authorship and inventorship

Science is a collaborative effort. Isaac Newton expressed this when he said "if I have seen further it is by standing on the shoulders of giants." Newton relied on the work of predecessors. Modern scientists generally work in groups in research settings. These efforts often produce scientific discoveries that are reported in articles published in scholarly journals, and in some cases also result in patent applications. Often the names of the authors are not the same as the names of the inventors. This can concern the researchers who have worked diligently but feel they are not receiving proper credit for their efforts.

The reason that authors and inventors might differ is because authorship and inventorship are not the same thing. In the United States[1] and most of the world, they are two distinct concepts governed by two different statutory regimes. Authorship is a copyright concept, and inventorship is governed by patent law.

The United State Copyright Act[2] doesn't expressly define authorship, but states that "copyright protection subsists … in original works of authorship fixed in any tangible medium of expression." According to the Supreme Court of USA,[1] original means "only that the work was independently created by the author (as opposed to copied from other works), and that it possesses at least some minimal degree of creativity."[3] Consequently, courts define "author" to mean "originator" or "creator."[4] All that is needed to constitute an original work is for the author to contribute something more than a trivial variation on a preexisting work. The issue is not quantity or quality: no matter how poor the author's addition, it is copyrightable if it is a unique creation.[5]

Because the copyright bar is set so low, virtually anyone who contributes to a paper is given credit as an author. This is true whether they contributed to the underlying research, writing, or substantive editing. About the only exception might be someone who does no more than transcribe another person's words.

The standard for inventorship is much higher. A patent will only be granted for an invention that is new, useful, and non-obvious.[6] "New" simply means that the invention did not exist before. This is somewhat akin to "original" in copyright law. "Useful" means that there is some actual, and not merely speculative, use for the invention. Both criteria are relatively straightforward. The third criteria – "non-obvious" – is less straightforward and significantly restricts the ability to obtain a patent. To be non-obvious, an invention must be more than a typical iterative variation of an existing device. It cannot be a change that "could readily be deduced from publicly available materials by a person of ordinary skill in the pertinent field of endeavor."[7] It is this "non-obviousness" standard that makes it much more difficult to obtain a patent than a copyright.

The patent law recognizes that inventions are often the product of a collaborative undertaking, and allows two or more people to be co-inventors[8] even though (1) they didn't "physically work together or at the same time," (2) … "did not make the same type or amount of contribution," or (3) … "did not make a contribution to the subject matter of every claim of the patent."[9] The statute "sets no explicit lower limit on the quantum or quality of inventive contribution required for a person to qualify as a joint inventor;" but there must be some "collaboration or connection" between joint inventors.[10] Common examples of joint invention includes actual collaboration, working under common direction, seeing "a relevant report and building upon it," or hearing a "suggestion at a meeting" and using it to solve a problem,[11] where two people "are totally unaware of each other's work, there can be no joint inventorship."[12]

While there must be some collaboration between joint inventors, every person who offers input on an invention does not automatically become an inventor. The courts recognize that inventors often rely on the assistance of others, but hold that such assistance doesn't always imply inventorship. When the U.S. Supreme Court was trying to determine who invented the telegraph, it noted that no invention that consists of different elements can possibly be made without a good knowledge of the properties of each element and how they might "operate on each other. And it can make no difference … whether [the inventor] derives his information from books, or from conversations with men skilled in the sciences."[13] As a result, an inventor "may use the services, ideas and aid of others in the process of perfecting his invention without losing his right to a patent."[14]

Since an inventor may rely on the assistance of others, a person is not an inventor if he is simply following the instructions of the inventor, or performing routine acts on behalf of the inventor.[15] Similarly, an individual who merely explains the state of the art to the true inventor, or supplies products for use in the invention, is not an inventor.[16] "The work, experiments, and suggestions of others in carrying out the conception of an inventor, not rising to the level of invention, do not entitle others to be treated as inventors or co-inventors …"[17]

It is very common in the mechanical arts for an inventor to obtain the assistance of a skilled craftsman to make a prototype of the invention. The craftsman or technical, even if highly skilled, is not an inventor unless he makes a suggestion that leads the inventor to make a significant, conceptual, change to at least one of the claims of the invention.

Courts have set out a number of other types of "contributions" that do not rise to the level of joint inventorship. A person is not an inventor if their sole contribution is identifying a problem to be solved, regardless of how difficult or unique the problem, unless that person also contributes to the solution.[18] Similarly, a person does not become an inventor by suggesting a desired end or result, unless he or she has also suggested specific means of accomplishing that result.[19]

The key component of inventorship, and joint inventorship, is conception. Conception is "the formation in the mind of the inventor, of a definite and permanent idea of the complete and

operative invention."[20] Conception is "complete when one of ordinary skill in the art could construct the apparatus without unduly extensive research or experimentation."[21]

A person is a joint inventor only if he or she contributes to the "conception of the invention." Case law clearly indicates "that to be a joint inventor, an individual must make a contribution to the conception of the claimed invention that is not insignificant in quality, when that contribution is measured against the dimension of the full invention."[22] Research work that doesn't contribute to conception do not result in inventorship regardless of the quantity of the work or the skill of the contributor.

This may be unsatisfying to many researchers, but it complies with the purpose of patent and copyright law; the promotion of science. Therefore, it should be understood that the goal of copyright law is to maximize publicly available information, and the goal of patent law is to restrict as little as possible with the patent monopoly.

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