

What's the story with the Makerbot patent?

By Cory Doctorow

The 3D printing world is all a-seethe with the story that Makerbot supposedly filed a patent on a design from its Thingiverse community. As **Cory Doctorow** discovered, the reality is a little more complicated: if Makerbot has committed a sin, it is not the sin of which it stands accused.

Makerbot is a company that started out building "pure" open source hardware, built on the Reprap project, and has since selectively closed some of its source code, and filed patents on some of its hardware. This has aroused justifiable alarm and overblown ire from the company's fans and followers. Justifiable alarm because once a company starts dabbling in being closed, it's hard to know what'll happen next -- especially once that company is subsumed into a large,

publicly traded company like Stratasys. But overblown ire because the proprietary elements were, fundamentally, proprietary -- the parts that Makerbot made all or nearly all the contributions to, while the "community" elements of its business still received plenty of source code and hardware innovations from the company.

As others have pointed out, companies like Google, that are almost entirely proprietary, are lauded for making a relatively small amount of their products open; while companies like Makerbot, that are almost nearly all open, are demonized for making a small part closed. This isn't really a mystery: it's all about the direction of travel. When Google goes from 100% closed to 99% closed/1% open, it's becoming *more* open, and when Makerbot goes from 100% open to 99% open/1% closed, it's becoming *less* open. The human psyche is very attuned to relative changes, but bad at noticing absolute ones -- that's why you don't notice the loud refrigerator hum until it stops.

With that said, let's examine what Makerbot has done here. In October 2012, the company filed a provisional patent for an extruder they'd invented, but not released. A provisional patent is a notice to the US Patent and Trademark Office (USPTO) of an intention to file a patent later, and after you file it, you get one year make good on that intention. If you don't do anything, the provisional patent expires, and moreover, any inventions it describes become published "prior art" that (theoretically) can't be patented afterward by anyone else (more on this later).

The patent, US20140120196, ([which you can read here](#), the "claims" start at part [0068] on page 6) describes a very specific kind of extruder for a 3D printer. That extruder shares some of the designs that members of the Makerbot Thingiverse community had filed (including [this one](#), from 2013, a year after the Makerbot provisional filing), but when parsed closely, the actual patent does not overlap with these community designs. That is, while the Makerbot patent shares certain features with the community designs, the thing

Makerbot is patenting has those features, and some other features ("a bistable lever including a mechanical linkage, etc" as seen in [0068-20]). Makerbot is not claiming rights to the Thingiverse community designs, it's claiming rights over a similar design that specifically has to have a bunch of other stuff added to it.

To borrow from one of the **sillier examples of patents gone wrong**, they're not claiming dominion over sandwiches, or peanut butter sandwiches, or crustless peanut butter sandwiches -- they're claiming dominion over the specific world of the sealed, crustless peanut-butter sandwich.

Whether this is a good thing or a bad thing depends on your view of patents. I'm generally suspicious of them in theory, and in practice I'm *very* suspicious of them because of a bunch of systemic issues with patent law, the USPTO, and the way that most patent lawyers game the first two. In particular, the fact that the USPTO routinely grants "overlapping" patents that cover the same inventions; and that patent attorneys routinely set out a very broad set of claims ("a method for doing anything with stuff") that narrow down to a specific claim, in the hopes that an overworked patent examiner will grant them a patent over very broad things that their clients did not in any way invent; and that the patent courts don't allow people who've been sued for patent infringement to claim their expenses if they're victorious, combine into a vicious, especially pointy triangle that means that big, well-heeled companies can patent everything under the sun and can sue everyone else into oblivion using those patents, whether or not anything was actually invented and whether or not that invention is ever infringed upon.

More recently, the patent system has spawned an especially pathological evil: the patent troll, a company that raises a huge war chest, that manufactures nothing except lawsuits, and that buys these absurdly broad patents and uses them to extort money from companies that actually *do* make things that you and I want, meaning that we end up paying more.

Venture-backed companies are generally forced to file patents -- often very silly and overbroad ones -- by their investors, who are alive to the possibility of flogging them off to a troll in the (likely) event that the company fails. Each one of these patents is a little, long-lived landmine for makers and entrepreneurs, a 20-year timebomb that can be used to beggar or destroy useful companies making useful things, including the one that the founders start after the current one tanks. With public companies, the urge to patent is even harder to resist, as shareholders potentially view a failure to patent as a failure to live up to fiduciary duty.

But there's no fiduciary duty to file bogus patents on things that aren't inventions or aren't your inventions. And let's be clear: I don't think that's what Makerbot did here. It seems, to my moderately practiced eye, that they have filed a patent on something that is different from the Thingiverse designs, and that represents something useful, novel and nonobvious. Now that Makerbot is a part of a publicly traded company, it's likely that this will be par for the course from them, for better or worse.

At the same time, no one held a gun to Makerbot's head and made it take venture capital, and no one there should be surprised that selling the business to a public company resulted in a situation in which they're filing patents. So even if they're now in a position where they must file at least some patents, it's the predictable outcome of choices that they made voluntarily in the past. I believe that the company's founders and management understood this, and believed that the trade-off was worth making, because of the ability to scale up and sell a product that really is exceptionally good, largely open, and that enables a lot of personal creativity and entrepreneurial experimentation.

I think that, on balance, Makerbot does a lot of good for the cause of making and openness.

Makerbot's patents are still dangerous, though. Patents endure for 20 years, which is a lot longer than many tech companies

-- even very successful, publicly traded ones -- last. Even if Makerbot or Stratasys never have a change in management that results in abuse of this patent, it could easily land in the hands of a troll someday if the company fails altogether. And, of course, if all the Thingiverse users (and other people who work on extruders) had filed patents on their art, the thicket surrounding extruders would be so impenetrable that Makerbot's own innovation in US20140120196 would sink in a quagmire of litigation.

But even if you stipulate that the patents are an inevitable characteristic of publicly traded companies, there's room for Makerbot to take a leadership role and do more to minimize the potential harm from their patents. They could, for example, publicly commit to eschewing the universal practice of making broad claims on things that they haven't invented, narrowing to their actual invention. They could pledge to always include Thingiverse items in the prior art disclosures for their patents (this would be an especially reassuring move in that it would make putting things in Thingiverse a guarantee that Makerbot, at least, could never claim a patent on them).

Makerbot founder Bre Pettis sent me an email that said, "we want strong patents based on our own work." Like I say, I'm skeptical of patents altogether, but if you are going to file a patent, obviously it's better that it be a patent on a novel and substantial thing (a "strong patent") that you actually invent ("based on our own work"). Promises to only claim your actual inventions, and to always make sure that they don't overlap with your community's inventions, are entirely consistent with that policy.

I bought a Makerbot and I love it. I'll probably **buy another one** soon. You can make your own choice: if you want to support a company that has committed to never filing a patent, **Adafruit will sell you a rather nice Lulzbot**, which comes with Free Software Foundation certification. I've seen them in action and I think they make beautiful things.

If Makerbot has committed a sin here in patenting an extruder, it is not the sin of which it stands accused -- taking a design from its community and claiming rights to it.

-Cory Doctorow

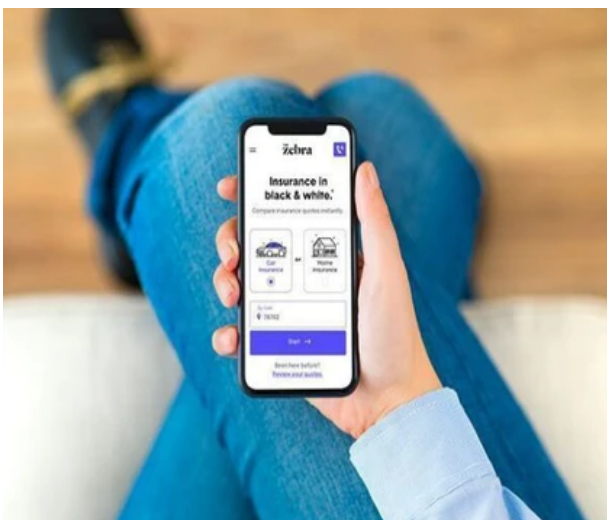
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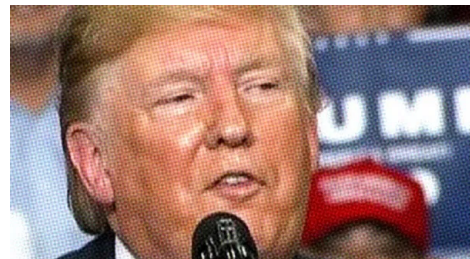
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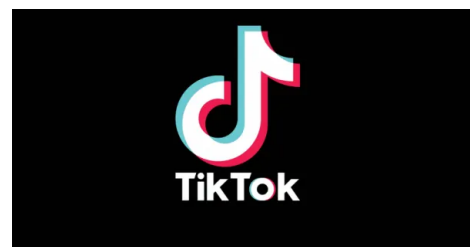
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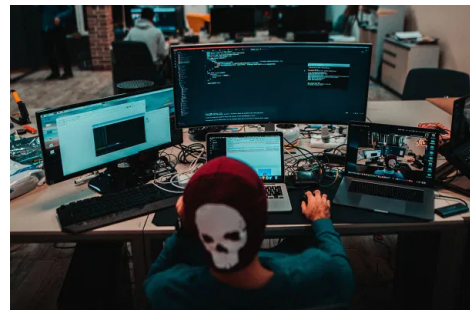
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