in the US, then in a few other countries. You'd already received your bonus for filing a patent ($1,000, pretax!) and now you got your plaque for on the wall, as well.

You've heard that a worldwide patent would cost you $100,000. You've also heard that a *worldwide patent* doesn't actually exist. And anyway, prior to funding you have nothing like a hundred k. Now what? A *provisional*, maybe a *PCT?*

Your friend, who's got a bit more experience with patents than you have, read the final version that was granted. The one hanging on your wall, I mean. He was very nice about it. But after 4 whiskeys he told you that he didn't think the claims covered your invention. He didn't think the patent was worth the paper it was printed on, although to an outsider, the plaque and the PDF might look impressive. He basically thought that your patent nicely published your invention to all competitors, but didn't provide your boss any market protection. *Is that what you need to spend your money on?? And all that time and effort?*

Well, maybe it isn't so bad... In this series of articles, you will learn ways of getting a meaningful patent with limited budget and without investing a ton of time. You will learn how to define an IP protection strategy, how to pick the right person to work with for a patent (hint, hint), how to screen inventions before sending them to expensive outsiders, and, once you do, how to get a sense if behind the scenes everything is alright. The episodes in this series might answer all those practical things you aren't sure of, but actually want to know. Where I can, I'll use the perspective of a semiconductor business.

Let's prepare you to get started with two things. *What is a patent* and *How do you screen an invention before you apply for a patent?*

What is a patent? Many people think that a patent is a monopoly for building an idea you invented. Not quite. In most countries, you can only patent a useful machine (even if you haven't built it yet), a process, a manufacture, or a composition of matters. You cannot patent an *idea*, an algorithm, a signal, or anything that you could do inside your head or with just a pen and paper. And only the inventor can get the patent (or somebody acting on behalf of the inventor). This is all a bit of a broad brush, but I hope you get the point. Also, a patent is not a right to *build* or do something, but a right to stop somebody else from building it, using it, and/or selling it. So if you invent and patent an improvement on an invention somebody else patented before you, you could shoot yourself in the foot. She could tell you to stop building and selling the chip with your version of her invention. Would she even know, if you didn't patent it and just hide it in your chip? Well, you can try, and hope that you will never have a disgruntled employee, or somebody who just decides it is time to move on.

Now that we've cleared that up, you know that a patent gives you the right to say *No*.

So now, how do you screen if an invention is worth patenting? You may want to start with the potential market value:

- Would your company plan to build it, and if so, does it give you a competitive advantage—a lower power dissipation, higher performance, higher reliability, lower bit-error rate, smaller die size, less noise or interference, unique functionality, or will it give your customers a significantly lower cost of manufacturing or of operating their products?
- If your company wouldn't build it, could a competitor get a competitive advantage over you and eat your lunch?

- Can you convert this competitive advantage into an actual dollar value? Is the invention going to earn you $16k or $16M over the next 20 years? (OK, for semiconductors that may be 4 consecutive eternities, but you should look at whatever term up to 20 years is relevant for your company.)
- Can a patent on this invention be part of a portfolio of 20 to 50 patents that you're building, that is going to determine the acquisition value when your company is bought by one of the big guys?

Assuming this shows that a patent might be to your advantage, you have some technical evaluation to do. Say it is your own invention that you're looking at. You're carefully going to discuss it with one of your colleagues. Now, these are reactions that should encourage you:

- John, John, John…! / Jane, Jane, Jane…! (How can you be so naïve to think that could work?)
- No, no. That's not working. I'm not sure what you're even proposing. That (…) generator is there for a reason!
- Hmmm… Maybe you can write this down and provide some drawings. I really don't understand what you're doing.

Why are these good reactions? They show you that whatever you've got is not obvious, even to somebody who's familiar with the technology and with the system that you're improving. Obviousness is a nasty thing when you try to patent an invention. It can be hard to fight a rejection when the patent examiner decides your invention was obvious. All he or she needs to do is find a couple of publications (for instance, another patent and a text in the Bible or hieroglyphs on a temple wall, or a thesis hidden in a university library in Timbuktu) that together have all the elements of your claim, and *poof!* you have an obviousness rejection.

Now, of course you still have to convince your colleagues. Is it possible that you made a small logical error, violated some basic laws of physics, or didn't notice that the P-transistor you need will require that the semiconductor process must be significantly expanded with extra devices and masks, adding 5 years development time, $150M development budget, and 120% to the device production cost? Or were you simply not communicating clearly? (Many brilliant inventors have no idea how to communicate effectively, so don't feel bad about it.)

To complete preparation, there are a few more things that you need to ask yourself:

- Have you already published about this invention? If so, you have a big red flag. Even though the US gives you a grace period of a year, many other countries don't. If publication is more than a year ago, you can forget patenting whatever you published. You may have given away your rights.
- Has somebody else published about it? That could be worse.
- Are you selling the invention already, or offering it for sale? This is probably just as bad as publishing about it, because selling is seen as publishing.
- Have you spoken about it on a conference, or written about it in a publicly available (i.e., without a non-disclosure agreement) magazine, book, thesis, report, or PowerPoint? These are all publications!

- Do you plan to do any of the above, and if so, by when? On Thursday this week? Pick up the phone now, and get whatever you have or will have by Wednesday filed as a *provisional patent application*.
- Or won't it be published before CES or DAC, in three months from now? Write a proper *disclosure* of your invention: a 1-3-page document that clearly and concisely explains the principle of the invention, in language that a recent college graduate could understand, and with a couple of drawings or sketches that illustrate the thing. Use plain English, without any legal sounding blah. Don't dig into gigahertzes, millivolts, PPMs, word widths, and other implementation choices. Use them as an example, if necessary, but focus on the principle. Don't spend more than half a day to a day on writing the disclosure. Do explain every acronym (even USB) and avoid abbreviations.
- Write down the following:
    - The field of the invention
    - Can the invention be applied in other systems or situations than the one for which you invented it? Which are these?
    - What is/are the problem(s) that the invention tries to solve?
    - How do others currently solve this problem, and what are the disadvantages of their solutions?

With this, you should be ready to talk with a patent practitioner. If patenting is right for you, that is. In the meantime, shut up about your invention. Do not discuss it with anybody unless you have (or your company has) an NDA with this person.

Upcoming:

2 Developing an IP Protection Strategy for Your Semiconductor Company – PART I

3 Developing an IP Protection Strategy for Your Semiconductor Company – PART II

4 In What Countries Should I Patent, Anyway?

5 Choosing the Right Patent Person for Your Inventions

Disclaimer

Please do not construe anything in this article as legal advice: it isn't. The article contains my private opinions, with where possible the point of view of a semiconductor industry entrepreneur and/or a patent agent fighting for the inventor and the entrepreneur. If you need a strong patent on your circuit and/or system, I might be your guy.

www.icswpatent.com