

INVENTION ANALYSIS AND CLAIMING: Invention Settings¹



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A patent owner may not realize the full value of his patent unless the invention is claimed in all of its commercially significant settings.

An invention setting is an environment or context in which the inventive concept is manifest,² and is “commercially significant” when it is expected that competitors will implement the invention in that particular setting. We will see below how a cylinder lock invention can be manifest in at least five different commercially significant settings.

The discussion here characterizes a patent’s value principally in terms of potential license royalties or monetary damages. But the discussion applies with equal force when a patent is to be cross-licensed or when the patent owner intends to exercise his right of exclusivity. In any of these cases, the patent owner’s goals may be less than fully realized if the claims define the invention in less than all of its commercially significant settings.

INVENTION SETTINGS EXPLAINED

Consider the cylinder lock of FIG. 1.

As in cylinder locks generally, the cylinder plug of this lock can rotate within the cylinder shell only if the key raises the top of each tumbler to the shear line. Doing that in this particular lock requires that the key not only raise the tumbler by a particular amount, as in the prior art, but that the key also *rotates* at least one of the

tumblers by some amount. The rotation is caused by key cuts that are skewed rather than perpendicular to the plane of the key, in combination with tumblers that have angled bottoms. Not only are the lock and key unique, but the key must be cut on a unique key-cutting machine.

The novelty in each of these components stems from a single inventive concept—the fact that the tumblers are rotated by the key. Yet the lock, the key, the tumblers, the key-making machine and even a door having the novel lock installed therein are five different settings for this invention—that is, five different contexts in which the inventive concept is manifest.

As another example, two settings for a paper-making invention could be a) the composition of the paper and b) the manufacturing of the paper.

An invention setting is not the same as a statutory class. Indeed, an invention can often be defined in a given setting using more than one statutory claim type. For example, our lock invention could be defined within the key-cutting-machine setting by apparatus claims defining the structure of the machine as well as by

method claims defining how the machine operates to cut the key.

Nor is an invention setting the same as an invention embodiment. The embodiments of an invention differ in the details of how the invention is implemented. Our paper composition could include synthetic fibers in one embodiment and natural fibers in another. But either embodiment might be claimed in either of the two settings noted above.

THE IMPORTANCE OF INVENTION SETTINGS

We might think to claim the lock and be done with it. However, as noted at the outset, the patent owner may not realize the full value of his patent unless the invention is claimed in all of its commercially significant settings. Others might only cut keys, or only make the key-cutting machine, or only make replacement tumblers for aftermarket sale to locksmiths. None of these parties’ activities would be covered by a claim to the lock *per se*.

Claiming an invention in all of its commercially significant settings is particularly important when the royalty base in one setting is significantly larger than in another. One would certainly think to claim a television signal format invention in the setting in which the signal is generated—the broadcast transmitter. However, there are only about twenty thousand television stations worldwide, and they don’t buy a new transmitter very often. By contrast, billions

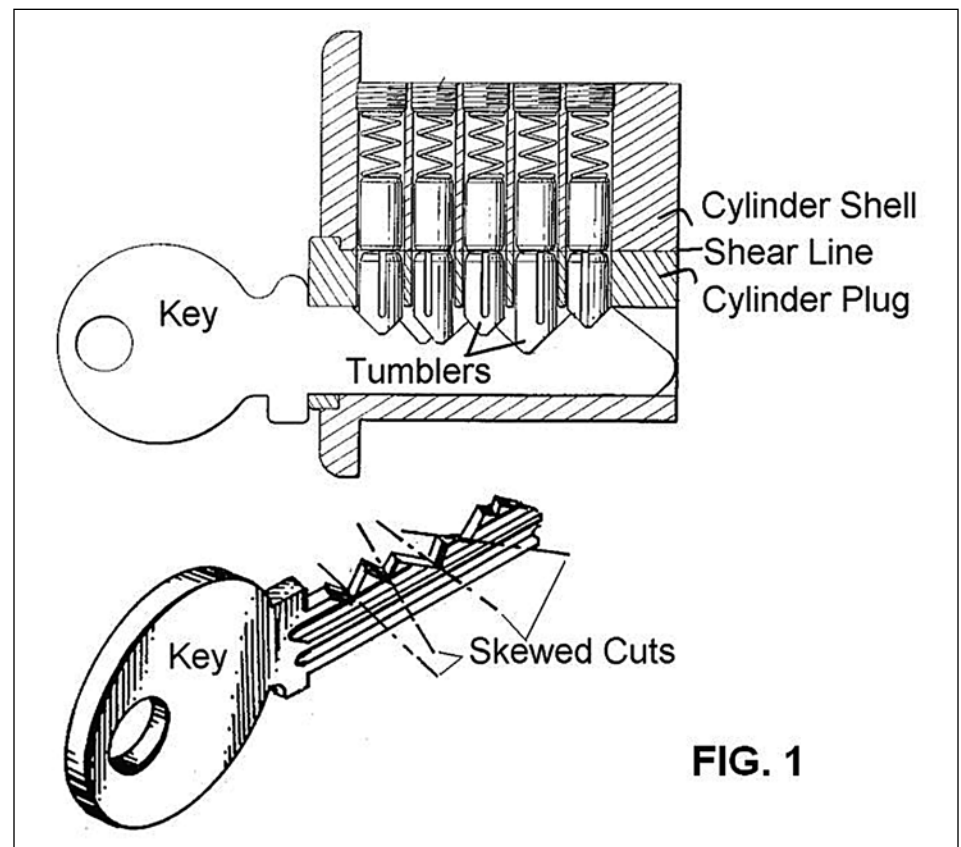


FIG. 1

of TV sets and set-top boxes will be sold over a patent's lifetime.

It might even be possible to collect royalties based on the entire dollar value of a door having our novel lock, but only if we have a claim directed to the invention in that setting.

Claiming the invention in all of its commercially significant settings is so important that one of the author's colleagues makes it a practice to identify all of the commercially significant invention settings before even beginning any actual claim drafting. He then proceeds methodically through the identified settings, drafting claims for each one.⁴

I spend a lot of time thinking through the invention settings before I even get into the guts of a first draft of a claim. Understanding the larger picture of protecting the invention from these different settings allows me to automatically exclude a range of meaningless limitations that might be improperly suggested by a poorly-analyzed picture claim. For example, trying to get a claim to the structure of a key will inevitably get me thinking about what parts of the key-cutting machine are just not relevant and meaningful to the exclusionary grant I am crafting when I am drafting key-cutting-machine claims.

Only after I have a map in my mind of the settings of all of the independent claims do I move on to fleshing out the guts of each claim.

MAINTAINING THE INTEGRITY OF THE INVENTION SETTING BOUNDARY

Having decided to claim the invention in a particular setting, we must take care to restrict the claim to that setting. If something outside the boundary of the setting makes its way into the claim, parties whose activities would otherwise infringe the claim may escape liability.

Consider, for example, claim 1, which is intended to define a video signal compression invention in its encoding—e.g., integrated circuit or software module—setting.

1. A method comprising

generating a video signal to be encoded, and

encoding the video signal by ...

a)...

b)...

c)...

Although we set out to claim the invention in the encoding setting, per FIG. 2a, we actually wound up claiming it in the setting depicted in FIG. 2b—a setting that includes the generation of the video signal to be encoded. Integrated circuit manufacturers—whose products do not include a scanner or other apparatus for performing the “generating” step—will lose no time in pointing this out when the patent owner approaches them take a license. And although the patent owner might be able to establish a case of contributory infringement or inducement,

these are suboptimal enforcement strategies, as we will see next month.

It's an easy trap to fall into. After all, the “workstuff” of our encoding algorithm is the video signal, which *does* have to be generated by *something*, after all. True enough. But that doesn't mean that the video signal has to be generated *in the claim*.

Input signals can usually just be assumed to exist, as though handed to us by an input-signal genie. In the case of claim 1, then, we can restrict the claimed subject matter to the intended invention setting boundaries by completely eliminating claim 1's offending “generating” step and changing the claim to recite the encoding of “a video signal” instead of “the video signal,” viz.,

2. A method comprising

encoding a video signal by ...

a)...

b)...

c)...

Of course, claim 1 may be of value if the patent owner is of a mind to assert his patent against, say, video camera manufacturers. However, claiming the invention in such an “equipment setting” is not what we had set out to do. And with good reason. There may be too many equipment manufacturers to chase after. Moreover, if the patent owner is an integrated circuit maker, manufacturers who might be infringers of claim 1 are likely to be the patent owner's own present or future customers. Asserting a patent against one's own customers is not the best way to engender good will for future sales.

WHO IS THE INFRINGER?

Realizing the full value of a patent further requires that the claims capture the activities of a) individual—as opposed to co-acting—parties who are b) direct infringers. This is largely achieved, it turns out, when the claims define the invention in all of its commercially significant settings, as discussed above. Drafting and reviewing claims with individual direct infringers specifically in mind, however, can help get us there, as we will see next month.

ENDNOTES

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2. The terms “perspective” or “point-of-view” are also sometimes used to refer to what the author calls a claim “setting.”
3. A possible sixth setting is the key blank, but only if there is something new and non-obvious about a key blank for this lock, as compared to blanks for locks known in the prior art.
4. The author gratefully acknowledges Benjamin Lee, Patent Counsel, Google, Inc., for this contribution.

