

INVENTION ANALYSIS AND CLAIMING: Inventions are Concepts¹



BY RONALD SLUSKY

Ronald Slusky mentored dozens of attorneys in “old school” invention analysis and claiming principles over a 31-year career at Bell Laboratories. He is now in private practice in New York City. This article is adapted from his newly published book *“Invention Analysis and Claiming: A Patent Lawyer’s Guide”* published by the American Bar Association and available at ababooks.org. Ron can be reached at 212-246-4546 and rdslusky@verizon.net

Last month’s inaugural column by Ron Slusky was inadvertently published out of sequence. The follow-on article mentioned in that column will appear in due course. We regret the error.

For patent lawyers an invention is not something physical, but a concept. As far back as 1933, patent law author Emerson Stringham went so far as to say that an invention is an abstraction:

The difficulty which American courts...have had ... goes back to the primitive thought that an “invention” upon which the patent gives protection is something tangible. The physical embodiment or disclosure, which, in itself is something tangible is confused with the definition or claim to the inventive novelty, and this definition or claim or monopoly, also sometimes called “invention” in one of that word’s meanings is not something tangible, but is an abstraction. *Definitions are always abstractions.* [emphasis added].²

There is no possibility of clear thinking, says Stringham, until it is understood that an invention as protected by a patent is an abstraction.

Patent practitioners refer to that abstraction as the “inventive concept.”

The patent attorney’s primary mission is to discover the inventive concept underlying the inventor’s embodiment, and then to capture the inventive concept in the patent claims. To fail in that mission is to open the door for a competitor to take advantage of the inventor’s contribution to the art while avoiding liability under the patent.

Consider the original ballpoint pen, patented by John Loud in 1888,³ and shown in the figure. The ball L is held against the contracted mouth *f* of tube A by spring S, which pushes against rod G, bearing H and anti-friction balls K. The spring yields when the ball is pressed against paper, thereby regulating the flow of ink onto the ball and from there onto the paper as the pen is moved.

Claim 1 defines Loud’s pen:

1. A pen comprising a tube having a contracted mouth and adapted to hold ink, a spheroidal marking point projecting from the mouth, and ink regulating means for resiliently holding the marking point against the mouth.

This claim seems pared down to the absolute minimum. Yet it would be of little value if Loud’s patent were still in force. Modern ballpoint pens do not have anything like Loud’s “ink regulating means for resiliently holding the marking point against the mouth.” Instead, the ink is kept from leaking out by virtue of a tight fit between the ball and its socket and by using an ink having just the right level of viscosity.

Granted, it would have required a visionary of considerable insight to have anticipated the advent of the technology required to manufacture today’s modern ballpoint pens. However, it does not require a visionary to recognize that advances do occur. Indeed, the patent attorney’s task is to draft claims that preserve a patent’s value *despite* such advances if improved devices embody the inventor’s original work.

Loud’s attorney, William Dowss, was, in fact, up to the task. Claim 1 and its “ink regulating means” is not Dowss’s claim, but was written for this example by the author. If the Loud patent were still in force, Dowss’s claims would command a royalty for every ballpoint pen on the market because Dowss successfully isolated—in a ten-word claim—the concept that underlies every ballpoint pen:

2. A pen having a spheroidal marking-point, substantially as described.

That’s it! A pen having a spheroidal marking-point. A pen cannot be a ballpoint pen without one. Dowss’s claims clearly evince his understanding that implementational details—like an “ink regulating means” or a tube with a contracted mouth—were irrelevant to the essence of Loud’s invention. But how did he come to that understanding? And how can the practicing patent attorney of today know when the inventive concept has truly been found and properly claimed?

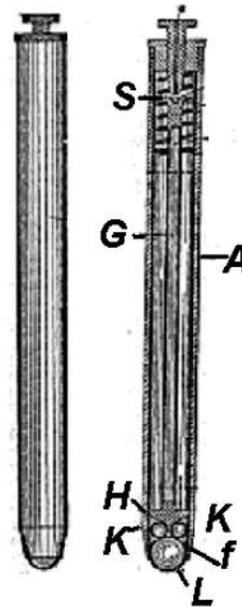
The answer to that question is an approach to invention analysis that lies at the heart of the author’s book and will be a recurring theme in this series of columns in *Intellectual Property Today*.

The answer to that question is an approach to invention analysis that lies at the heart of the author’s book and will be a recurring theme in this series of columns in *Intellectual Property Today*.

BEGIN FROM THE PROBLEM

The path to the inventive concept begins with the problem that the inventor solved. The inventive concept is the inventor’s solution to that problem, when broadly articulated at a conceptual level. Given any detail in the inventor’s embodiment—a physical element, a method step, a particular functionality or a specific relationship among these—one can ask whether that detail is essential to solving the problem to at least some extent. If not, that detail is not intrinsic to the inventive concept.

The problem Loud addressed was that existing (fountain and quill) pens could not write on rough surfaces, such as wood or leather. Central to his solution is the ball itself. Problem solved. Claim 1’s “ink regulating means” tells how such a pen could be constructed, not about how the problem of writing on rough surfaces can be solved. If the ink could somehow regulate itself, we



would still have a pen of the type Loud envisioned. Never mind that Loud probably never considered whether such an ink could exist. It is possible to formulate a statement of something new—a pen with a spheroidal marking-point—without having to describe how such a pen might be constructed.

It is sometimes thought there is no harm in including an implementational detail in an invention definition if the detail is absolutely needed to implement the invention. This is a dangerous view to take. We can never be certain that any particular detail always will be needed. Technology marches on. New ways of doing things are invented every day.

Moreover, whether something seems required to *implement* an inventive concept is irrelevant to the task of *claiming* it. No argument in this regard from the Patent Office of 1888. The Office issued Loud's patent with the above claim 2 just as it is presented above. Indeed, upon eliminating the "substantially as described" construct not used in modern practice, and assuming that ballpoint pens had not yet been invented, that same claim would be patentable today.

THE PROBLEM-SOLUTION STATEMENT

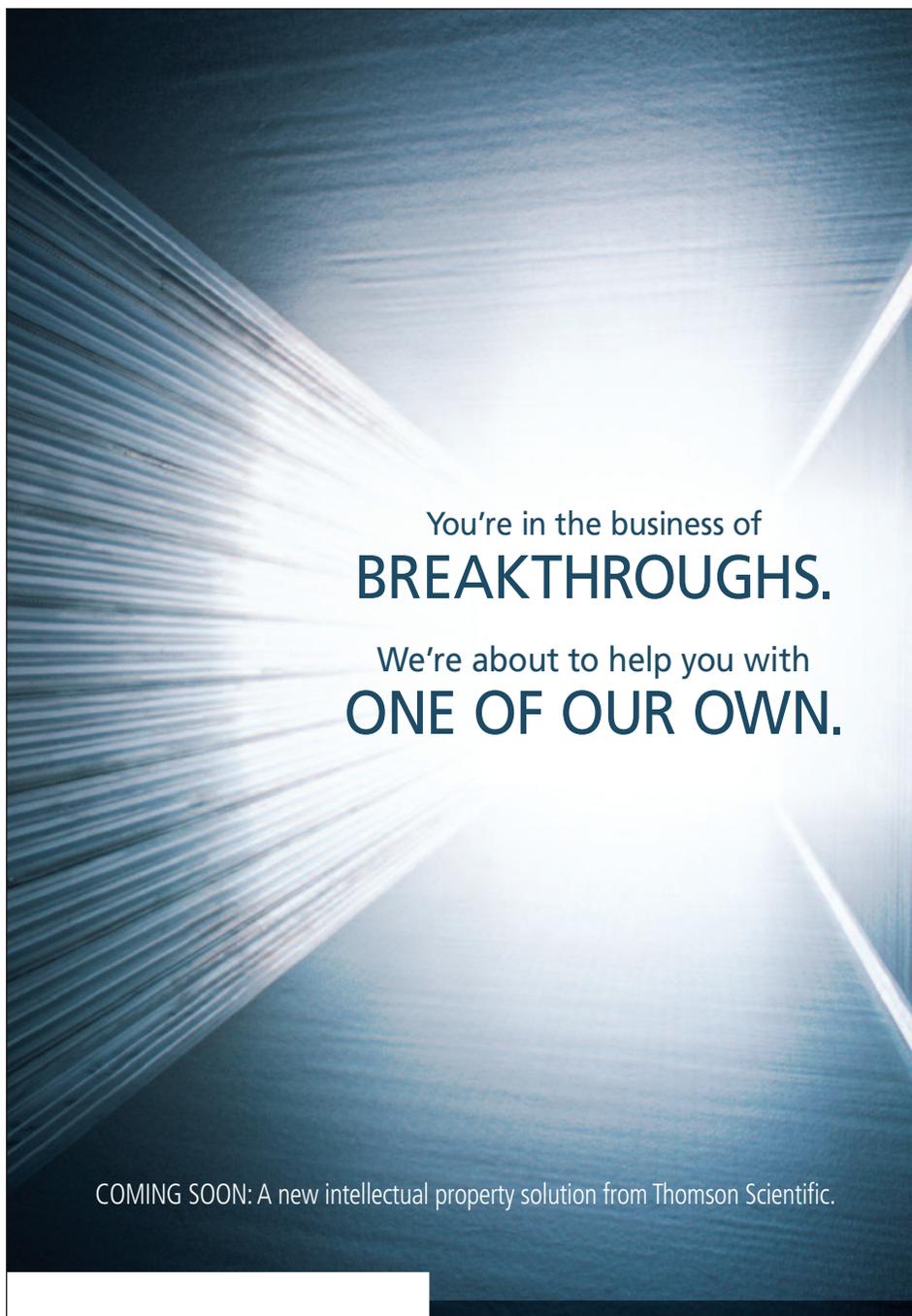
A useful way of coming to an understanding of the inventive concept for an invention is to draft a problem-solution statement and hone it to a fine edge as one would a claim. For example, a problem-solution statement for Loud's ball point pen could be:

The problem of making a pen able to write on rough surfaces is solved by the pen having a spheroidal marking point.

Here's a problem-solution statement for Clarence Birdseye's food processing invention. The inventive concept is to package food in the container it is to be marketed in and then freezing it under pressure.

The problem of being able to package and preserve food in an economical and commercially practical way is solved by first packing the food in the container in which it is to be marketed and freezing the same under pressure applied to substantial surface areas of the packed container.

And here's a problem-solution statement for a seminal invention of rocket pioneer Robert Goddard. The inventive concept is the notion of a rocket in which the fuel is



COMING SOON: A new intellectual property solution from Thomson Scientific.



carried in a casing separate from the combustion chamber.

The problem of enabling a rocket to carry a large amount of combustible material while keeping the weight of the rocket as low as possible is solved by successively feeding portions of the material to the combustion chamber from a separate casing containing the supply of combustible material.

We will see in a future column how a problem-solution statement can be readily turned into a claim of commensurate

breadth. However, next month's column—*Begin From The Problem [Not the Embodiment]*—will talk more about the importance of identifying the problem as the first step in analyzing an invention. **IPT**

ENDNOTES

1. Copyright © 2007 American Bar Association. Adapted with Permission. All Rights Reserved.
2. Emerson Stringham, *Double Patenting*. (Washington, D.C.: Pacot Publications, 1933).
3. United States Patent No. 392,046.