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Patent Litigation: An Introduction to Patent Claims, "Limitations," Infringement, and Invalidity -- Part One

Andrew Schulman

Senior Software Litigation Consultant, DisputeSoft

SoftwareLitigationConsulting.com

A patent is like a title or deed to a piece of land that might, or might not, contain a valuable resource like gold or oil. Strictly speaking, a patent is a temporary exclusive right over inventive technology. As an exclusive right, it is a "monopoly," but not as economists use that term. Mere ownership of a patent doesn't enable its owner to charge higher prices for its products, for example. It is more useful to think of a patent as a type of *property*.

Just as owning land doesn't necessarily let you build anything you want on that land, a patent is *not* a permit to use technology. Instead, as an exclusive right, a patent lets you stop *others* from freely using (or making, selling, offering for sale, or importing) your patented invention. In other words, a patent has primarily negative force: it protects by excluding. Further, the mere existence of a patent doesn't by itself exclude or prohibit others; it is not self-enforcing. We will see that exerting this force requires that the patent owner *do something* with the patent.

Like a title to land, a patent represents boundaries, and the owner can do certain things to block, or sue, others who step over those boundaries without a license. These boundaries represent the *scope* of the invention: how large it is, and where it is located in the world of technology.

How an invention can have protectable "boundaries" is something we'll discuss in this series of articles. These articles will employ real-world examples, and will focus on what can be done with a patent after it is granted. Most introductions to patents focus on whether one can get a patent in the first place (called "patent prosecution"), whereas here we will focus on lawsuits that allege infringement of a patent ("patent litigation"). We'll cover "claims" as the actionable parts of patents that create the protectible boundaries, and the so-called "limitations" that are the basic

ingredients of patent claims; how patent claims are used to analyze products accused of infringing the patent; how defendants rebut such accusations, and try to show the patent is invalid; and how "claim construction" guides the use of claims:

- Part 1: Patent claims
- Part 2: Limitations (elements and steps) comprising claims; analyzing a simple claim for printer toner; claim construction; broad and narrow claim scope; sub-limitations
- Part 3: Defending against an accusation of patent infringement; analyzing a software-patent claim; negative limitations (looking for absences); interconnections between limitations
- Part 4: Investigating possible infringement; limitation-by-limitation comparison of a software-patent claim to an accused product; functional claiming; equivalence
- Part 5: Investigating possible invalidity; limitation-by-limitation comparison of a software-patent claim to an asserted piece of prior art; "file wrappers"; obviousness; patent invalidity
- Part 6: Claim charts for analyzing infringement and invalidity; Local Patent Rules; discovery and other phases of litigation

These articles are based on the introduction to a forthcoming book on the so-called "claim charts" that are typically used to show infringement and invalidity (and their near-opposites, non-infringement and validity) in patent litigation.

While I am also an attorney, my perspective here is that of a technical expert focused on the *facts* (rather than the law) of patent infringement and invalidity. Many existing explanations of patent law, and even of litigation, gloss over the nitty-gritty details of how one goes about showing infringement or invalidity. Using simple but realistic examples, I will immerse the reader in such nitty-gritty details. Of course, every patent is different, but the examples will be representative. I have worked for both plaintiffs (including so-called "trolls") and defendants, and I will try to keep the discussion balanced between these two perspectives.

Patents have boundaries

While a patent is property in an invention (in other words, in technology), a patent is generally *not* property in the actual goods or services produced using the invention. Instead, a patent is property in the invention itself – a form of intellectual property (IP, the other forms of which are copyright, trademarks, and trade secrets).

Saying that patents are "intellectual property" makes it sound as if a patent is property in an idea or a concept, and that's not completely wrong, but when a patent owner complains of a competitor, "They stole our idea!," that's not how patents work. First, patent infringement is often not a matter of boosting from someone else. Even independently "reinventing the wheel," when it turns out to be someone else's patented wheel, is still infringement -- so (in contrast to copyright) it's possible to infringe a patent without "copying" it.

Second, the thing infringed is not some abstract "idea." To get a patent, the idea has to be made sufficiently concrete and specific that it can be distinguished from any other idea in the same field, and be used to say whether or not something in the real world is "covered" by the patent.

We will see in this article, and several to follow, that a patent encloses or guards very definite and specific boundaries. Much patent litigation involves identifying locations where the components of patented inventions are found in products accused of infringing the patent, or in so-called "prior art" said to show that the patent is invalid.

A patent only protects inventive ideas or concepts to the extent they can be broken down into a series of components, or steps in a process, that can be systematically compared to components or steps located elsewhere (in an infringing product or in prior art). One goal of a patent system is *codification* of inventions into sufficiently tangible, concrete forms that can be valued, transferred or assigned (including from inventor to employer), exchanged, referenced, and protected.

Patents and IP

Patents are granted by government, in exchange for disclosing sufficient details of an invention. The scope of the patent grant is negotiated between the patent owner's attorney and the patent

office; the patent is not simply a picture of the original invention as it sprang from the inventor's head. The patent attorney will have worked to broaden the patent's scope by generalizing from what the inventor did, and the attorney and patent office together will likely narrow the patent's scope while working to distinguish it from existing technology in the prior art.

Contrast this basis in government examination and grant to copyright, which springs automatically from the very act of original tangible expression, and to trademarks, which can emerge from use in commerce. Copyright protects tangible expression of ideas; trademark IP protects "brands," *i.e.*, designations of the source of goods or services. Government registration is also important for copyright and trademarks, but patents *inherently* require a government grant.

Patents have a built-in limited lifespan of about twenty years. While this is longer than the expected valuable life of many inventions, it is still much shorter than the lifespan of copyright.

To have a valid patent, the invention must, of course, actually have been an invention:

- novel (not already part of the prior art),
- non-obvious (not a straightforward extension of what's in the prior art), and
- in a subject area for which patents are granted (much controversy over software and life-science patents has to do with whether algorithms and life are appropriate areas).

That patents are given in exchange for *disclosure* of how to make and use the invention (such knowledge will form an important part of the "prior art" against which subsequent requests for patents will be measured) is a key difference between patents and another type of IP, trade secrets. Trade secrets derive value from being secret, and must be guarded with reasonable security precautions, to receive IP protection. In contrast, the content of patents are *not secret*. Disclosure is one reason for the word "patent" itself, in the sense of something open and overt. The other reason claims on inventions are called "patent," as opposed to latent, is that the claims are intended to provide public *notice* of those boundaries we've been talking about.

The comparison here of patents to land ("real" property) will annoy some readers. The designation of IP as property is controversial, and each type of IP has built-in limits not found in so-called real property. But the "IP isn't really property" objection is often based on a view of

property as absolute dominion, and even land ownership has many built-in restrictions (hence zoning regulations, building codes, neighbor laws, eminent domain).

Thus, the description of patents, or IP generally, as "property" does not imply absolute or boundless domain over a realm of intangible ideas. Far from it: property inherently has boundaries and limits; and IP is designed to help make this realm tangible.

Like any form of property, a patent is ultimately *a right to exclude* – that is, the right to seek government assistance (primarily from the courts) in dealing with trespassers or infringers, and the ability to use this ultimate right as leverage (for example in licensing negotiations).

How patents relate to the patent owner's products

We've all seen products marked with "Pat. No. 9,123,456" or "Pat. Pending," and it is natural to think that a patent must in some direct way protect a patent owner's products. But while US patent law does strongly encourage patent owners when feasible to "mark" each "patented article," as *notice* to competitors, it is not an indication that the product vendor has some affirmative permit to make the product, nor that the patent maps directly onto the product. Products or services arguably "covered by" a patent typically won't even be mentioned in the patent. The idea of a "patented product" can be very misleading.

The patent as such does *not* allow the inventor to "practice" the invention. For example, one might have a valid patent to an improvement on someone else's patent; given the dense thicket of patents in certain fields of technology, this happens frequently. Even with the patent, the improver would still need a license from the owner of the improved-upon invention, before being able to work or practice its own patent, without infringing the earlier one.

Conversely, a patent owner need not have a product at all. One need not practice or work the invention to assert it against others -- hence the phenomenon of the non-practicing entity (NPE) or so-called "troll." What was once simply an important aspect of patents (they have a value that can be exchanged, independent of their relation to a product) has become more prominent. This can give patents something of a "dog in the manger" quality ("I'm not using it, but you can't have it").

At the same time, certain legal "remedies" for patent infringement (*i.e.*, what someone suing for infringement is asking the court for) – including blocking imports, getting an injunction, or recovering "lost profits" – may require that the patent owner have itself worked or practiced the invention (or at least have had the ability to do so; and possibly within the US), with legal remedies otherwise generally limited to having the infringer pay reasonable royalties it would have paid had it taken a license instead of infringing. This might be viewed as a form of compulsory license. Note the tension between that "dog in the manger" strong protection on the one hand, and the "compulsory license" weaker protection on the other. IP is full of such tensions, and this is one reason for contentiousness in public discussions of IP: that it tries to strike a balance means that both sides may feel cheated.

So, even if a patent owner does sell goods or services, the relation between these on the one hand, and the owner's patents on the other, is not automatic or straightforward.

For now, it's best to forget the idea of a "patented product," and instead think of two separate things: (a) patents covering inventions, and (b) patented inventions possibly embodied in a patent owner's products. With all IP, it's important to distinguish between the IP on the one hand (whose value ultimately rests on the ability to sue for infringement), and the underlying asset that's being protected by the IP on the other hand (which has value separate from that of the IP).

Infringement, and the right to exclude

We've discussed how a patent is not a right to *do* anything (except perhaps to sue for infringement -- no small thing), and is instead a right to *exclude* others from doing something. But from doing what, precisely? From the following:

- making, using, selling, offering for sale, or importing devices that embody the invention;
- using processes that carry out a patented method; and
- certain forms of getting others to do such things.

What's missing from this list? Buying for one thing, or repairing that falls short of "making." What in the US constitutes patent infringement (during the lengthy but temporary life of the patent) is set forth in a federal law, 35 USC 271. This is in the same statute as, but in a different part from, the law setting forth what constitutes a valid patent (primarily 35 USC 101 on types of

patentable inventions, 102 on novelty and prior art, 103 on obviousness, and 112 on claiming and disclosures).

Patents are not self-acting, and the "patent police" are not on their way

Much of the public debate around patents focuses on whether someone can get a patent in the first place – "can you patent software?", "can you patent life?", "are there too many patents?", "they got a patent on *that*?!" – and much less on what one can actually *do* with a patent, once one has it.

This is surprising from a legal perspective, because a patent in and of itself does very little. Many patents turn out to have little value or effect; most are abandoned before their term expires (which does not mean that the underlying invention has no value; again, we must distinguish the invention from the IP). And just as having a title to land, or even putting up some "No Trespassing" signs, may not deter squatters or poachers, patents are not self-executing. The patent's right to exclude must be exercised in some way, and to the extent the public is concerned over patents, its concern is better directed at patent litigation than at the initial grant of a patent.

Of course, having a patent in itself may also be important for a company's competitive bragging rights in marketing, and to attract investors, but if so this importance is derivative of the patent's potential ability to exclude. And apart perhaps from some *in terrorem* effect on competitors, that potential is not realized by merely having the patent in one's back pocket.

There is no official "patent police." The US Patent and Trademark Office (PTO) grants patents, and can take them away. But the PTO doesn't enforce patents; it is neither involved in policing the market for patent infringement, nor in following up on complaints about infringement. As it is, the PTO has limited time to examine each patent application for validity (which may be okay as, according to the "rational ignorance" theory, those with potential value may have their validity hashed out during litigation).

Nor is there a non-governmental patent collection society, *i.e.*, the patent equivalent of ASCAP and BMI, who monitor the marketplace for music copyright infringement, and who employ copyright enforcers.

Patent litigation in federal civil court

So, it is up to the patent owner to enforce the patent. One important way to do this is through litigation: suing another for violation of 35 USC 271, for making, using, selling, offering for sale, or importing goods or processes that embody or practice a patented invention.

Patent litigation is distinct from the process of getting a patent which, confusingly, is called "patent prosecution." "Patent attorneys," licensed to practice before the PTO, are thereby engaged in patent prosecution, not in litigation. Attorneys involved in litigation -- suing for, and defending from assertions of, patent infringement -- need not be patent attorneys (though many are).

Patent litigation occurs in federal court, not state court (though federal district courts are located in some states, *e.g.*, the Eastern District of Texas, or the Northern District of California). Patent litigation is federal because the US Constitution *exclusively* reserves to Congress the power to "promote" the progress of the "useful arts" (*i.e.*, technology) by securing for limited times to inventors the exclusive right to their inventions. (As an aside, these few words of the Constitution also indicate that a patent is a means to an end, not an end in itself; it is intended as an incentive to promote further technology, rather than as an entitlement as such.)

Further, patent infringement is a civil matter, not a crime. Some IP misappropriation or infringement such as counterfeiting can be handled criminally, but patent infringement is not a crime. This is one reason why the cry "They stole our idea!" is misplaced; IP infringement is bad, but it is not "the same thing as theft," as IP absolutists say. Before any IP absolutist says, "Well it ought to be a crime!," think about it: do you want to have to prove infringement beyond a reasonable doubt? Because patent infringement is a civil not criminal matter, the patent owner need only convince the "fact finder" (judge or jury) that it is more likely than not that the defendant infringed (see "preponderance of the evidence" discussed below).

Patent infringement is, with some important exceptions, a "strict liability" offense in which the plaintiff (P) need not show the defendant's (D) intent. Thus, an infringer need not copy, and may even be *unaware* of, the patent they are infringing; this is unlike copyright, in which P must show that D actually copied, even if subconsciously.

If all this sounds like it weighs heavily in favor of patent owners, at the expense of accused infringers, we'll see some important counterweights below.

Showing infringement

To successfully assert that D is infringing a patent, the patent owner must show that D is making, using, selling, and so on, some thing or process that is covered by the patent.

Let's talk about "show" and "covered."

"Show" has different meanings at different times in the litigation, with the level of detail increasing from the initial complaint which, while based on P's only-partial knowledge of D's operations (for example, P with a software patent likely doesn't have access to D's proprietary source code), must still provide some plausible basis for why P thinks it will, over the course of the litigation, be able to show that D is infringing. We'll discuss this important point later, when we get to what have sometimes been called "preliminary infringement contentions" or PICs. For now, consider how P might learn or infer, through reverse engineering for example, certain implementation details of D's products, without access to D's schematics, blueprints, specs, or source code.

How does P show that D is doing something covered by the patent? Likewise, how does D show why it believes that it's not infringing?

Clearly, some *comparison* will be performed between the patent on the one hand, and the accused good or service on the other. This comparison does *not* involve comparing two competitors' products with each other (as one might do in a software copyright case). In patent litigation, D's product will be compared with a very specific portion of P's patent.

Meanwhile, D can defend itself, not only by asserting that it doesn't infringe, but also by asserting that P's patent is not even valid in the first place. Here, D would compare P's patent to

a piece of prior art (which might be an earlier patent or publication, but could also be an earlier product).

Infringement can't be based on some holistic "they look the same to me" general impression. Instead, there are individual requirements or elements. Some come from 35 USC 271, which states in part, "whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent…". Leaving aside importing (a topic for another time, when we discuss the US International Trade Commission (ITC)), some elements of infringement can immediately be spotted here:

1. without authority (they didn't take out a license, and there was no implied permission);
2. makes, uses, offers to sell, *or* sells (it need be only one of these);
3. a patented invention;
4. within the US (selling a good in Germany doesn't infringe a US patent);
5. during the life of the patent (the roughly twenty-year period noted earlier).

Thus, showing infringement requires performing a comparison between (3) above (a patented invention) and (2) (whatever it is that the defendant makes, uses, offers to sell, or sells). Litigation is likely going to focus on these two elements of infringement (though any other element such as (4) "within the US" could also be contentious -- for example, what about a service used by US customers, when one part of the service is carried out in Canada?).

At first it seems as if, for "patented invention" requirement, P would need to show its invention is (to recite the requirements for patentability noted earlier): novel, non-obvious, in a patentable subject-matter area, and properly disclosed. And those issues will likely come up in the litigation, because as noted above D will almost surely say that P's patent is invalid.

But initially all P need show for this particular requirement is that the PTO granted it a given patent, with a patent number and relevant start and end dates. A patent grant from the PTO carries a presumption of validity (35 USC 282). This is a rebuttable presumption – D can still present evidence of invalidity – but D must overcome the presumption with "clear and convincing evidence".

In contrast, P need only show D's infringement with a "preponderance of the evidence" (*i.e.*, more likely than not). So yes, the deck may seem stacked against defendants. But the patent grant has to be worth *something*, and that something is in large part this starting presumption (together with the right to sue for patent infringement in the first place, if P can make out a plausible "prima facie" case of infringement, with the resulting demands placed on defendants that come from being the target of a patent-infringement suit).

On the other hand, by suing D for infringement, P has motivated D to try to invalidate P's patent. The possibility of having one's patent invalidated during litigation is a major risk of bringing a patent-infringement suit ("use it AND lose it").

Further, we've glossed over a major challenge for P: *how* is it going to show that what D makes, uses or sells is actually covered by P's patent? It's easy to make this sound like a no-brainer (patent law treatises typically devote a single page to what's called "literal infringement"), but few modern products wear their hearts on their sleeve, or simply announce how they are made in a way that can be readily compared to a patent owner's claimed invention.

Patent infringement is based on patent claims and limitations

P's showing that it has a patent granted by the PTO, and that D is making or using or selling (something), is far from showing that what D is making or using or selling is, in fact (or at least arguably enough to get the litigation going), something that embodies the patented invention.

We now finally get to the main point of these articles, suggested by the subtitle – an introduction to patent "claims" and patent "limitations" – because patent claims, and the so-called "limitations" that make up claims, are where the rubber meets the road. Claims and limitations are what patent litigation, and patents for that matter, are all about. One patent judge coined the phrase "The Name of the Game Is the Claim." Some commentators dispute whether courts still truly abide by this bedrock principle, but at the very least the claims, and the limitations that comprise claims, are the fundamental starting point in using patents to test for infringement and invalidity.

A claim is a one-sentence statement at the very end of a patent. A patent often contains multiple claims, all to what is supposed to be a single invention, but from different perspectives (as a device, as a method, as a system), and each with different "scope" (coverage over infringement). Claims may also be interdependent, but we'll leave that aside for now, and just focus on a single claim.

The other parts of the patent help interpret the claim, and also constitute the required disclosure (so-called "enablement," or teaching how to make and use the invention) in exchange for which a patent is granted in the first place. But the actionable part of a patent resides in the claims at the end, which can be thought of as the "business end" of the patent.

The heated public discussions over patenting software or patenting life often point to the titles of various patents, a patent drawing or two, or a one-paragraph patent abstract. References to patent claims or limitations are far less frequent in these debates. But it's the claims that matter, not the patent's title, abstract, or the picture on the patent's front page. Often the front page of a patent is used to represent the patent itself, but the claims don't appear on the front page, and the front page gives little idea of what the patent actually prohibits others from doing, beyond perhaps serving as a general over-warning (the actual claims plus a *scarecrow*). Fig. 1 below makes this point, in a somewhat exaggerated way.

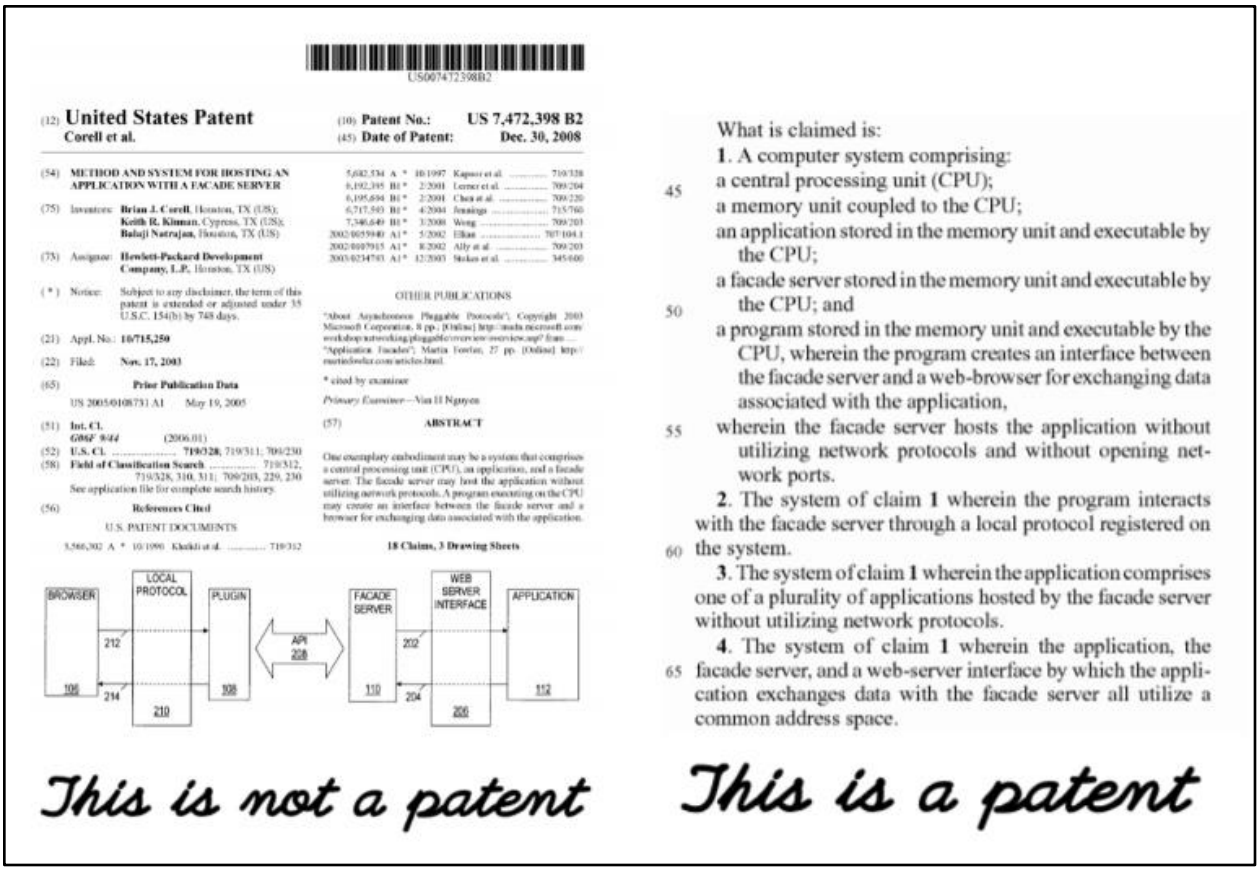


Fig. 1: A not entirely accurate way of stating that the claims are the most important part of a patent. The rest of the patent is ancillary to the claims, not vice versa. The front page of the patent perhaps serves as a scarecrow, while the claims provide actual notice of the property's boundaries. With apologies to Magritte's painting "The Tyranny of Images," and its handwritten "Ceci n'est pas une pipe" (This is not a pipe).

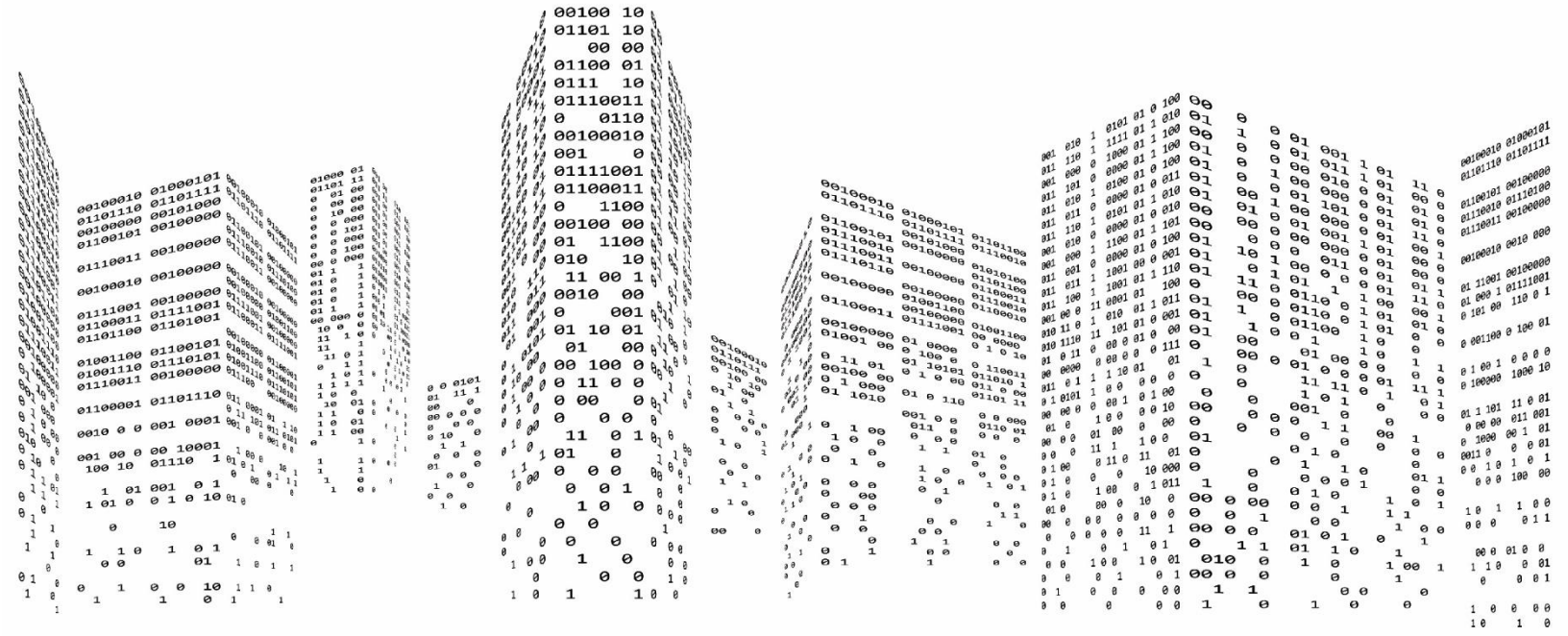
There truly is no such thing as "the one-click patent" or "the sperm-whale patent" or "the patent for making a PBJ," as such. It would be a patent for a specific method or specific device that can do those things. Usually, many other methods or machines could serve the same purpose or function.

The specific method or device would be delineated in one or more patent claims. The term "claim" may evoke, at least to an American reader, Gold Rush or oil-prospecting images of "staking a claim" to extract resources, literally by driving pointed wooden *stakes* in the ground (and then getting government approval from what were called "land patent" offices).

This is not a bad analogy for how a patent relates to an underlying invention (see also Professor Edmund W. Kitch's "prospect theory" of patents). A patent claim represents the perimeter of stakes in the ground showing where the patent owner has the exclusive right (for the temporary life of the patent) to exploit the invention.

In the next article in this series, we'll look closely at what in a patent claim corresponds to those individual stakes in the ground that mark off the boundaries of the patented invention, as part of a discussion of patent claims, limitations, and the role of claim construction in patent litigation.

Andrew Schulman is a Senior Software Litigation Consultant at DisputeSoft. He focuses on software patent litigation, pre-litigation investigations, and source-code review. Mr. Schulman is also the founder and principal of Software Litigation Consulting. As a software engineer, he edited and co-authored several books on the internal operation of Microsoft operating systems, and is an attorney with an LL.M. in Intellectual Property.



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Contact Information

Jeff Parmet, Managing Partner
301.251.6182
jparmet@disputesoft.com

12505 Park Potomac Ave. | Suite 475 | Potomac, MD | 20854