

# The Limited Monopoly™

## Patent Drawings - Knowing the Standards

by Robert Gunderman, PE and John Hammond, PE

### The Requirements

United States patent law<sup>1</sup> states that “the applicant shall furnish a drawing where necessary for the understanding of the subject matter to be patented.” This does not say that a drawing is required, but usually (not always) a good set of drawings is essential for a complete disclosure and hopefully a strong patent. Conversely, a patent application without drawings may suffer rejections during prosecution that are insurmountable. There are exceptions of course; for example, some chemical cases do not need drawings to be fully understood. An Examiner in the USPTO can even require drawings upon review of a drawingless application. However, if the drawings that are then submitted after the filing date contain new matter not disclosed in the specification, the drawings will be objected to, and may ultimately be denied entry into the application. Knowing a few details about patent drawing standards will help in preparing a good disclosure and a resulting complete patent application.

This article presents some of the basics of patent drawings, but is intended to be a brief overview only. The standards for patent drawings are stringent, and can be found in the Manual of Patent Examining Procedure, section 608.02.

### United States Utility Standards

There are two acceptable categories for presenting drawings in both utility and design patent applications in the U.S.: black and white line drawings and color drawings. Color drawings are not *de facto* accepted as a matter of right. A petition (with a related fee) must be submitted by the Applicant explaining why the color drawings are necessary for understanding of the invention.

The petition may be approved or denied after review. In addition, there are very specific ways in which color drawings must be filed including, for example, the submission of three sets of the color

drawings in hard copy. Black and white line drawings, when done properly, are always accepted.

Photographs are not ordinarily permitted in utility and design patent applications, but if photographs are the only practicable medium for illustrating the invention, they may be accepted. However, if the subject matter could also be described by way of a black and white line drawing, the Examiner will require that the photograph be replaced with a line drawing. It is more rare that color photographs are permitted. The requirements for both color drawings and photographs must be met in order for color photographs to be permissible.

Drawings may be submitted on 8 ½ x 11 inch or size A4 paper, or in the equivalent pdf format in electronic form. There must also be margins of 1 inch top, 1 inch left side, 5/8 inch right side, and 3/8 inch bottom. Views of the invention must be clearly depicted and grouped in a logical way. Exploded and partial views can be provided with very specific formatting. For example, a cross sectional view must be depicted with a broken cut line and designated with Arabic or Roman numerals corresponding to the view. Cross hatching must also be used to depict the cut areas. Shading can be used if it aids in understanding the invention and does not reduce legibility.

Text in a patent drawing should be avoided, with the exception of flowcharts and diagrams that necessitate text. The various parts of the invention depicted in the drawings should not be labeled with text, but rather, reference characters (preferably numbers) that use lead lines between the

reference character and the details referred to. Lead lines can be straight or curved, and should be as short as possible and not cross other lead lines or be confusing with drawing lines. All numbers,

DESIGN.  
A. BARTHOLDI.  
Statue.  
No. 11,023. Patented Feb. 18, 1879.



LIBERTY ENLIGHTENING THE WORLD.

*C. A. Dick  
J. B. Carpenter*

*Auguste Bartholdi  
J. B. Carpenter  
A. B.*

## UNITED STATES PATENT OFFICE.

AUGUSTE BARTHOLDI, OF PARIS, FRANCE.

DESIGN FOR A STATUE.

Specification forming part of Design No. 11,023, dated February 18, 1879; application filed January 2, 1879.  
[Term of patent 14 years.]

letters, and reference characters must measure at least 1/8 inch in height. The weight of all lines and characters must be heavy enough to allow for adequate reproduction. Oftentimes the default line weight in many drawing software packages is too light to be acceptable. Drawings are not to be done with a specific scale, and notations such as “actual size” or “scale 1/2” are not permitted.

There are many rules to be followed when drafting utility application drawings, only a few of which are mentioned here. Frequently, a patent application will require specific items to be considered in the drawings, and compliance with the standards published in the MPEP is important. If the drawings are not acceptable upon filing, the USPTO may issue a notice requiring that corrected drawing sheets be submitted within two months to avoid abandonment of the application. Sometimes, however, the drawings are not objected to until the patent application is examined. In this case, the Examiner requires drawing corrections be made as part of an Office Action. If corrected drawings are not received in the specified time period, the application becomes abandoned for failure to reply. Poor quality drawings therefore create additional costs and may compromise your patent position.

### Provisional Patent Application Drawings

Provisional patent applications can be filed with “informal” drawings. While the USPTO no longer considers drawings formal and informal (drawings are now either acceptable or not acceptable), a provisional patent application is not examined, and therefore all of the formalities specified for utility applications need not be observed with a provisional patent application. It is our firm belief, however, that good drawings conforming to USPTO standards to the greatest extent possible are in the Applicant’s best interest. Not only do good drawings make for a good disclosure, but a provisional application is made public once the subsequent utility application claiming priority to it is published 18 months from the filing date of the provisional. A good quality provisional application not only enhances many aspects of patentability, but is also a positive reflection to potential investors, customers, licensees, etc.

### The U.S. Design Patent Application

The claim and the overall scope of protection of a design patent is in the drawings. There are many rules specific to design patent application drawings (see MPEP 1503.02), and precision and attention to detail are critical. While a design patent application might seem simple to prepare, drafting a high quality design patent application is challenging. There is a great deal of strategy and thinking that goes into preparing a set of design patent application drawings, in addition to very stringent drawing requirements. Prosecuting a design patent application is all about the drawings. And unlike a utility application where there are drawings and a written specification, a design patent essentially stands or falls on the drawings alone.

### International Considerations

Each country has its own patent laws and requirements for drawings. A common way to file a foreign patent application is through the Patent Cooperation Treaty (PCT)<sup>2</sup>. A PCT application has drawing requirements that are different than the United States

and must be observed. Rule 11.13 of the Patent Cooperation Treaty specifies requirements for drawings in an international application. Drawings in a PCT application must be black and white line drawings, similar to those in the U.S. However, color drawings are not permitted. Letter and number height shall not be less than 0.32 cm. The drawings must be on A4 size paper, and each sheet must be numbered in addition to figure numbers; for example, 1/9, 2/9, and the like.

### Tools

While we have advocated the use of 3D modeling tools to render an invention and then create 2D patent drawings from the model<sup>3</sup>, two dimensional CAD software, or even pen and ink may be used so long as the standards are met. Once a set of patent drawings is properly prepared, there are various procedures for filing the drawings, revising them, and dealing with prosecution matters related to the drawings. The information presented in this article will not make you a good patent illustrator, but may highlight some of the more important things to be aware of.

1. 35 U.S.C. §113.
2. The Limited Monopoly, November 2007. “Filing International Patent Applications: Tuning In to the Patent Cooperation Treaty. Reprints may be obtained at [www.patenteducation.com/patentarticles.html](http://www.patenteducation.com/patentarticles.html) under the topic “International Patent Applications.”
3. The Limited Monopoly, August 2006. “21<sup>st</sup> Century Patent Preparation: The Model for the Future.” Reprints may be obtained at [www.patenteducation.com/patentarticles.html](http://www.patenteducation.com/patentarticles.html) under the topic “Application Preparation.”

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*Note: This short article is intended only to provide cursory background information, and is not intended to be legal advice. No client relationship with the authors is in any way established by this article.*

**Photo Note:** Patent Drawing Standards have changed over time. While this India ink drawing accompanying the design patent for the Statue of Liberty is exceptionally detailed and well done, we speculate that it would not comply with today’s patent drawing standards.