

COLLABORATIVE RESEARCH: PRIOR ART PITFALLS

By: Virginia C. Bennett¹

The patentability of an invention can only be determined by comparison to the prior art. If the exact same item is disclosed in the prior art, the invention is said to be anticipated and is not patentable due to section 102 of the patent statute.² Additionally, if the invention is an obvious variant or improvement to the existing art, the invention is said to be obvious and is not patentable due to section 103 of the patent statute.³ Exactly what constitutes the prior art can depend upon the formal relationships among collaborating researchers. The interactions of sections 102 and 103 of the patent statute can create "prior art" traps for unwary collaborators, as discussed herein. (See the Appendix hereto for the text of sections 102 and 103).

I. Secret Prior Art Created by 35 USC §§102 and 103.

a. Section 102 defines the "prior art" for purposes of anticipation and obviousness:

Section 102 of the patent law defines "the prior art" which can be used to show that an invention is anticipated and is therefore not patentable. For example, §102(a) states that an invention is not patentable where that invention "was known or used by others in this country, or patented or described in a printed publication" before the patent applicant's invention thereof. Thus a publication printed before the date of an invention is "prior art" for the purpose of evaluating the patentability of that invention.

Section 103 of the patent law sets forth that an invention which is merely an "obvious" variant of an existing invention is not patentable. However, §103 does not explicitly define the prior art against which obviousness is assessed; courts and the patent office have come to use the categories of prior art as defined in §102 in their determinations of obviousness under §103. Thus, while §102 on its face defines "prior art" for purposes of anticipation, these same categories of prior art are used in determining the obviousness of an invention as well.⁴

b. The statutory "inventor" may be a group of inventors:

Section 102(f) states that a person who did not invent the subject matter claimed in a patent application has no right to a patent for that subject matter. Simply put, only the inventor has the right to patent his or her invention under U.S. patent law.

However, to understand the prior art pitfalls that can be created by collaborative research, it must be understood that where the law refers to an "inventor" it is in fact referring to a particular 'inventive entity'. An inventive entity may consist of a single inventor, two inventors, or a group of inventors; work performed by Inventor A is performed by a different inventive entity compared to work performed by Inventor A and Inventor B working together. A collaboration among three scientists may thus produce inventions made by any one of seven different inventive entities: A, B, C, A+B, A+C, B+C, or A+B+C.

Section 102 of the patent statute states that a person is entitled to a patent on an invention, unless:

(f) he did not himself invent the subject matter sought to be patented, or

(g) before the applicant's invention thereof, the invention was made in this country by another

Consider the situation where a single researcher (A) develops a new diagnostic assay, then begins collaborating with a second researcher (B). Assume that from this collaboration a 'second-generation' assay is developed; the second-generation assay is an

obvious variant of the initial invention, but is also the commercial form of the assay. The second generation assay was invented by a different inventive entity (A+B) than the first assay (A). Thus, in what can be a rude surprise to inventors working in the academic environment, the work of the first inventive entity (A) can be used as prior art against the work of the second inventive entity (A+B). In other words, by inviting a colleague to collaborate it is possible for inventor A to turn his own prior work into prior art (due to §102(f) and (g)), which can then be used to defeat the patentability of inventions made jointly by A+B.

Sections 102(f) and (g) thus can create serious problems in academic settings, where research typically involves continuing projects and multiple investigators. Sections 102(f) and (g) create a category of "secret prior art" -- secret, in that the work need not be published or otherwise available to the public in order for it to be cited as prior art against later collaborative efforts.

c. The Section 103 exclusion:

The patent statute was amended in 1984 to soften the impact of §102 (f) and (g) on corporate and academic research. The following exclusion was added to Section 103:

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 . . . shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Thus, where two collaborating individuals each have (1) a duty to assign to the same entity (e.g., a corporation or university), and (2) this duty exists at the time the collaboration begins⁵, prior individual work will not be 102(f) or 102(g) prior art where that prior work was also owned by or assigned to the same entity.

Consider inventor A who is under an obligation to assign inventions to Alpha University. She begins collaborating with inventor B, and jointly they design a new device. If inventor B was under the same duty to assign his inventions to Alpha University at the time the collaboration of A+B started, inventor A's prior work is not prior art against the work of inventive entity A+B. But -- if inventor B was at all times under an obligation to assign to a different university, then an invention created by A+B must be patentable over the previous work of A alone (and the previous work of B alone).

The take-home message is that where joint inventors are under the same obligation to assign (e.g., they are faculty at the same University at that time), work which is prior art only under section 102(f) or section 102(g) cannot be used to establish the non-patentability of joint inventions arising from collaboration.

It is also important to note that "retroactive" assignments cannot be used to overcome §102(f) and 102(g) prior art. For example, if our inventors A and B (from different institutions) collaborated and jointly invented a new assay, each individual's previous work could be cited as prior art against the joint invention of A+B. Assigning all of the rights in the assay to a single institution, after the date of the invention, would not solve the problem of 102(f) and (g) art; section 103 states that prior art subject matter under 102(f) and (g) "shall not preclude patentability . . . where the subject matter and the claimed invention were, at the time the invention was made, . . . subject to an obligation of assignment to the same person".

Thus, in inter-institutional collaborations, it is not a solution to the problems posed by 102(f) and (g) to agree that any patent applications will be commonly assigned -- since the preparation and filing of a patent application necessarily occurs after the invention is made.

d. The duty to disclose:

In examining a patent application that names joint inventors, the U.S. Patent Office will presume that the subject matter of the claims was commonly owned at the time the claimed inventions were made. If a claimed invention was not commonly owned, it is the patent applicant's duty to disclose the inventor and invention dates of each claim that was not commonly owned at the time a later collaborative invention was made.⁶

On a practical note, it is important that inventors document their work in records and notebooks, so that inventions conceived prior to a collaborative effort can be documented.

e. Conclusion: The patent statute creates a category of "secret prior art" that can defeat the patentability of an invention:

Section 102(f) and (g) create a body of "secret prior art" which can be used to deny the patentability of an invention achieved through collaborative efforts. Where there is no joint ownership or obligation to assign to a single entity at the time an a joint invention is made, the invention must be measured against past work by different inventive entities, whether or not the prior work is published.

II. Section 102(e)

Part I of this paper discusses situations where a collaborator's prior work is "secret", i.e., is not published or patented. However, consider the situation where A invents a novel device and files a patent application claiming that device; A is a faculty member at Alpha University and is obligated to assign inventions to Alpha U. A then begins collaborating with B, and together they invent an improved device that is destined to become the commercial product. A and B, as true joint inventors, now file a patent application claiming the improved device.

Assuming that A and B each had a duty to assign to Alpha University at the time they began collaborating, prior art defined only by §102(f) or (g) cannot be used to defeat the patentability of their improved device. But 102(f) and (g) pertain only to "secret" prior art. In the present situation, when A's initial patent application issues as a patent; the "A patent" is now prior art against the improved invention of A+B due to section 102(e), which states that:

A person shall be entitled to a patent unless -- . . .

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by applicant for patent . . .

The issued patent of A is considered to be "by another", since the inventive entity of A differs from the inventive entity of A+B. Thus the patent of A can be used as prior art in an obviousness rejection of the improved invention of A+B, even where A and B were obligated to assign to the same institution at the time their collaboration began.⁷ The exclusion of §103(c) applies only to the "secret prior art" created by §102(f) and (g); it does not extend to issued patents and §102(e) prior art.

Thus, a commonly owned invention which is patented can be cited as prior art against a later invention by a distinct inventive entity, even though the two inventions are commonly owned and even though §103(c) precludes the use of the earlier work as prior art under §§102(f) or (g).

Section 102(e) thus creates a prior art trap when a first patent application has been filed (and issues as a patent⁸), and later collaborative work leads to an improved invention. Unless the improved invention is non-obvious over the initial invention as claimed in the first patent, the improved invention will be found non-patentable due to the availability of the

issued patent as §102(e) art. In such cases, the Patent Office suggests that the initial patent application be abandoned and a second patent application be filed which includes both the initial work and the collaborative work.⁹

Several patent law organizations have proposed that section 103(c) should be amended to include §102(e) as well as (f) and (g). If such a revision occurs, §102(e) would not operate where collaborators were under a common duty to assign at the time an invention was made.

III. Simultaneous but Independent Invention is not Collaboration

Frequently two inventive entities, working in isolation, will arrive at the same invention at approximately the same time. Such 'simultaneous' -- but independent -- invention must be distinguished from true collaborative work, where individuals share ideas and work toward a common goal.

In the United States, the first person to conceive of an invention is the inventor, and is entitled to patent that invention. Even though two inventors may conceive of the same invention at roughly the same time, they are not joint inventors and cannot properly apply for a patent jointly.

IV. Derivation is not Collaboration

A further issue in collaborative research is derivation. When a researcher's invention is derived from another's work, that invention is not patentable. At its worst, derivation is the intentional misappropriation of another's work; more commonly it results from a lack of good record-keeping and selective hindsight.

When A conceives of an invention and communicates it to B, even though B reduces the invention to practice, A is the true inventor. Even where A was not absolutely sure the invention would work without reducing it to practice, A is the inventor over B. Derivation must be distinguished from the situation where two inventors, working independently, conceived of the same invention but did not communicate with each other.

As an example, consider inventor A who determines that a certain class of compounds would be useful as anti-tumor agents. Inventor A communicates this idea to B, who screens various members of the class and establishes their anti-tumor activity. B could not rightfully file a patent application claiming these compounds as anti-tumor agents, as it was A who initially conceived of the invention and communicated it to B.

In assessing derivation, the question is whether the second entity contributed to or refined the original idea such that a new invention occurred. In such situations, a pre-existing agreement regarding the assignment of any collaborative inventions can prevent costly disputes regarding ownership.

Good record-keeping is important in any situation where derivation is alleged. Derivation must be shown by "clear and convincing" standards¹⁰; one cannot rely on mere uncorroborated testimony. The conception of the invention must be documented and the communication of the invention to the person accused of derivation must be shown.

APPENDIX

35 USC §102: Conditions for patentability; novelty and loss of right to patent

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or

(c) he has abandoned the invention, or

(d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States, or

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent, or

(f) he did not himself invent the subject matter sought to be patented, or

(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

35 USC §103 Conditions for patentability; nonobvious subject matter

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made. ...

(c) Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Footnotes:

1 The views herein are those of the author, and are not to be attributed to the author's firm or any client thereof. The discussion herein is for educational purposes only, and should not be substituted for the advice of counsel in a specific fact situation. §Copyright Virginia C. Bennett, 1997.

2 35 USC §102.

3 35 USC §103.

4 See, e.g., *In re Bass, Jenkins and Horvat* 177 USPQ 178, 185 (CCPA 1973)("As a general proposition of law, and particularly considering the way in which full anticipation situations under §102 shade into obviousness rejections under §103 because of discernable differences, we cannot sanction an interpretation of the statute under which a

prior invention is 'prior art' under the former situation but not under the latter.")

5 Section 103 states that the duty to assign to a single entity must be in place "at the time the invention was made". Realistically, the duty to assign to the same entity should be in place at the time collaborative work begins or as soon thereafter as possible, to avoid the necessity of trying to determine the exact date that "the invention was made".

6 The following form paragraph is commonly used by U.S. Patent Examiners to point out this duty: "This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. §103, the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. section 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to consider the applicability of potential 35 USC §102(f) or (g) prior art under 35 USC §103." 37 CFR §1.56 states that "(e)ach individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section."

7 See, e.g., *In re Bartfeld*, 925 F.2d 1450, 17 USPQ 2d 1885 (Fed.Cir. 1991); *Ex parte DesOrmeaux*, 25 USPQ2d 2040, 2044 (Fed. Cir. 1992).

8 A patent cited as §102(e) prior art is effective as of its filing date. Thus, even where a second patent application is filed prior to the issuance of a patent on a first-filed application, the later issued patent is effective §102(e) art as of the filing date of its patent application.

9 See the Manual of Patent Examining Procedure §706.02(k), Example 2. Such a continuation application must be filed prior to the issuance of any patent on the first application, and prior to any publication relating to the initial invention (since a publication becomes prior art distinct from the patent application due to §102(a) or (b)). Additionally, the term of any patent which issues on the continuation application will be measured from the filing date of the parent application; filing a continuation application can thus reduce the potential term of claims to an invention contained in the parent application.

10 "Since conception is an act of the mind . . . the temptation for even honest witnesses to reconstruct, in a manner favorable to their own position, what their state of mind may have been years earlier, is simply too great to permit a lower standard." *Amax Fly Ash Corporation v. United States* 182 USPQ 210, 215 (Ct. Cl. 1974).

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