HOW MUCH DO I REALLY NEED TO PUT IN MY INVENTION DISCLOSURE?

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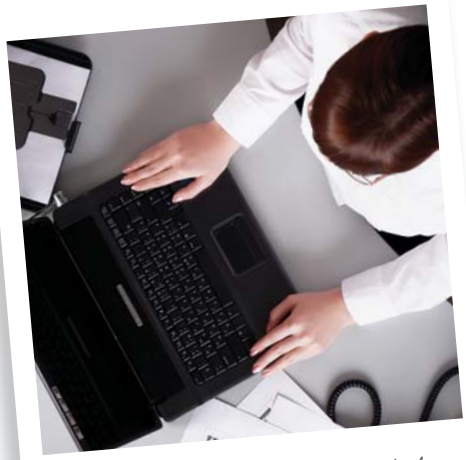
A patent application must describe an invention with an appropriate level of detail. Most inventors understand this. Most inventors also recognize the need to prepare an invention disclosure or similar document. In particular, disclosure documents may help management decide which inventions are worth patenting. A disclosure document can also help a patent attorney prepare a patent application.

It is sometimes difficult to know how much information to include in a disclosure document. Inventors tend to be busy people who would rather create more innovations than spend time on patent disclosure paperwork. Putting too little effort into a disclosure, however, can be a mistake. Although a patent attorney will seek additional information if an initial write-up is lacking, a good disclosure helps an attorney understand the invention at an early stage. This can help the attorney quickly indentify what further details are needed, reduce the time needed for inventor interviews and meetings, and generally streamline the patent application process.

Because a disclosure is used as a starting point to prepare a patent application, it is helpful to consider how much information a patent specification or drawings must include. Unfortunately, there is no simple formula for how much detail is needed. What might be enough for invention A may not be enough for invention B. Nonetheless, there are general principles all inventors should consider.

In the US, the specification of a patent application must "contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention."[1] Thus, a specification must (1) have a "written description" of the invention, (2) "enable" others to replicate the invention, and (3) identify the "best mode" of carrying out the invention. The "invention" here refers to the invention as it is ultimately defined by the claims. Claims can be changed after a patent application is filed with the United States Patent and Trademark Office, but the filed specification and drawings cannot be substantively modified. The filed specification and drawings must therefore have sufficient technical detail to support whatever range of claims might ultimately be desired.



Written description needed

"Written description" is patent-speak for a requirement that a patent specification and drawings show an inventor "has possession" of the invention.[2] One way to think of this is that a specification must be written so that a specific type of reader will understand the full scope of what the inventor has invented. That specific type of reader—a "person of ordinary skill in the art"—is discussed below.

It may seem simple to provide an adequate "written description," but problems frequently arise. Typically, written description problems result from claims added or amended MORE▸

1. 35 U.S.C. § 112, first paragraph.
2. *See* Ariad Pharmaceuticals, Inc. v. Eli Lilly and Company, 598 F.3d 1336, 1351 (Fed. Cir. 2010).

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during prosecution. For example, a specification may explicitly describe a version of an invention having feature $F_{specific}$, with $F_{specific}$ being a specific chemical, a specific mechanical component, a specific chemical processing step, a specific computational algorithm, or some other specific feature that can be used in a specific implementation of the invention. $F_{specific}$ may be a member of a larger group of chemicals, mechanical components, processing steps, etc. Other members of that group may be slightly different from $F_{specific}$, but those other group members may be sufficiently similar to $F_{specific}$ so as to work in other implementations of the invention. For simplicity, this larger group that includes $F_{specific}$ can be called "$F_{generic}$." A claim might later be added for a version of the invention that permits use of any $F_{generic}$ member. If the specification only refers to $F_{specific}$ and does not otherwise indicate that the inventor considered the invention to include other members of $F_{generic}$, there may be insufficient written description for the newly-added claim.

Although drafting a specification broadly to include "written description" for multiple implementations is the attorney's job, an inventor can help by identifying variations from the outset. For example, an inventor may develop an invention with very specific details and/or a very specific use in mind. When preparing an invention disclosure, the inventor could consider how the invention details could vary, other ways in which those variations could be used, etc. In many cases, an inventor may be able to identify variations on an invention by considering how competitors might adapt that invention to their own businesses or modify the invention in order to avoid a patent.

A patent's specification and/or drawings must also "enable" an invention. In particular, the specification (and/or the drawings) must be sufficiently detailed for a "person of ordinary skill in the art" to reproduce (i.e., "make and use") the invention. The required amount of enabling information thus depends on (i) how much skill is "ordinary" in the relevant field, and (ii) how much information that ordinarily-skilled person would need to recreate the invention.

An "ordinary skill" level can often be estimated by considering others in the same field developing similar inventions. The ordinary skill level can vary widely in different fields. Some simple mechanical devices might be designed by persons who have no formal education and who only have a modest amount of work experience in the relevant field. More complex devices, systems or process might be developed by persons who have a bachelors degree in engineering or science, but who may not have any significant work experience. Some complex devices or processes might be developed by persons with advanced graduate degrees and numerous years of work experience. These are only a few examples.

For purposes of drafting a patent application, and thus for purposes of preparing a disclosure document, it is often better to *under*estimate the ordinary skill level. Conversely, it is usually best to *over*estimate how much information that ordinarily-skilled person will need. If some parts of the invention are well known (e.g., a standard mechanical or electrical device, a commercially-available compound, a standard physical processing technique, a well-known

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computational algorithm or data structure), simply identifying those parts by recognized terms may be enough. If any modification of a well-known part is needed, however, that modification should be thoroughly explained. No list would ever be complete, but the following are further examples of things to consider:

- Are there specific chemical compounds or other materials that are important?
- Are there specific sizes, dimensions, tolerances or other spatial relationships that are important?
- Are there any circuit details or inputs that are important?
- Are there any physical processing parameters (e.g., time, temperature, pressure, etc.) that are important?
- Are there specific computational steps, algorithms or data formats that are important?
- If there are working examples or prototypes, have the details of those examples/ prototypes been provided?

Not all of the above considerations will apply to every type of invention. On a more general level, however, there are several additional questions that should always be asked about the invention details provided. First, how much experimentation must an ordinarily-skilled person conduct in order to recreate the invention based on the details provided? Some experimentation is acceptable (e.g., minor trial and error among a relatively small set of choices). A need for extensive experimentation (e.g., numerous variables) can indicate that the provided details are not enabling. Second, will the ordinarily-skilled person know how to select standard materials, techniques, etc. to fill any gaps in the provided details? Third, do the provided details give an ordinarily-skilled person a good "roadmap" of how to proceed? Fourth, how predictable is the technology in question? If the technology is very predictable (e.g., it is easy to know how certain variations will effect an outcome), fewer details may be needed. If the technology is unpredictable (e.g., if the effects of small changes are hard to know in advance), more details may be needed.

Finally, a patent must also describe the best mode of carrying out the invention. The "best mode" is the version of the invention that the inventor subjectively believes (as of the time the patent application is filed) to be the best implementation. In some cases, there may not be a best mode if the inventor is indifferent as to details of implementation. If any prototypes or examples have been created, however, or if a commercial embodiment has been created, it may be best to include such details. If a patent is later enforced and there are prototypes or other implementations that were not described in the patent, an accused infringer might try to argue that an omitted implementation was a "best mode."

CONCLUSION

A patent must describe an invention with an appropriate level of technical detail. Knowing the appropriate level of detail can be difficult. For this reason, it is generally better to err on the side of overinclusion. Even if an inventor has limited time, however, understanding the types of information needed to prepare a satisfactory disclosure document can help the inventor to better use that limited time. ■


Explaining modifications