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Better Drawings Make A Better Patent

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Patents should be prepared with extreme care. While descriptions should be clear and unambiguous, imagery is just as critical. As we will discuss, patent drawings are an integral part of the process and should be considered with the same care as the rest of the patent application.

Why do you need formal drawings?

Accurate, clear drawings both strengthen and enhance any patent application. Instead of reams of description, an invention can be easily explained through the drawings themselves. Patent examiners see hundreds of cases and are often overloaded. Accurate formal drawings will help the Patent and Trademark Office examiner understand your invention faster.

Whether you are pursuing an infringer or defending your patent, drawings can help educate a judge and make your case clear. Simple, clear and accurate images will often help you win the day. “When the jury goes to the jury room, where no attorney or judge will be speaking to them, they will take with them the patent”[1], having clear drawings could be a big factor in deciding a case. In many jurisdictions the jurors do not take trial exhibits to the jury room, however, they often will have a copy of the patent itself with the complete set of drawings. When deciding on what damages to pursue or if in settlement negotiations, a well defined patent will enable the owner to negotiate for the best result possible.

Litigation is, of course, the worst case scenario. It is more important to deter an infringer before he or she ever gets started. An early upfront investment in professionally prepared drawings may make an infringer think twice about copying an idea when the patent is clear and unambiguous. The earlier an infringer is deterred the better for the patent owner.

UTILITY PATENTS

Drawings or diagrams are usually created to correspond to the individual claims of the patent. A skilled draftsperson will produce a set of drawings that best portrays your claims and describes your invention. Specific views may be employed to illustrate a problem that the invention solves or a particular advantage or need it fulfills. They can convey a new function or present how an embodiment implements that function. Prior art can be used to shown contrast or differentiate the new invention from the old or if an invention consists of an improvement to an old invention the drawings can show the improved portion with enough of the old invention to show the connection.
A drawing of the invention in its environment can facilitate understanding and the arrangement of the drawings themselves can be done in such a way to help a reader better understand the invention.
A draftsperson can suggest a single view “for inclusion on the front page of the patent application publication”[2] that best portrays the invention.
A skilled draftsperson will prepare drawings in the correct scale ensuring that lines, numbers and letters are “sufficiently dense and dark and uniformly thick and well defined” enough to give them “satisfactory reproduction characteristics”[3].

Skilled draftspersons have and will use knowledge of tables, chemical or mathematical formulae, waveforms of electrical signals and symbols to create drawings.

Professional draftspersons have experience and ability to create plan or elevational views, perspective views, isometric projection, sectional views and exploded views.

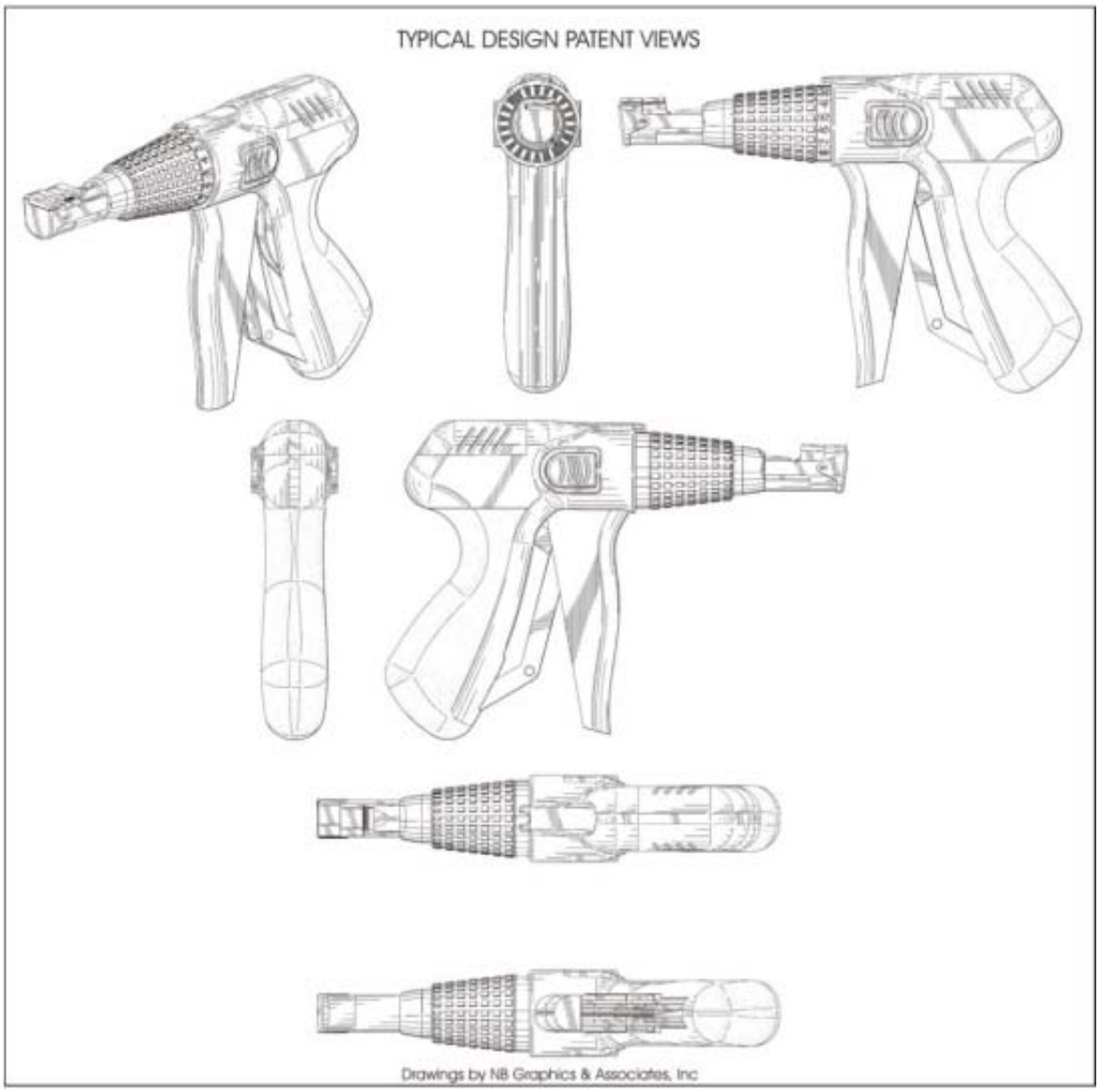
There are many creative methods a skilled draftsperson uses to create a fully functional set of drawings:

The more complex and less defined the case, the more valuable the draftsperson in making constructive suggestions to improve the drawings and presenting the invention clearly.
The drawings may be created before the patent application is actually written. Time can be saved by basing the detailed description on the sequence of the drawings.
Additionally professional drafting firms stay current with regulations for foreign filings and PTO drawing updates.

DESIGN PATENTS

“The drawing disclosure is the most important element of the application”[4].
The PTO states that the drawings in a design patent application “constitute the entire visual disclosure of the claim”. It is of utmost importance that the drawings are so well executed “that nothing regarding the design sought to be patented is left to conjecture”[5].
Additionally, all surfaces must be appropriately and adequately shaded- “Shading which shows clearly the character and contour of all surfaces of any three-dimensional aspect of the design”[6].

Accurate drawings are not only important for your application but for possible infringement issues later on. With design patents, infringement is typically based on the design patented and generally does not require proof of unfair competition.



The PTO is very specific in regard to the required views for design patent applications. Often photographs are filed and they may not depict the exact views.
Once inconsistent photographs or informal drawings are filed, you are generally not allowed to correct the inconsistencies unless you can do so without adding new matter. Nothing is allowed to be removed and nothing may be added when formalizing the figures. “An incomplete or poorly prepared drawing may result in a fatally defective disclosure which cannot become a patent”[7]

There’s a very good option to avoid all of these potential problems. You can have the photographs taken by a draftsperson. He or she will make sure that the photos are taken correctly. Taking the photographs to depict the exact views can be tricky in itself. For instance, the invention should stay in exactly the same position for all the photographs and the camera should move around the invention at the same height and distance from the invention. Also the photograph should show only the side of the invention that is relevant. Say for instance you are photographing a cube; for the side view, the photograph should be taken in a way that shows only the side and not the side and a bit of the top. This method should apply to all the views. Using his or her knowledge of perspective theory enables a draftsperson to correct the distortion inherent to photographs when it comes to tracing them into formal drawings.

Here’s what happens when you file informal drawings vs. formal drawings.
When informal drawings are filed, the images are converted to poor quality black and white, reduced images. Thisprocess causes the informal drawings to loose integrity, quality and detail. When the PTO invites you to provide formal drawings often the only existing reference material is the poor quality copy from the PTO. When poor reference material in which details are often blurred or illegible or barely legible is all a draftsperson is supplied to base formals on, drawings take longer and will result in more revisions. Multiple revisions, of course, increase time and cost for the drawings and the application itself.

In the case of design patents the PTO may allow the drawings to be fixed if they can be fixed without introducing new matter. However, if the informal drawings were inconsistent, there is often no way to correct them without introducing new matter. You may be in a proverbial “Catch 22” situation. Either the drawings will be rejected for being inconsistent or they will be rejected for adding new matter.

How does a draftsperson do that?

Generating the best drawings requires technical skill and creativity.

Since there is no license or college degree for patent drafting, you should rely on a firm's experience, body of work, professional references and their use of advanced technology as good indicators of a competent and skilled drafting firm.

Most are skilled in Computer Aided Design and Drafting (CAD) and have gained experience under the supervision of senior professionals. Drafting firms often employ several draftspersons. This can give the benefit of not only a broad skill set but a variety of perspectives and approaches as well.

The PTO provides "less than 8 pages of the patent rules for drawings (37 C.F.R. 1.81 to 1.84)"[8] so expertise must be learned through years of practice, for which there is no quick substitute.

Computer vs. hand drawn figures

Although we use the latest techniques and computer technology, there is nothing wrong with traditional hand drawn figures. It is not the quality of the equipment but the quality of the person that is important.

We feel the most cost effective process is to make drawings from engineering CAD files. By using existing CAD files a draftsperson does not need to recreate the drawings from scratch. If an item has already been manufactured or a prototype built, chances are there are existing CAD files, used in all modern manufacturing processes. However if engineering CAD files are not available, creating drawings in CAD has advantages; the electronic data can be archived to simplify amending drawings in the future. Drawings can even be modified to create new drawings, and duplicate elements in a drawing can be copied and reused instead of redrawing each one manually.

Conclusion:

Good drawings make for good applications and for good defenses when necessary. A competent drafting firm will have experience and skills that help you not only during the patent process but over the life of the invention. Investigate your firm thoroughly. A good firm will have experienced staff and a proven track record. They will be happy to provide you with both professional references as well as examples of their work (from patents that are already issued and now public record).

ENDNOTES

1. Article *Invention-Aimed Patent Drawings for More Lucid Comprehension* by Gregory T. Kovounas of IMPINJ, Inc, and Carl K. Turk of Merchant & Gould, PC, available in, Intellectual Property Today, Issue: November 2006.

2. *Manual of Patent Examining Procedure* - Chapter 600 Parts, Form, and Content of Application. 608.02 Drawing (R-7) V. Drawing Standards 37 CFR 1.84. Standards for drawings (j) Front page view

3. *Manual of Patent Examining Procedure* - Chapter 600 Parts, Form, and Content of Application. 608.02 Drawing (R-7) V. Drawing Standards 37 CFR 1.84. Standards for drawings (l) Character of lines, numbers, and letters

4. United States Patent and Trademark Office – A guide to filing a Design Patent application – (3) Drawings or Black and White Photographs.

5. United States Patent and Trademark Office – A guide to filing a Design Patent application – (4) Drawings or Black and White Photographs.

6. United States Patent and Trademark Office – A guide to filing a Design Patent application, (5) Surface Shading and Drafting Symbols, Surface Shading Blog- Patent Drawing Requirements – Surface Shading, entry on Wednesday October 7, 2009 http://patent-drawings.blogspot.com/

7. United States Patent and Trademark Office – A guide to filing a Design Patent application – (10) The Design Patent Application Process.

8. Article *Invention-Aimed Patent Drawings for More Lucid Comprehension* by Gregory T. Kovounas of IMPINJ, Inc, and Carl K. Turk of Merchant & Gould, PC, available in, Intellectual Property Today, Issue: November 2006