
Reengineering the Inventor Interview

D.C. Toedt¹

INTRODUCTION

“Painful.” “Tedious.” “Frustrating.” These are the most common responses received in a highly unscientific survey, in which some of my colleagues and I asked a number of inventors to describe, in one word, their past experiences in the process of preparing a patent application. This paper describes some simple changes to that process that have significantly reduced the time and expense required to prepare most applications and which have received almost uniformly favorable reviews from inventors and in-house counsel.

During more than two years of experimentation, we tried a wide variety of interview techniques.² We tape-recorded entire interviews and had them transcribed. We had inventors tell us the story of the invention as though it were being presented at a conference, or being described in a children’s science book. We even tried having inventors collaborate in writing a draft specification with us during the interview. None of these approaches proved entirely satisfactory.

Almost by accident, we stumbled onto a very effective technique: *Ask the inventor to help draft actual patent claims to a saleable product or service, plus explanatory “footnotes,” during the inventor interview.* We found that by drafting an organized set of claims with the inventor, a patent-attorney team can quickly record nearly all the information needed directly in the claims themselves—in such a way that the specification practically writes itself.

BACKGROUND: DISORGANIZED ATTORNEY NOTETAKING

Many painful aspects of the conventional patent application process are well known. From the client’s point of view, it often is an

¹ D. C. Toedt is a shareholder and chairman of the patent prosecution practice committee at Arnold, White & Durkee. The author acknowledges with appreciation the numerous contributions of Coe F. Miles, Ph.D., a patent agent at AW&D and second-year law student, in the development of the techniques described in this paper. Any views expressed are the present views of the author and not necessarily those of his firm or any of its clients. Copyright © 1995 D. C. Toedt.

² Cf. generally JAMES C. COLLINS AND JERRY I. PORRAS, BUILT TO LAST ch. 7 (1994) (arguing that an effective way of stimulating progress in a company is to “try a lot of stuff and keep what works”).

expensive process. Patent attorneys frequently take a long time to complete a first draft. Inventors dislike being interrupted by the need to review and edit the draft.

We found that a major problem with the conventional process is the disorganized way in which patent attorneys normally conduct—and take notes during—inventor interviews. Traditionally, the attorney asks the inventor to describe the invention. Often the attorney and inventor have different ideas about what constitutes an “invention.” Frequently, the inventor feels compelled to teach the attorney the history of the science so that the attorney will properly appreciate the context and merits of the invention.

The attorney scribbles notes on a legal pad—a phrase here, a word there—trying to keep up with the inventor. His notes may capture basic ideas, but seldom in complete, useable sentences. Necessarily, the organization of the notes is no better than that of the inventor’s discussion itself.

Ironically, most of what needs to be said in a patent application is probably spoken aloud by the inventor during the interview. The inventor often makes a reasonably complete oral disclosure, in complete (albeit often random) sentences, using words and phrases with which she is both familiar and comfortable. Much of her oral disclosure is frequently lost because it is not recorded in a usable form.

THE TERM-PAPER SYNDROME

When the attorney sits down to draft the application, his hasty notes are not as much help as he had hoped. As a result, he tends to be just a little unsure of what he is writing. The attorney reverts to prior training as a way of coping with that uncertainty. “Show all work” is a maxim known to all science, engineering, and law students. So, the attorney unconsciously begins drafting a term paper, beginning by explaining first principles and working forward methodically.

It may take a while for the attorney even to start drafting. Other projects make demands on his time. He may procrastinate, in part because of a nagging fear that understanding an invention may not be the same as being able to describe it adequately.

The temptation is to telephone the inventor to ask her for more information, then to put the patent application aside until she complies. The ball is now in her court, after all, and there are so many other things the attorney has to do this week. (Meanwhile the inventor, having moved on to other projects, is less than thrilled to have her work in-

errupted by the attorney.) It can end up being weeks or even months before a first draft is finished. Even then, the inventor probably dislikes having to review and edit the resulting “term paper.”

RECONSIDERING THE GOAL—CREATION OF A LITIGATION DOCUMENT

The term-paper syndrome can work against the ultimate purpose of the patent: to serve as a litigation document. In a real sense, litigability is what matters in a patent; everything else is secondary. A litigatable patent can be readily licensed if desired. At the other end of the spectrum, an unlitigatable patent may be essentially worthless. Worse yet, it may represent a negative asset considering the inventor time, patent office fees, and the costs of prosecution required to obtain the patent. In between these extremes, a patent containing ambiguities and inconsistent language can be expensive and problematic to litigate and thus to license.

A litigatable patent requires a solid make-and-use description for the specification, of course.³ It should have enough information to withstand a challenge on grounds of lack of a written description, lack of enablement, or failure to disclose the best mode. To reduce the chance of a successful design-around by a competitor, it should describe as many alternative embodiments as practicable. It should explain, in terms understandable by a jury, why the invention is worthy of note. It should contain drawings⁴—more is better, for possible use as trial exhibits.

Above all, a litigatable patent includes well-thought-out *claims*⁵ directed at the things others are likely to make, use, or sell. Unfortunately, sometimes the inventor focuses her review on the specification and drawings and does not give the claims prolonged or intense scrutiny. It is true that what is actually claimed in an application may change during prosecution.⁶ Still, it is still highly desirable that the inventor have a clear understanding and appreciation of the claim language used to describe the invention. Without such an understanding, it is easy to imagine her being cross-examined by an accused infringer’s attorney, along something like the following lines:

³ 35 U.S.C. § 112, ¶ 1 (1975).

⁴ 37 C.F.R. §§ 1.81, 1.83 (July 1, 1994).

⁵ 35 U.S.C. § 112, ¶ 2–5 (1975).

⁶ For example, in response to an Office Action from the examiner, the inventor’s agent/attorney may amend claims. Further, the examiner may draft and enter a claim by way of an examiner’s amendment as allowed by the Manual of Patent Examining Procedure. See *M.P.E.P.* § 1302.04 (6th Ed., January 1995) (“Examiner’s Amendments and Changes”).

- Q: Dr. Jones, what does the term “a widget connected to a gadget” mean here in claim 5?
- A. I don’t know; the attorney wrote that language; I never did really understand it.

Not a happy prospect for the patent owner.

CLAIM DRAFTING WITH THE INVENTOR: A STEP-BY-STEP APPROACH

During one interview of a software development team, a colleague and I tried drafting claims with the inventors before moving on to a detailed disclosure of the technology. We liked the organized way in which the interview subsequently progressed. We initially thought that the claims-first technique probably would work only for software or other method-oriented technologies. In subsequent inventor disclosure interviews, however, we kept remembering how well things seemed to work when we drafted claims with the inventor before getting into an invention’s technical details.

We finally hit on a particular combination of claim-drafting techniques, described below, that we have since used successfully for drafting patent applications in several technologies. We found that our approach could be described in six steps:

1. *Identify a Saleable Product or Service*

Because of focused discussion is vital to an effective interview, we found it extremely helpful to start by identifying a product or service that is made possible (or improved) by the invention *and that someone might be willing to pay for*. This focus provides a standard point of reference for claims drafting. Starting out this way is one of the most important aspects of our approach because it organizes the interview.

As a hypothetical example, consider a team of inventors at a university biotechnology lab. They are excited about their discovery of a way of inhibiting the activity of the famous Doo-Hickey enzyme in the human body. A good way to start an interview with these inventors would be to ask them what it is about the invention that people might be willing to pay for. They respond that one commercial utility of their discovery (not necessarily the only one) is that it can be used to make an anti-allergy medicine that will give relief for 24 hours.

Example 1: Identifying a <i>Saleable Product or Service</i>	
<i>Inventors</i> : “We figured out a really neat way of inhibiting the activity of the Doo-Hickey enzyme in the human body.”	<i>Commercial utility</i> : “An anti-hay-fever medicine that gives relief for 24 hours.”

This focus on commercial utility provides a reference point for the claim drafting to follow.

2. Draft a Make-and-Use Method Claim

The next step is to make a list, in general terms, of *how to make and use the saleable product*, or how to render the saleable service. It is convenient to draft the list in the form of a big-picture method claim as shown in Example 2.⁷

Example 2: Drafting a Make-and-Use Method Claim	
110. A method of relieving hay fever for an extended period of time, comprising: (a) manufacturing an anti-allergy medicine; (b) manufacturing a special spray bottle; (c) bottling the medicine; (d) computing the required dosage; and (e) spraying the medicine into the nostrils.	<i>The limitations of the big-picture method claim describe a high-level “business plan” for making and using a saleable product.</i>

Example 2 above illustrates a sample make-and-use method claim. It is very simple and addresses high-level concepts only. *But*—it organizes essentially all of the topics to be addressed in the specification.⁸ (The unusual numbering of the claims is discussed below.)

3. Spin Off Dependent Claims for Broader Coverage

The make-and-use claim can be put to use immediately to ensure that the claim language is as broad as possible.

For example, suppose that in response to the patent attorney’s questioning, the inventor notes that the make-and-use method can be

⁷ In a sense, the list/method claim actually *is* a business plan. Calling it a business plan, however, is likely to make some inventors uncomfortable; they are engineers or scientists, after all, and business planning is someone else’s job.

⁸ 35 U.S.C. § 112 (1975).

used to relieve not just hay fever, but nasal congestion from a variety of causes. The patent attorney can change the claim language on the spot, moving the concept of hay fever from the independent make-and-use claim into a dependent claim. (In fact, entire subparagraphs might be moved into one or more dependent claims.) Thus, the attorney gets prompt, real-time feedback from the inventor, and the claim is usefully broadened as a result. This is illustrated in Example 3 below:

Example 3: On-the-Spot Claim Broadening	
<p>110. A method of relieving [hay fever] <u>nasal congestion</u> for an extended period of time, comprising: (a) manufacturing [an anti-allergy medicine] <u>a decongestant compound</u>; <i>(etc., etc.)</i></p>	<p><i>Claim language is broadened in the independent claim.</i></p>
<p>115. The method of claim 110, wherein said nasal congestion is a result of hay fever.</p>	<p><i>A dependent claim is used for claim differentiation.</i></p>

4. More Details Needed? Draft More Dependent Claims

Once the big picture make-and-use claim has been generated, the patent attorney can systematically step the inventors through each subparagraph, asking three questions about each subparagraph to determine whether additional details are needed:

1. *Sufficient for Enablement?*⁹ As written, is the claim language of the subparagraph in question sufficiently enabling to a person of ordinary skill on the topic(s) that it covers? If not, then more details can be discussed as described below.
2. *Sufficient Description of Best Mode?*¹⁰ Does the claim language in the subparagraph disclose everything the inventors think is even modestly clever on its topic, i.e., possible best-mode points? One approach to eliciting this type of information is to ask the inventor if there anything about this subparagraph that she is proud of but is not described in the specific claim language. If the claim language itself does not

⁹ 35 U.S.C. § 112, ¶ 1 (1975).

¹⁰ *Id.*

set out the best-mode points, then those points can be explained in more detail as described below.

3. *Sufficiently Generic?* Is the claim language sufficiently generic to describe the various alternatives on that topic? This type of information can frequently be elicited by asking the inventor to place herself into the competitors' shoes, asking if there is anything they would do to "design around" the claim language.

As to any particular subparagraph, if the answers to the three questions above indicate that no additional disclosure is needed, then the patent attorney and inventor can concentrate on other details.

On the other hand, if additional details *are* needed, then the patent attorney and inventor can draft one or more "wherein"-type dependent claims—or "footnotes," or both—to record additional details about the subparagraph in question. This is shown in Example 4 below.

Example 4: Organizing Additional Details	
<p>120. <i>[Composition details]</i> The method of claim 110, wherein said decongestant compound comprises a mixture of powdered unicorn horn and ground pepper.</p> <p>122. The method of claim 120, wherein the ground pepper is cayenne pepper. [1]</p> <p>125. <i>[More composition details]</i> The method of claim 120, wherein the unicorn horn and ground pepper are in proportion to one another in a ratio of about 1:3. [2]</p>	<p style="text-align: center;"><u>Footnotes</u></p> <p>[1] Cayenne pepper is preferred, but black pepper has also been found to work satisfactorily. [INVENTOR TO PROVIDE ANY OTHER EXAMPLES KNOWN TO WORK]</p> <p>[2] Proportions from 1:2 to 1:4 have been found to work satisfactorily. It is believed that any proportion from 1:1 to 1:5 will work.</p>

Almost any additional detail can be recorded in dependent claims and footnotes in this way. The footnotes may include "place holder" reminders for later follow-up, as in footnote 1. (Observe the use of a prophetic example in footnote 2, expressly labeled as such to help avoid later allegations of misrepresentation to the Patent Office.)

Additional details can be recorded in this way, describing method steps, apparatus, components, chemical compounds, etc., until a complete set of enabling, best-mode claims and footnotes are obtained. The result of this process is a “tree” of claims, to use a computer science term. The important features of the invention are thereby described in a very structured, organized fashion.

5. *Stitch Together a Make-and-Use Picture Claim*

The recorded details are then combined into a “picture claim” directed to a method of making and using the invention. The independent make-and-use claim serves as a foundation for the picture claim; as many details of the dependent claims are stitched into the picture claim as possible. An example of such a picture claim is shown in Example 5. Perhaps the picture claim will actually be filed, or perhaps not. Regardless, it provides a blueprint for the specification’s detailed description of specific embodiments—typically the heart of the application’s technical disclosure.

Example 5: Putting It All Together in a Picture Claim	
<p>100. A method of relieving nasal congestion for an extended period of time, comprising:</p> <p>(a) formulating a decongestant compound comprising a mixture of powdered unicorn horn and ground pepper [1] in a ratio of about 1:3 [2];</p> <p>(b) said formulating comprising (i) mixing the unicorn horn and ground pepper in wine vinegar, (ii) evaporating the wine vinegar, <i>(etc..)</i>;</p> <p>(c) manufacturing a special spray bottle; <i>(etc., etc.)</i></p>	<p><u>Footnotes</u></p> <p>[1] Cayenne pepper is preferred, but black pepper has also been found to work satisfactorily. [INVENTOR TO PROVIDE ANY OTHER EXAMPLES KNOWN TO WORK]</p> <p>[2] Proportions from 1:2 to 1:4 have been found to work satisfactorily. It is believed that any proportion from 1:1 to 1:5 will work.</p>

6. *Describe the Advantages of the Invention*

Finally, the patent attorney and inventor can collaborate in drafting a brief description of the advantages of the invention—*why* someone might buy the product or service described in the newly-drafted claims.

This information is intended to server as a literary “sound bite” of what the inventors consider novel and beneficial about their invention. We typically include this information under a separate heading within the application. (It is useful, however, to state explicitly that the list of benefits is not necessarily exhaustive.)

POINTERS ON CLAIM-DRAFTING MECHANICS

Put the Picture Claim First? If the picture claim drafted during the inventor interview is actually filed, it may be helpful to put it first, as claim 1.¹¹ Suppose, for example, that the examiner looks at the pictures and goes straight to the claims. If the first claim is a picture claim, it can assist the examiner in determining the proper field of search for the application. It can also set the stage for the broad claim that immediately follows it. The idea of putting the picture claim first came from a client’s in-house patent attorney, who said he thought it was originally Tom Arnold’s idea.

Claim Numbering. In the examples above, the claims are numbered 110, 115, etc., with the picture claim being numbered 100. We have found that labeling a first independent claim with reference numeral 100, followed by dependent claims with reference numerals 105, 110, etc., is a very useful device to group claims for discussion with the inventors. The numeric spacing between claims also allows the attorney to insert claims during rework that were not originally included.

Additional claim families can be organized in a similar fashion; a second independent claim would be numbered 200, dependent claims would then be numbered 205, 210, etc. Claim numbering in this way makes it very easy for the attorney and inventors to discuss different independent/dependent claim groups which, presumably, are directed to patentably distinct embodiments of the invention.

Presumably, all claims will be renumbered in conventional fashion (1, 2, 3, etc.) prior to filing of the application. Conceptually, however, there is no apparent reason why the numbering could not be left alone if the PTO (and foreign patent offices) would permit it.

Use a Computer During the Interview. The attorney will almost certainly want to use a computer to capture data during the inventor interview. In the past we have tried drafting claims on a whiteboard and then reading them into a dictaphone, but it is not as effective as typing the claims into a word processor. With the attorneys and the

¹¹ *But see* proposed new rule 37 C.F.R. § 1.75(g), in 50 P.T.C.J. 462 (August 17, 1995), which suggests that the least restrictive claim should be numbered as claim 1.

inventor looking at the same screen, any necessary corrections can be made on the spot. (If the attorneys do not type, a secretary can be brought in to assist. A secretary will be needed eventually if the attorneys do not type, so it might as well be when he or she can do the most good.)

Complete Sentences in Notetaking. It is very helpful for the attorney/agent to discipline himself to type out reasonably complete sentences. Cryptic note-taking causes problems. The attorney might as well get the complete thought down on paper. We have found that inventors are very willing to spend the few extra seconds needed to do so, because that gives them a chance to do real-time editing to get the wording right.

Electronic Conferencing. We have found it most beneficial to work with the inventor in person during the first one or two applications done in this manner. We have also found, however, that inventors catch on to our approach very quickly. As a result, we now conduct many of our inventor interviews by setting up, simultaneously, a phone connection and a computer connection between the attorneys and the inventors. In that way, all concerned can watch the same virtual computer screen. We have used Intel's PROSHARE™ software quite successfully for establishing the required computer connection. PROSHARE's application-sharing and electronic-whiteboard features make it easy to draft claims and footnotes and to sketch drawings in real time.

Inventor Interviews for Multiple Inventions. If a client wants to file several applications involving a number of different inventors, our basic process can be used to organize and streamline obtaining disclosures. We typically visit the client's site, setting up shop in a conference room and plugging a notebook computer into a borrowed monitor. (We have also used a LCD computer-screen projector that plugs into the monitor port on the notebook computer and fits onto an overhead projector.) That way, both the inventors and attorneys get to look at the same screen, collaborating in real-time to draft an organized set of claims.

Two-Person Team. We strongly prefer to practice our process with a two-person patent attorney team. The second chair is typically a junior attorney or science advisor. He or she does the bulk of the actual work. The first chair (i.e., the senior person) should be an attorney with both patent *drafting* and patent *litigation* experience. We use the term "first chair" advisedly. He or she acts primarily as a coach, keeping the

client's big picture in mind, and ideally anticipates possible litigation/licensing problems to help keep them from coming up.

DRAFTING THE APPLICATION

The payoff comes after the inventor interview is over. When the attorney sits down to draft the actual patent application, the claims are well along the way, with language that the inventor has already "signed off on." The attorney can easily extract independent claims of varying scope to cover apparatus, processes, data structures, and the like from the claims drafted during the interview. Similarly, the attorney can easily draft a make-and-use description by making a copy of the picture claim and the associated footnotes, then editing them into conventional prose.

ADVANTAGES

We have found that a number of benefits arise from conducting inventor interviews in this way:

- *Reduced Expense.* The use of our approach significantly reduces the cost of preparing a patent application. A good set of claims and footnotes, prepared in collaboration with the inventor, can be rapidly edited into a draft specification. The draft normally needs comparatively little editing by the inventor—because she helped in the drafting process in the first place.

- *High Quality.* Quality is difficult to measure objectively, but our sense is that our approach produces high-quality patent applications because of the close collaboration with inventors in writing the key pieces of the applications.

- *Training Vehicle.* As much as anything, our experimentation was directed to developing a teachable approach to patent application preparation that would help younger patent attorneys come up to speed quickly. We found that our organized, team-oriented approach has proved to be a much more effective training vehicle than simply shuttling a marked up draft patent application between an inexperienced attorney or agent and the supervising attorney. It has also proved to be a more enjoyable experience for the attorneys as well.

APPLICABLE FIELDS OF ART

We have trained a number of AW&D attorneys in the use of the approach described above. (We have also conducted seminars for in-house counsel at several client patent departments, and have been told

that a number of in-house patent attorneys have adopted our approach.) We have used the approach extensively in the electrical and software areas. We can attest that it works quite well in those technologies. It seems to work equally well in the mechanical and chemical arts, but our experience in those technologies is more limited. We see no reason why the approach should not work for biotech inventions as well.

Our approach may not be the preferred one for every situation. The inventor may be extremely busy and the patent attorney already very familiar with the technology. In that case, the best use of the inventor's time may be to use the traditional approach—i.e., the attorney drafts the patent application independently after a quick disclosure conference with the inventor.

In many situations, however, using the traditional approach in this way will actually take up more of the inventor's time overall. Patent attorneys do not always have the luxury of a deep background in the technology of the invention. The time saved by the inventor in doing a "quickie" disclosure conference may be more than offset by the time needed later to correct the attorney's draft. In contrast, our systematic approach seems to work well even when the patent attorney is not an expert in the technology, while still reducing the inventor's overall time commitment and giving the inventor more control over the final product.

CONCLUSION

We are experimenting with giving inventors step-by-step instructions for creating their own detailed written descriptions of the invention. That seems to hold promise for reducing the time needed to get basic information down on paper. We are also investigating whether a computer program can be written to guide inventors through that process. We are hopeful that even more savings can be achieved in the time and expense required to get a patent application on file.