



**PDHonline Course G200 (2 PDH)**

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# **How to Prepare Patent Drawings**

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**2020**

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# TABLE OF CONTENTS

Media.....	2
Type of Paper.....	5
Margins .....	5
Views .....	7
Lines .....	14
Arrangement of Views .....	16
Scale.....	17
Symbols .....	18
Draftsmen Symbols.....	19
Numbers, letters, and reference characters.....	20
Copyright or Mask Work Notice .....	29
Numbering of sheets of drawings .....	30
Numbering of views.....	31
Identification of drawings.....	33
Graphic forms in drawings .....	34
Design Patents.....	34

Appendix	<a href="#">Extract of Manual of Patent Examining Procedure</a>
	<a href="#">Sample utility patent (a fun patent to read)</a>
	<a href="#">Sample design patent</a>
	<a href="#">Extract of "A Guide to Filing a Design Patent Application"</a>

## Media

There are two acceptable manners for presenting drawings in utility and design patent applications: black ink or color. Black and white drawings are normally required. India ink, or its equivalent that secures solid black lines, must be used. The patent rules also recognize that “on rare occasions, color drawings may be necessary as the only practical medium by which to disclose the subject matter.”

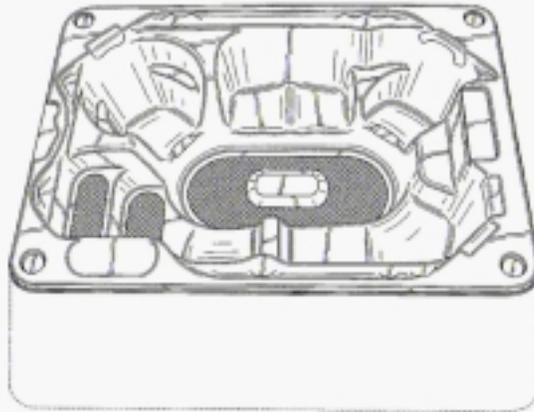
In those cases where color is required, the color drawings must be of sufficient quality that all details in the drawings are reproducible in black and white in the printed patent. In some circumstances, a petition must be filed with the Patent Office to seek the filing of color drawings and explaining why color is necessary. On a practical note, the patent websites only have black and white drawings in the patent images. Color drawings may not produce good images. Color versions are only available from the PTO for a fee and may be inconvenient for people viewing the patent. Of course, you will not be required to make such petition. That is the responsibility of the patent attorney/agent. However, you should use your expertise to find ways to avoid the use of color whenever possible. This will save time and expense in the patent application process.

All drawings must be made by a process which will give them satisfactory reproduction characteristics. Every line, number, and letter must be durable, clean, black (except for color drawings), sufficiently dense and dark, and uniformly thick and well defined. The weight of all lines and letters must be heavy enough to permit adequate reproduction. This requirement applies to all lines (including fine lines), shading, and lines representing cut surfaces in sectional views. Lines and strokes of different thicknesses may be used in the same drawing where different thicknesses have a different meaning.

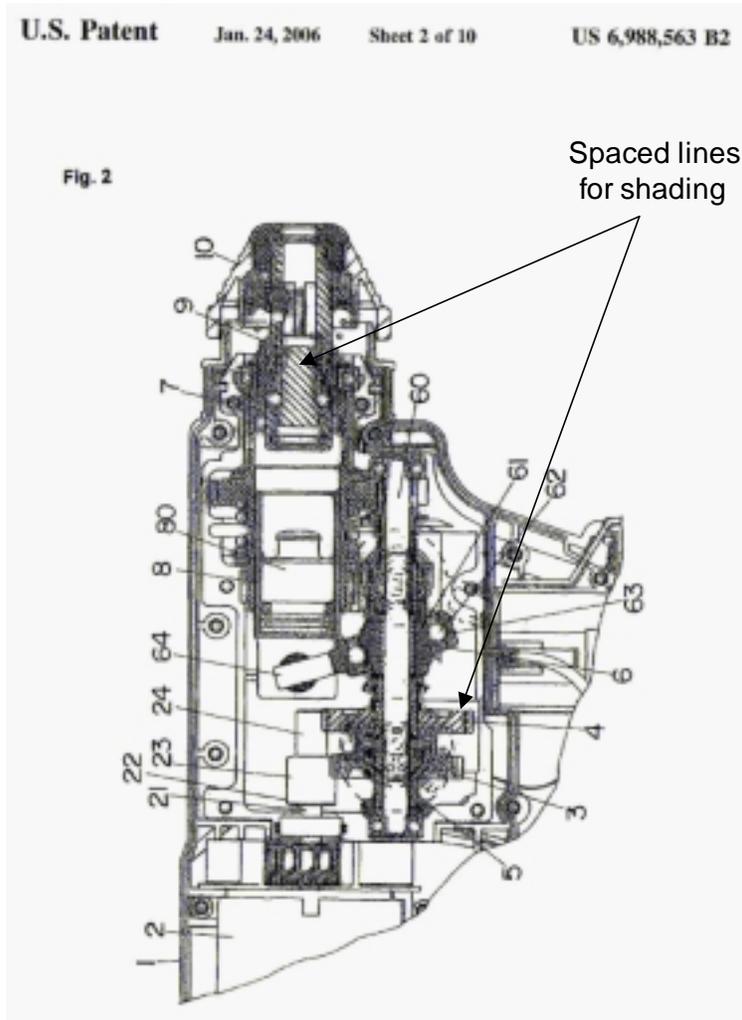
The use of shading in views is encouraged if it aids in understanding the invention and if it does not reduce legibility. Shading is used to indicate the surface or shape of spherical, cylindrical, and conical elements of an object. Flat parts may also be lightly shaded. Such shading is preferred in the case of parts shown in perspective, but not for cross sections. Shading will be addressed in greater detail later.

U.S. Patent    May 16, 2006    Sheet 1 of 4    US D521,154 S

Shading shows  
depth and surface  
delineation

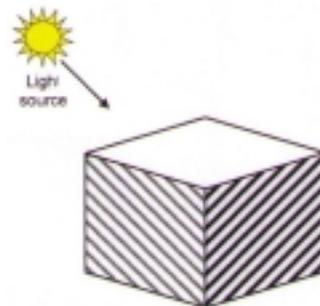


*Fig. 1*



Spaced lines for shading are preferred. These lines must be thin, as few in number as practicable, and they must contrast with the rest of the drawings. As a substitute for shading, heavy lines on the shade side of objects can be used except where they superimpose on each other or obscure reference characters.

Light should come from the upper left corner at an angle of 45°.



Surface delineations should preferably be shown by proper shading. Solid black shading of areas is not permitted, except when used to represent bar graphs or color.

## Type of Paper

The patent drawing rules require that drawings submitted to the Office must be

*made on paper which is flexible, strong, white, smooth, non-shiny, and durable. All sheets must be reasonably free from cracks, creases, and folds. Only one side of the sheet may be used for the drawing. Each sheet must be reasonably free from erasures and must be free from alterations, overwritings, and interlineations.*

In practical terms, this means that drawings are on unfolded, unwrinkled standard white copy paper (20 lb or 24 lb. varieties work well) or drawing paper. Graph paper is not preferred. Dot matrix style paper with holes along the edges may not be used.

Patent Agent Jack Lo and attorney David Pressman, in *How to Make Patent Drawings* 4<sup>th</sup> ed. (NOLO 2005), suggest that laser printing paper of 20 or 24 lb. varieties are good choices. Laser printing is optimal, however, good quality ink jet output may be used. For ink jet output, they suggest not to use laser paper and cheap ink jet paper, explaining that they cause the ink to feather. They prescribe the use of specialty ink jet papers sold with descriptions such as “matte paper heavyweight,” “archival matte,” and “photoquality ink jet paper” (not glossy! Not shiny!).

It is important to note that erasure marks, white-out and corrections are not permitted. These informality defects are often the subject of drawing rejections. A trick of the trade, if you are doing hand-sketches, is to photocopy the final drawings to rid them of remnants of corrections.

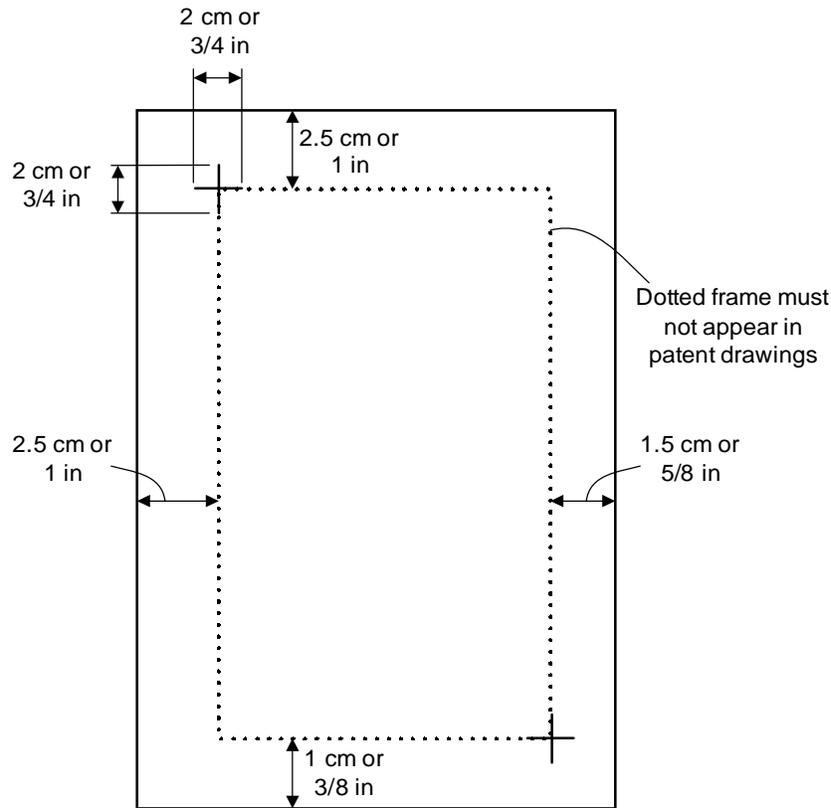
All drawing sheets in an application must be the same size. One of the shorter sides of the sheet is regarded as its top. The size of the sheets on which drawings are made must be: 21.0 cm. by 29.7 cm. (DIN size A4), or 21.6 cm. by 27.9 cm. (8 1/2 by 11 inches). Size A4 paper is required for PCT (Patent Cooperation Treaty or “international”) applications and foreign applications.

## Margins

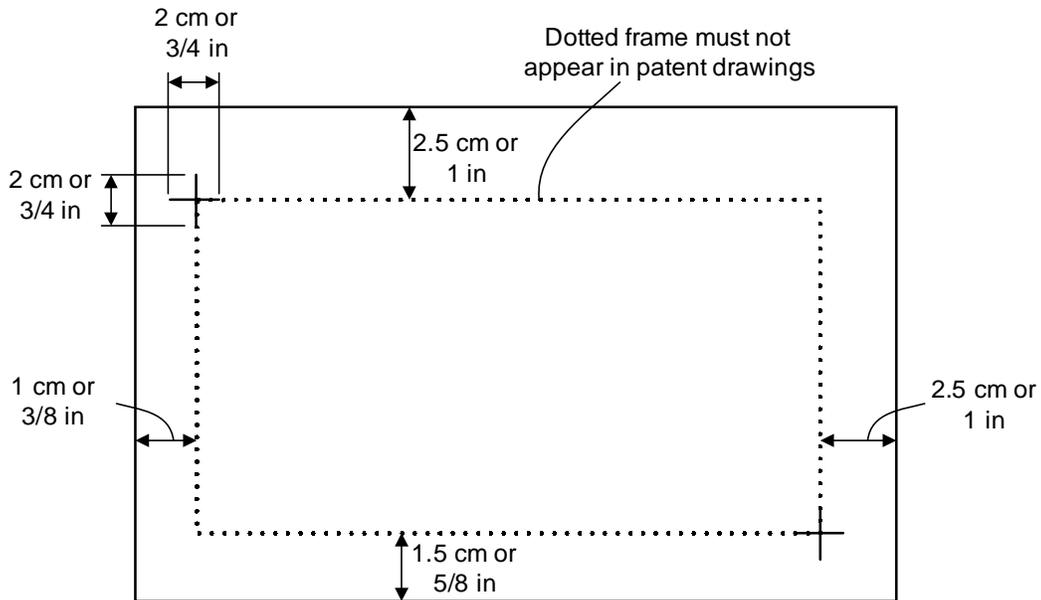
Patent drawings must contain an imaginary margin surrounding the entire page. However, the sheets must not contain rectangular frames around the sight (i.e., the usable surface), but should have scan target points (i.e., cross-hairs) printed on two cater-corner margin corners. The center of the crosshairs should be positioned such

that the arms of the crosshairs are in the margin itself. The arms of the crosshairs should be 2 cm or ¾ inch in length. You may place the cross hairs in the upper left and lower right corners, or alternatively, in the upper right and lower left corners.

Each sheet must include a top margin of at least 2.5 cm. (1 inch), a left side margin of at least 2.5 cm. (1 inch), a right side margin of at least 1.5 cm. (5/8 inch), and a bottom margin of at least 1.0 cm. (3/8 inch), thereby leaving a sight no greater than 17.0 cm. by 26.2 cm. on 21.0 cm. by 29.7 cm. (DIN size A4) drawing sheets, and a sight no greater than 17.6 cm. by 24.4 cm. (6 15/16 by 9 5/8 inches) on 21.6 cm. by 27.9 cm. (8 1/2 by 11 inches) drawing sheets.



**Portrait Orientation**



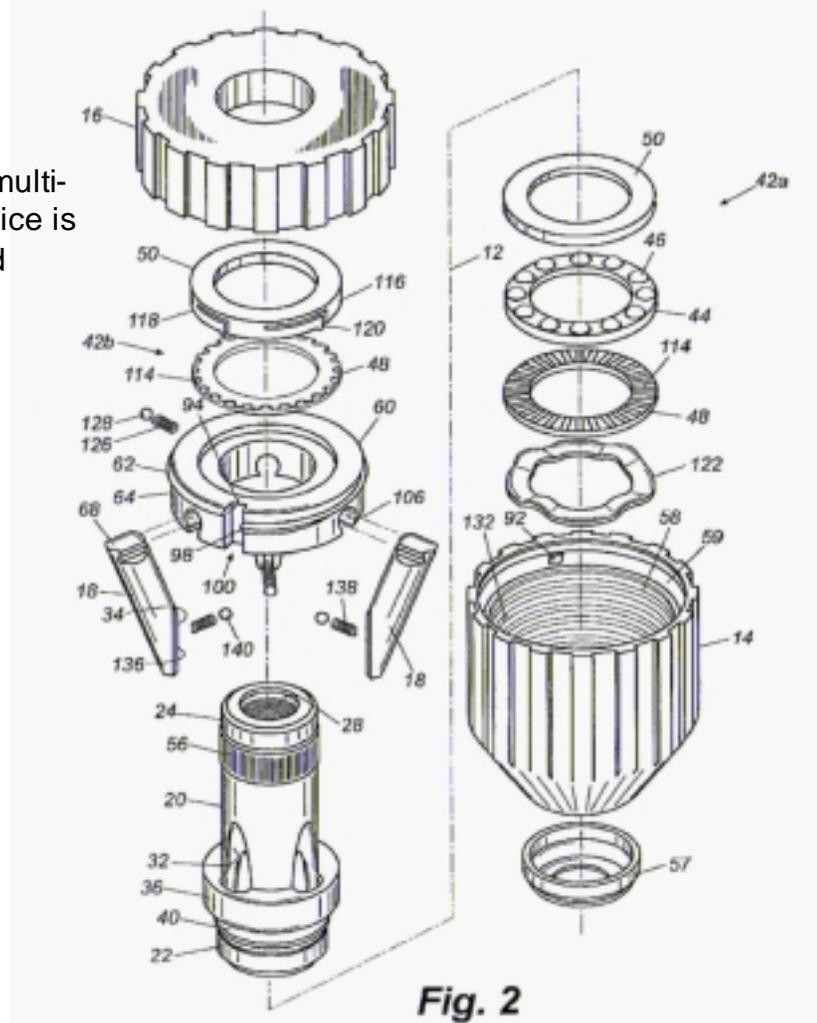
**Landscape Orientation**

The drawings should be oriented in the portrait position whenever possible. Landscape orientation should only be used when absolutely necessary for long or wide drawings.

## Views

The drawings must contain as many views as necessary to show the invention. One of the views should be suitable for inclusion on the front page of the patent application publication and patent as the illustration of the invention. The views may be plan, elevation, section, partial or perspective views. Detail views of portions of elements, on a larger scale if necessary, may also be used. A perspective view depicts a three dimensional view of an object and it may be used to provide the reader general understanding of an invention and its spatial placement and functional relationships with adjacent parts. An elevation or orthogonal view may be used to depict details on a particular plane since the plane is perpendicular to the reader's sight. If the object of an invention cannot be conveyed through the depiction of the invention as a whole, partial views may be used. A partial view is used to avoid excessive details on a view and help the reader focus on the description of a subpart or portion of an invention.

Shows how a multi-component device is assembled



The drawings are included as a single drawing set submitted with, and forming a part of, the specification. The drawings may not be dispersed throughout the specification as you might see in illustrations to a story. They may also not share a page with other portions of the specification, claims, or abstract.

All views of the drawings must be grouped together and arranged on the sheet(s) without wasting space, preferably in an upright position, clearly separated from one another.

U.S. Patent

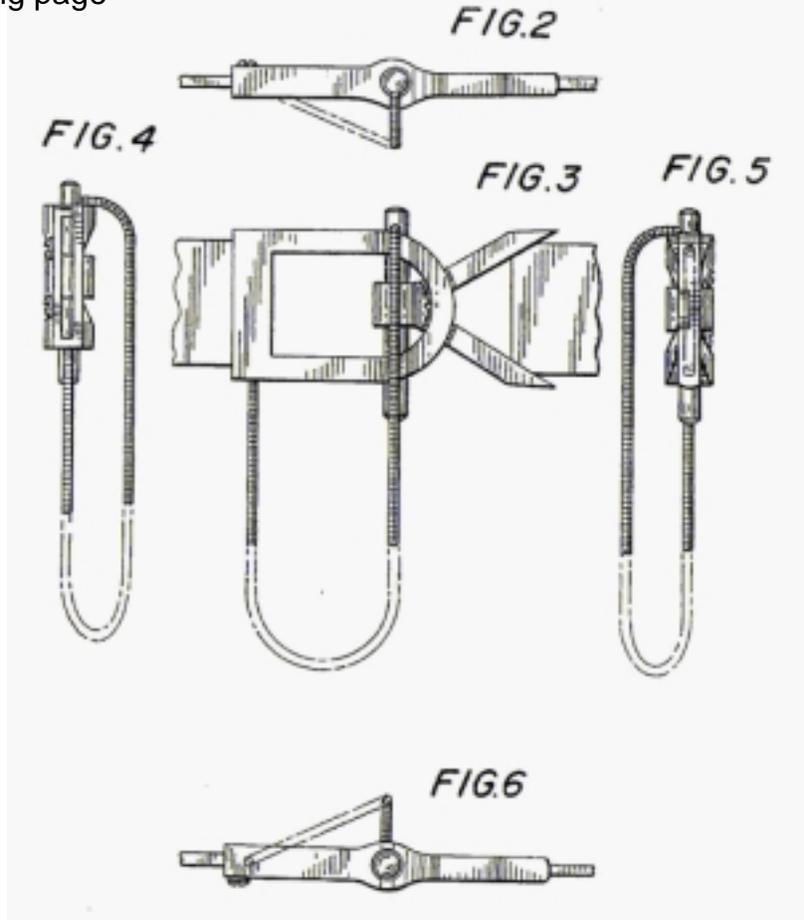
Jul. 9, 1996

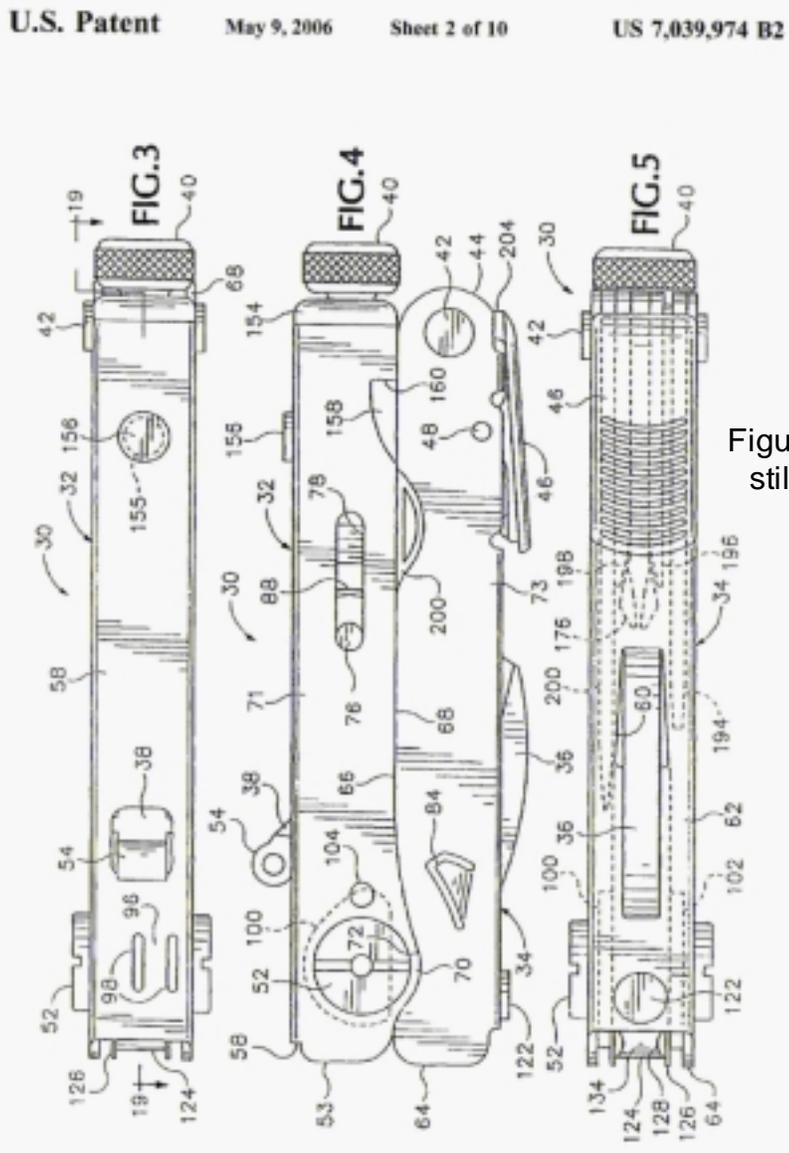
Sheet 2 of 3

Des. 371,525

Arrangement of several views on one drawing page

No figures touch or cross





Figures closer but still acceptable

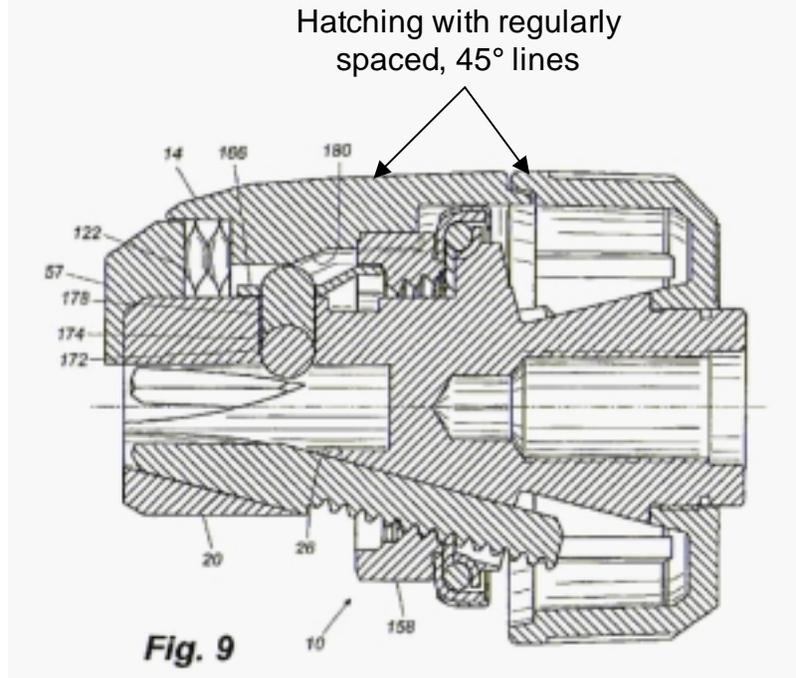
Views must not be connected by projection lines and must not contain center lines. Waveforms of electrical signals may be connected by dashed lines to show the relative timing of the waveforms.

Exploded views, with the separated parts embraced by a bracket, to show the relationship or order of assembly of various parts are permissible. When an exploded view is shown in a figure that is on the same sheet as another figure, the exploded view should be placed in brackets.



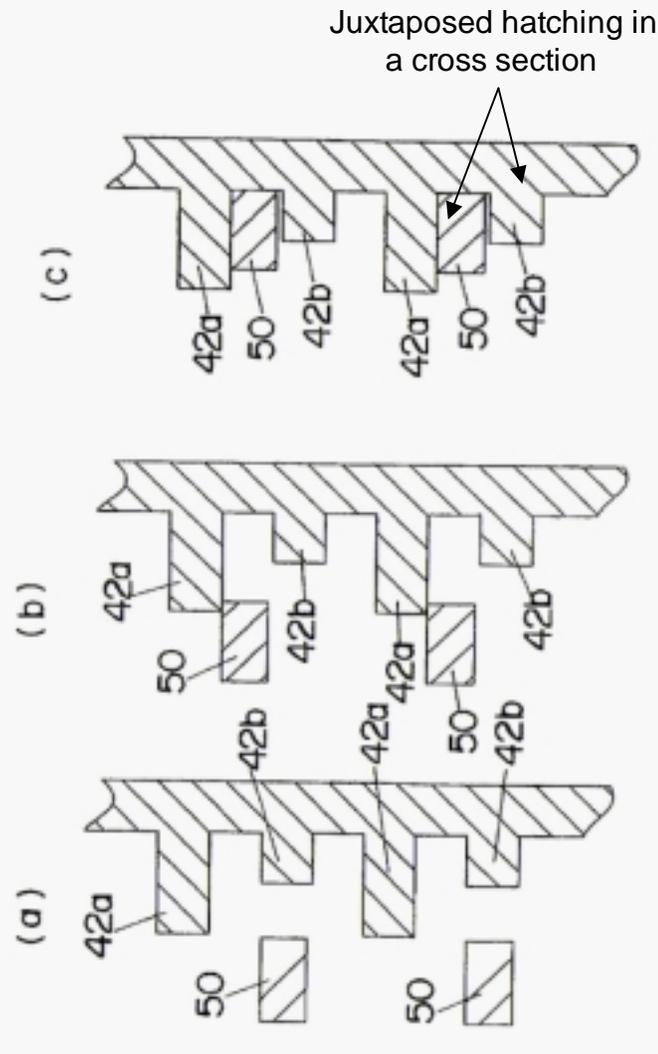


U.S. Patent May 9, 2006 Sheet 7 of 7 US 7,040,630 B2



A cross section must be set out and drawn to show all of the materials as they are shown in the view from which the cross section was taken. The parts in cross section must show proper material(s) by hatching with regularly spaced parallel oblique strokes, the space between strokes being chosen on the basis of the total area to be hatched. The various parts of a cross section of the same item should be hatched in the same manner and should accurately and graphically indicate the nature of the material(s) that is illustrated in cross section. The hatching of juxtaposed different elements must be angled in a different way. In the case of large areas, hatching may be confined to an edging drawn around the entire inside of the outline of the area to be hatched. Different types of hatching should have different conventional meanings as regards the nature of a material seen in cross section.

Fig. 8

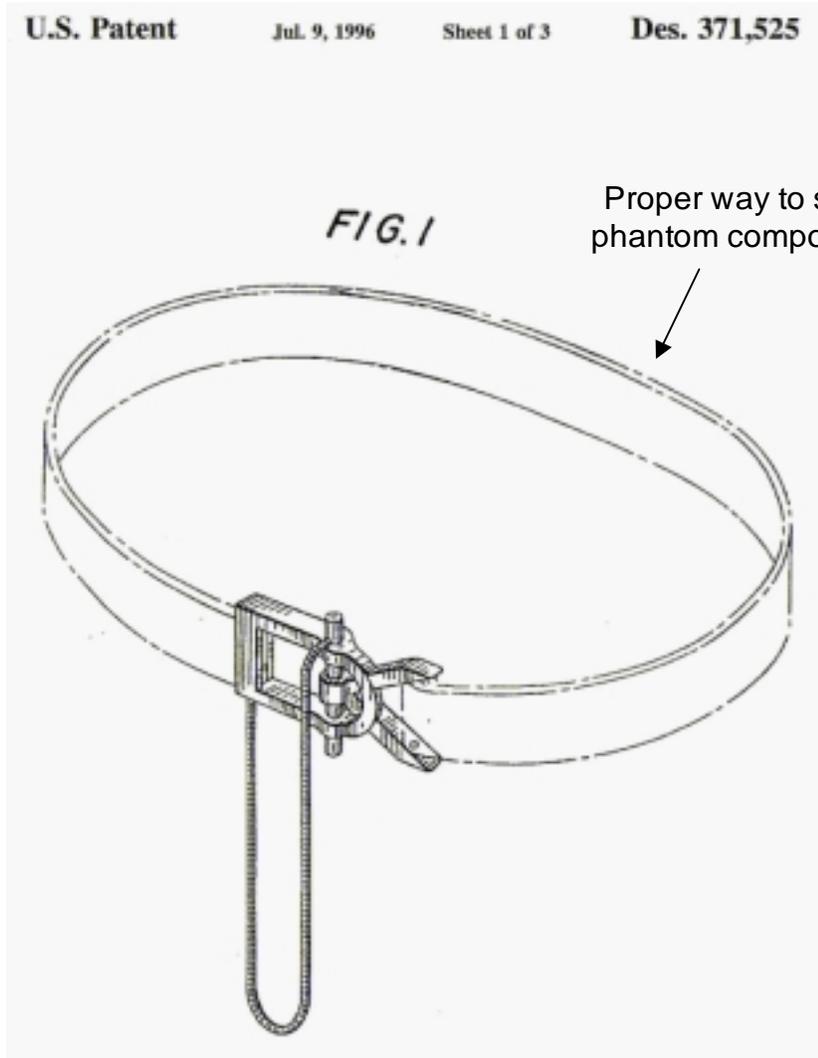


Alternate positions, that is, a moved position, may be shown by a broken line superimposed upon a suitable view if this can be done without crowding; otherwise, a separate view must be used for this purpose. Modified forms of construction must be shown in separate views.

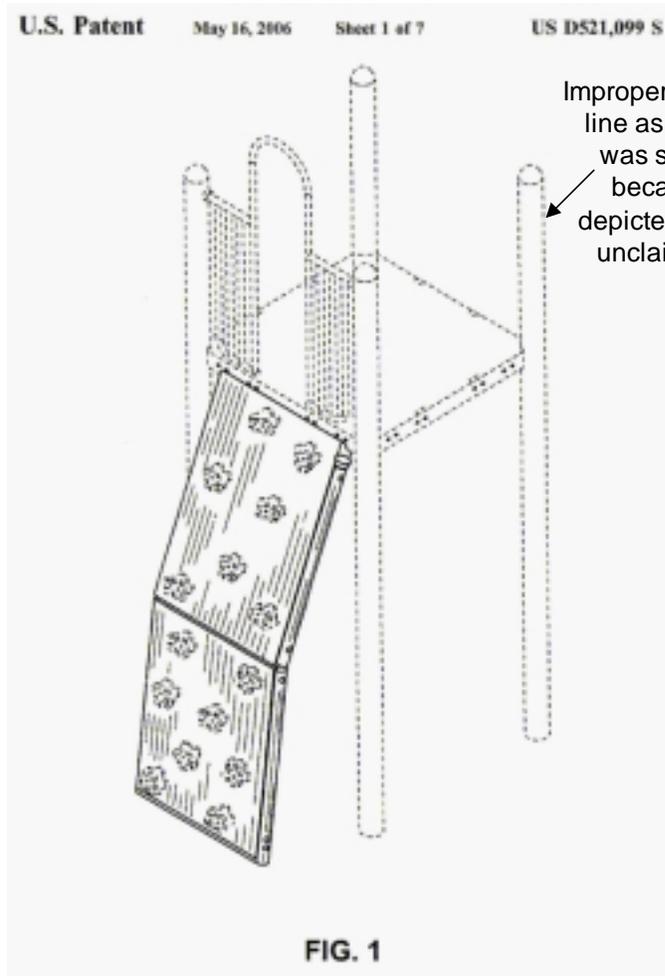
## Lines

Solid lines are used for edge lines and shading lines. Dashed lines may be used for hidden lines. Dash-dot-dot-dash lines may be used for phantom parts that do not

comprise part of the invention. Dash-dot-dash lines may be used for projected lines to show how parts are assembled.



There are many examples of phantom components shown in dashed lines that have been allowed, however, it is best to follow the formal requirements and avoid a rejection. The following is an example of one that makes the visual image clear, despite using dashed lines.



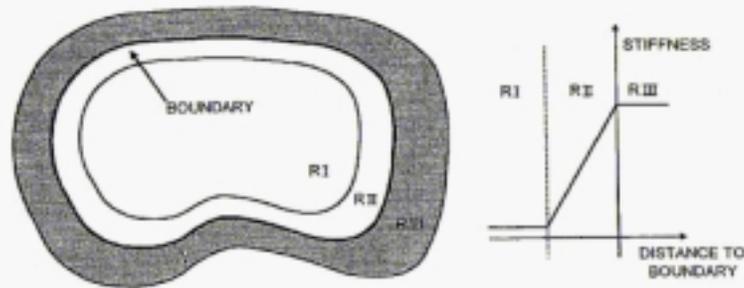
Lines must be uniformly dense and free from jagged or feathered portions. They must be thick enough to allow for photocopying.

## Arrangement of Views

One view must not be placed upon another or within the outline of another. All views on the same sheet should stand in the same direction and, if possible, stand so that they can be read with the sheet held in an upright position. If views wider than the width of the sheet are necessary for the clearest illustration of the invention, the sheet may be turned on its side so that the top of the sheet, with the appropriate top margin to be used as the heading space, is on the right-hand side. Words must appear in a horizontal, left-to-right fashion when the page is either upright or turned so that the top becomes the right side, except for graphs utilizing standard scientific convention to denote the axis of abscissas (of X) and the axis of ordinates (of Y).

- ACTIVE CONSTRAINT CONTROL PRINCIPAL
- SYNERGY BETWEEN THE SURGEON AND THE ROBOT
- THE SURGEON GUIDES THE ROBOT TO PERFORM THE CUTTING
- THE ROBOT PREVENTS THE MOTION OUTSIDE THE SPECIFIC REGION

Wording



Conventional symbols used

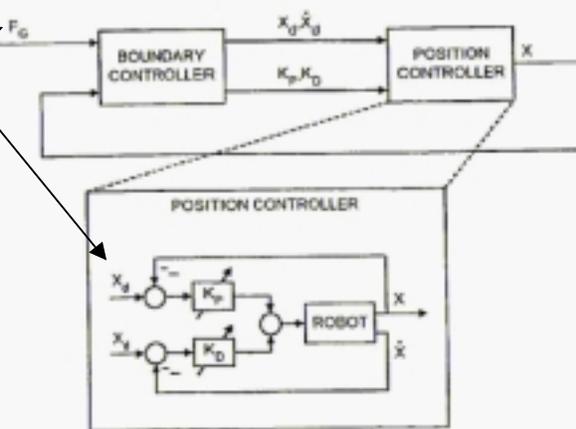


FIG. 3

## Scale

The scale to which a drawing is made must be large enough to show the mechanism without crowding when the drawing is reduced in size to two-thirds in reproduction. Indications such as "actual size" or "scale 1/2" on the drawings are not permitted since these lose their meaning with reproduction in a different format and size. Though not required, it is best to draw to scale in order to properly convey the invention. In cases where solid 3D computer models are readily available, three dimensional views may be captured easily by setting proper view angles.

## Symbols

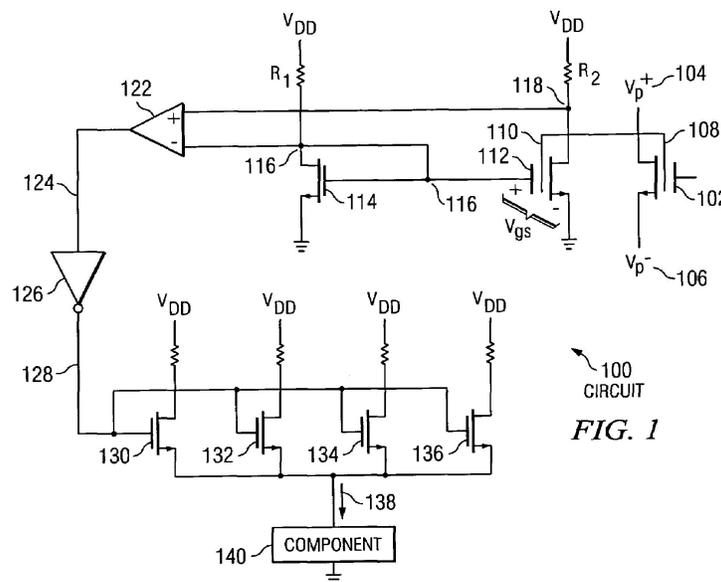
Graphical drawing symbols may be used for conventional elements when appropriate. The elements for which such symbols and labeled representations are used must be adequately identified in the specification. Therefore, you should provide a legend of any symbols used to the patent attorney/agent for inclusion in the specification.

Known devices should be illustrated by symbols that have a universally recognized conventional meaning and are generally accepted in the art. This means that standard symbols used in engineering may be used and that the symbols should be those relevant to the art of the invention. For example, electrical inventions may use electrical symbols and computer-related inventions may use computer related symbols.

U.S. Patent

May 23, 2006

US 7,048,195 B2



Other symbols which are not universally recognized may be used, if they are not likely to be confused with existing conventional symbols, and if they are readily identifiable. Use your professional judgment and expertise in interpreting and following this guideline.

Suitable descriptive legends may be used, or may be required by the examiner where necessary for understanding of the drawing. They should contain as few words as possible.

# Draftsmen Symbols

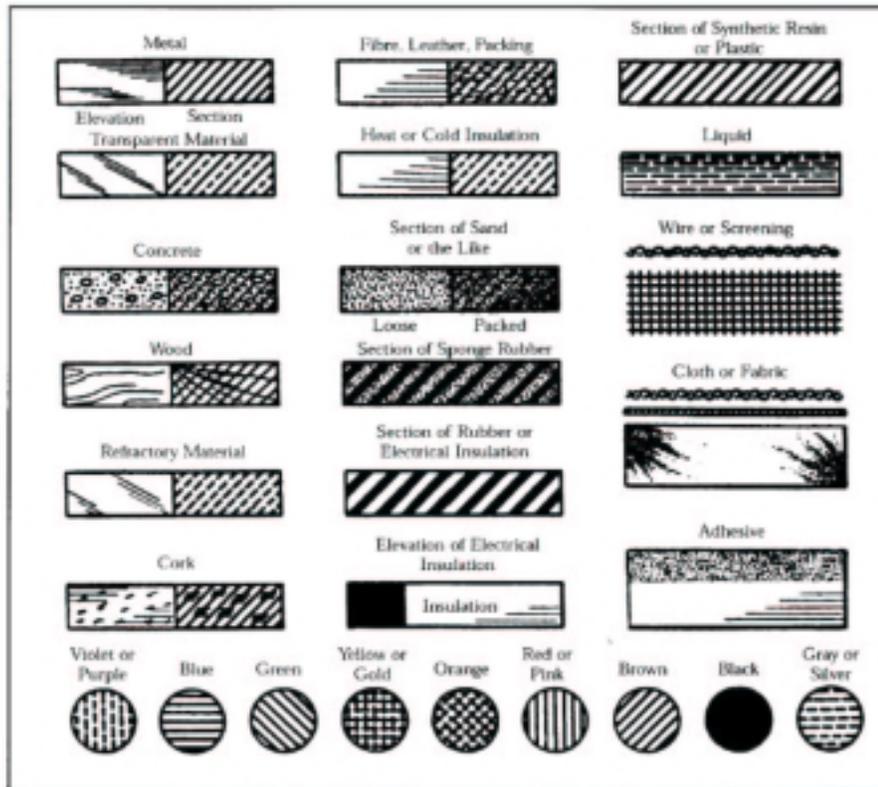
The Patent Office prescribes the following draftsmen symbol usage:

*A Guide To Filing A Design Patent Application*

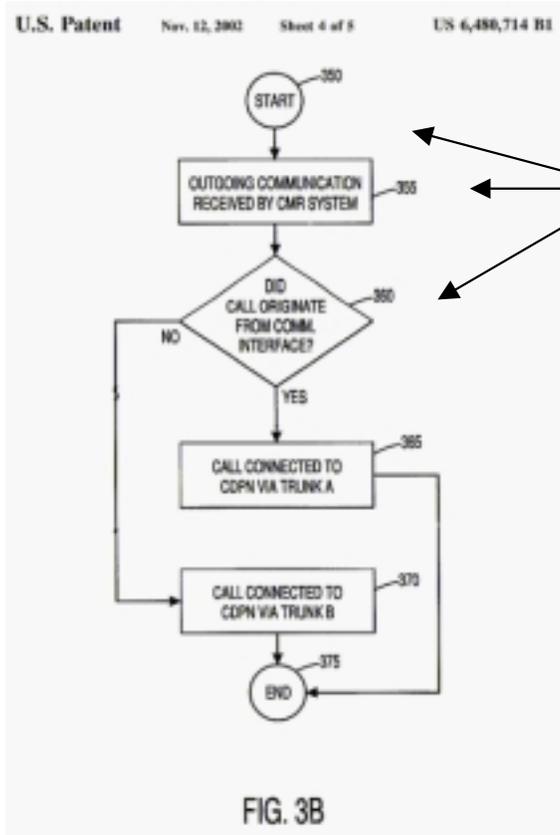
## Symbols for Draftsmen

Graphical symbols for conventional elements may be used on the drawing when appropriate, subject to approval by the Office. The symbols that follow have been approved for such use. This collection does not purport to be exhaustive; other standard and commonly used symbols will also be acceptable provided they are clearly understood, are adequately identified in the specification as filed, and do not create confusion with other symbols used in patent drawings.

NOTES: In general, in lieu of a symbol, a conventional element, combination or circuit may be shown by an appropriately labeled rectangle, square or circle; abbreviations should not be used unless their meaning is evident and not confusing with the abbreviations used in the suggested symbols.







Note conventional flowchart symbols used

U.S. Patent Feb. 26, 2002 Sheet 3 of 7 US 6,351,653 B1

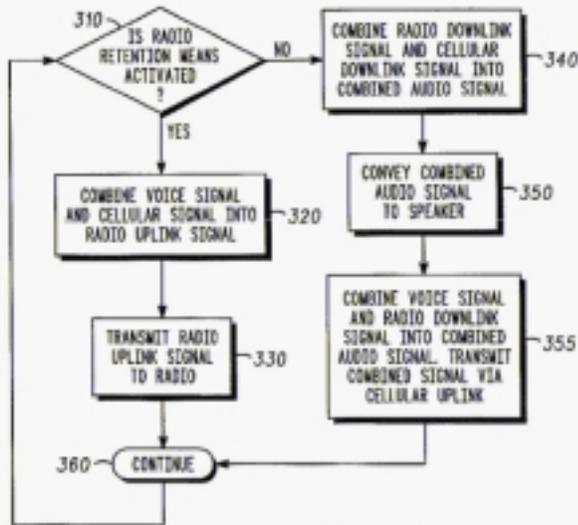


FIG. 3

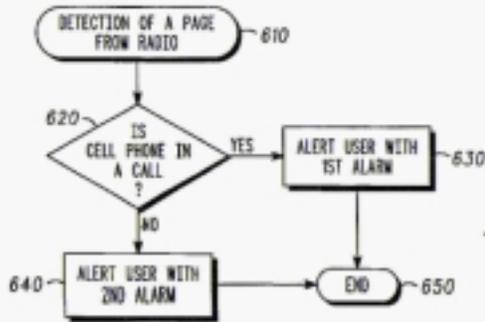
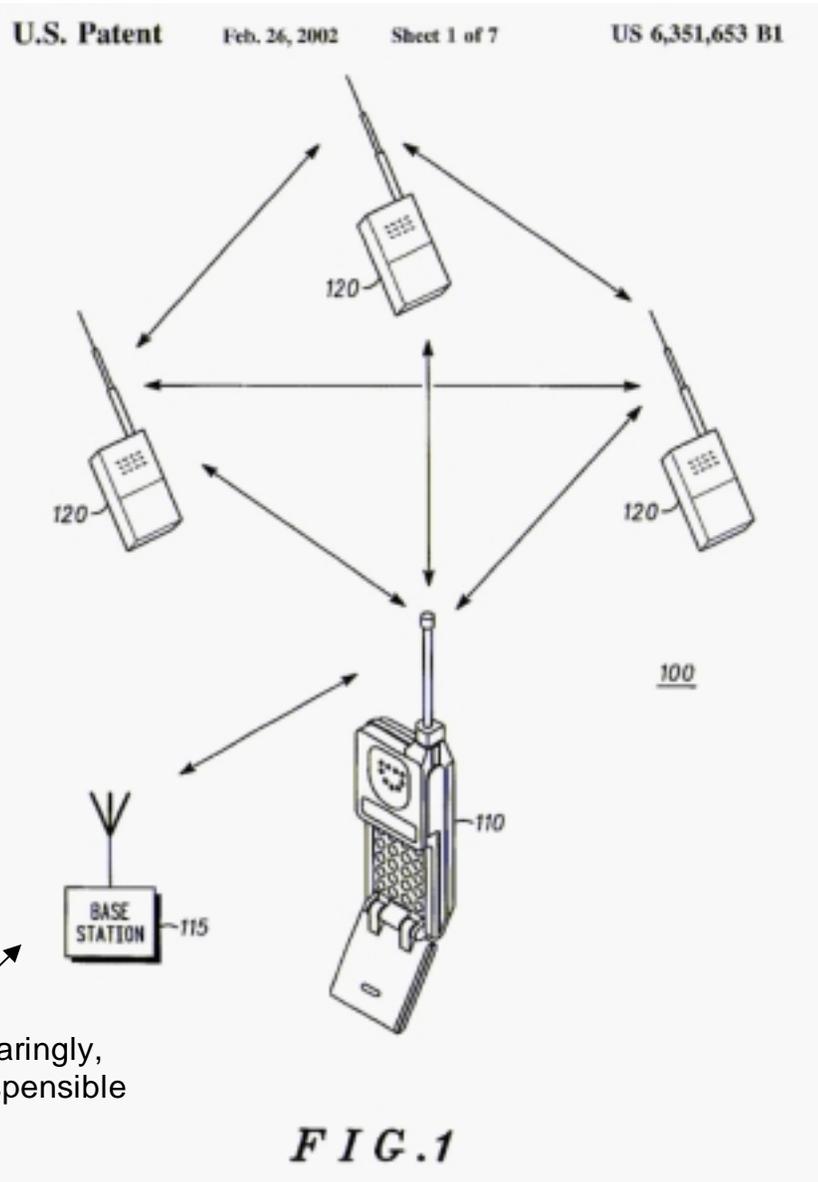
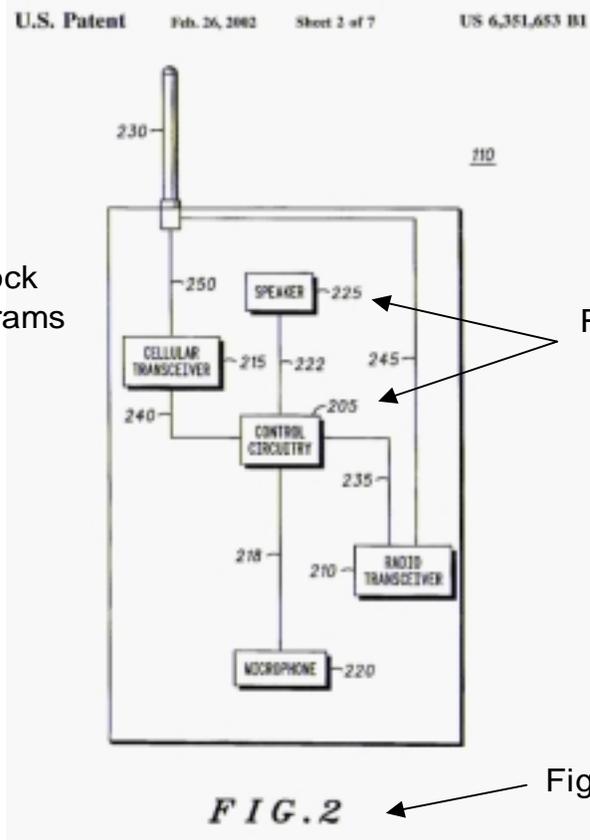


FIG. 6





Block diagrams

Reference numbers outside of figures

Figure number

Reference numbers should be no smaller than 1/8 inch, 3.2 mm or 12 point font. Reference numbers should be placed outside the figure whenever possible. Sometimes it is necessary to put them within the figure to keep it close and avoid confusion or cluttering. This is acceptable, but they must never cross a line, even a hatchmark.

Primed numbers are not prohibited, but are discouraged. Letters may be used to designate non-tangible things such as airflow or radiation.

Some inventions have several embodiments, and some of the components are identical. In these cases, it is preferred that the same reference numbers be used for the like parts.

Numbers, letters, and reference characters must measure at least .32 cm. (1/8 inch) in height. They should not be placed in the drawing so as to interfere with its comprehension. Therefore, they should not cross or mingle with the lines. They should not be placed upon hatched or shaded surfaces.



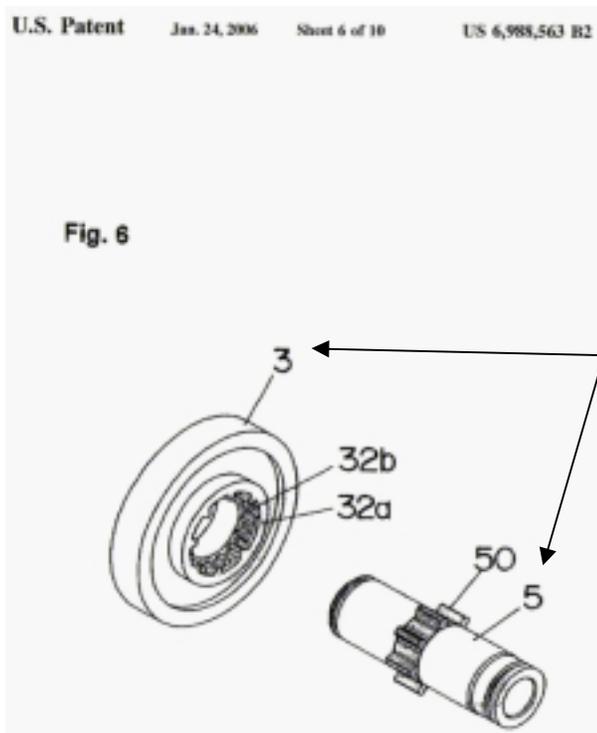
Incorrect



Correct

When necessary, such as indicating a surface or cross section, a reference character may be underlined and a blank space may be left in the hatching or shading where the character occurs so that it appears distinct.

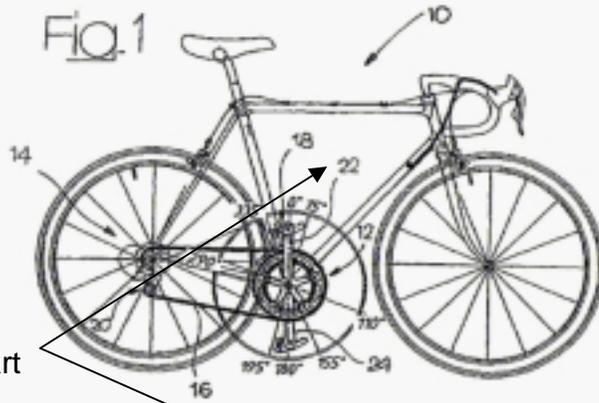
The same part of an invention appearing in more than one view of the drawing must always be designated by the same reference character, and the same reference character must never be used to designate different parts.



These were reference numbers in other drawings for same part

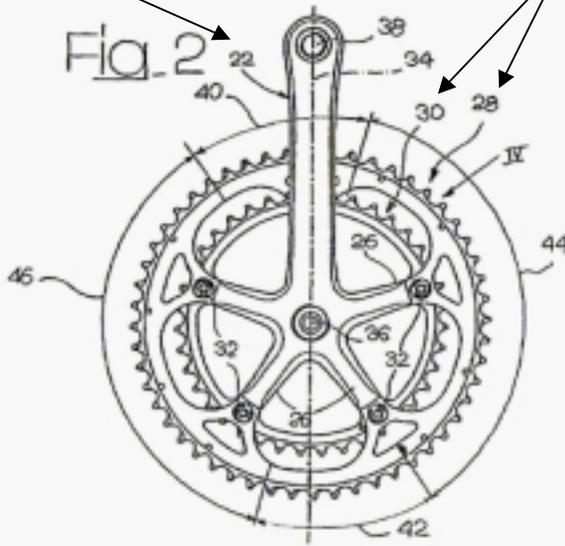
Reference numbers are preferably in a logical sequence. Usually, reference numbers begin with 10 or 100 and follow either an odd or even sequence ("10, 12, 14, 16 or 101, 103, 105"). This allows for a later addition of an intervening reference number without requiring renumbering. Intervening reference numbers may also be added with a letter such as 16A, 16B.

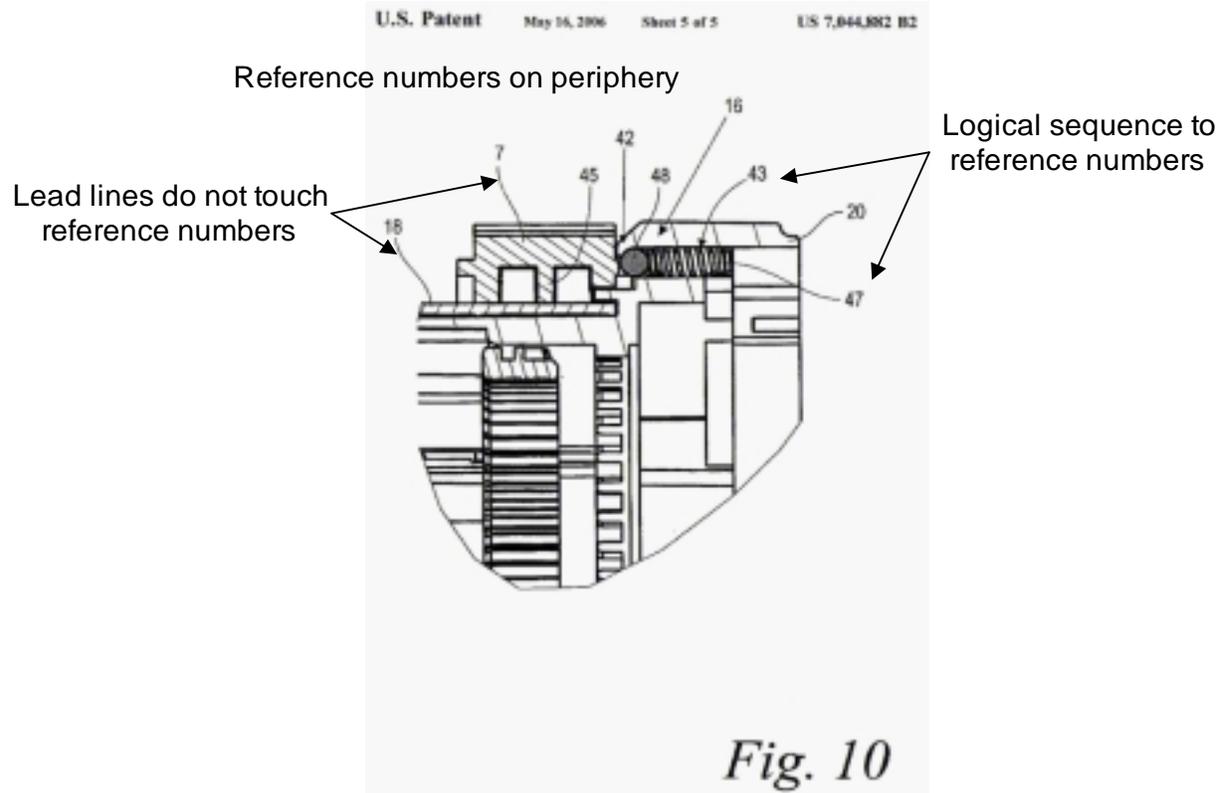
U.S. Patent Apr. 4, 2006 Sheet 1 of 4 US 7,022,037 B2



Same reference number for same part

Logical sequence to reference numbers





There must be coordination between the patent attorney/agent and the patent draftsman. Reference characters not mentioned in the description shall not appear in the drawings. Reference characters mentioned in the description must appear in the drawings.

Lead lines are those lines between the reference characters and the details referred to. They should originate at the part being referenced and end at, but not touch, its reference number. Such lines may be straight or curved and should be as short as possible. They must originate in the immediate proximity of the reference character and extend to the feature indicated. Lead lines must not cross each other. Lead lines are required for each reference character except for those which indicate the surface or cross section on which they are placed. Such a reference character must be underlined to make it clear that a lead line has not been left out by mistake.

U.S. Patent May 16, 2006 Sheet 3 of 5 US 7,044,882 B2

Arrows as lead lines

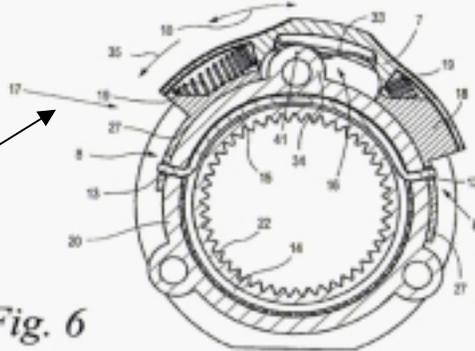


Fig. 6

Lead lines may be curved

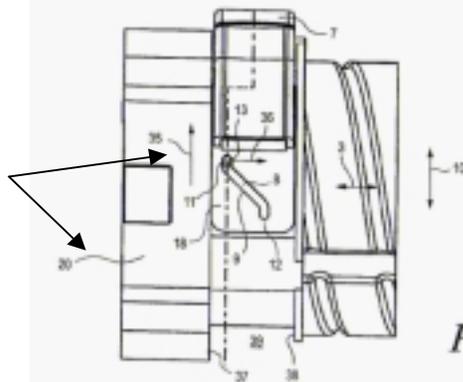


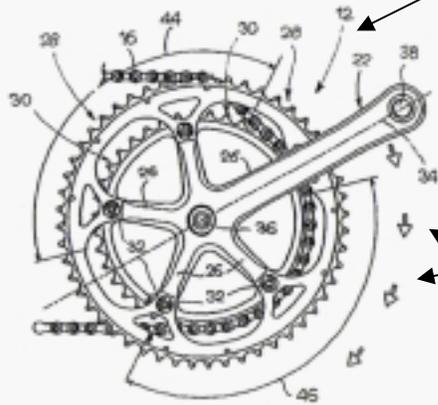
Fig. 7

Arrows may be used at the ends of lines, provided that their meaning is clear, on a lead line, a freestanding arrow to indicate the entire section towards which it points.

U.S. Patent Apr. 4, 2006 Sheet 4 of 4 US 7,022,037 B2

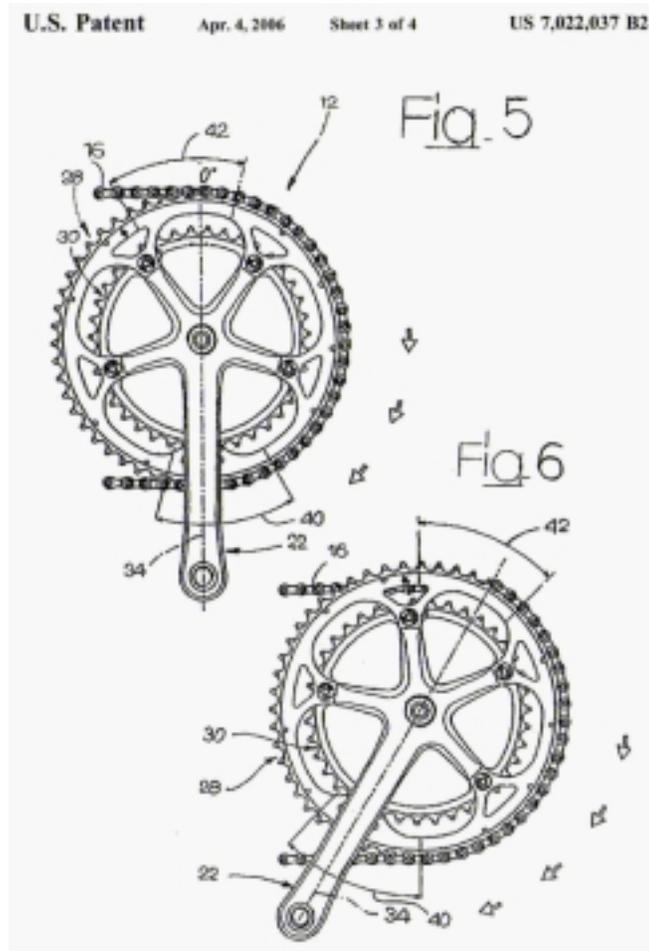
Fig. 7

Freestanding arrow



Arrows to show direction are different to be distinguishing

Arrow may also be used to indicate the plane and direction of view. Arrows may also be used to show the direction of movement. Arrows may used, for example, to refer to a multi-part assembly.



## Copyright or Mask Work Notice

A copyright or mask work notice may appear in the drawing, but must be placed within the sight of the drawing immediately below the figure representing the copyright or mask work material and be limited to letters having a print size of .32 cm. to .64 cm. (1/8 to 1/4 inches) high. The content of the notice must be limited to only those elements provided for by law. For example, “©1983 John Doe” (17 U.S.C. 401) and “\*M\* John Doe” (17 U.S.C. 909) would be properly limited and, under current statutes, legally sufficient notices of copyright and mask work, respectively. Mask work notices are commonly used for circuit boards.

The Semiconductor Chip Protection Act (SCPA) of 1984 established a new type of intellectual property protection for mask works that are fixed in semiconductor chips. Public Law 98-620. The SCPA, which took effect on November 8, 1984, <<http://www.copyright.gov/circs/circ100.html#note1>> \* amended title 17 of the United

States Code by adding chapter 9. Protection for mask works is not copyright protection. Therefore, the legal requirements for copyright protection and mask work protection differ with respect to eligibility, ownership, term, scope and limitations of rights, remedies, and registration procedures. This circular provides information for registering claims under the SCPA.

Mask Works are defined in the Act as: a series of related images, however fixed or encoded (1) having or representing the predetermined three-dimensional pattern of metallic, insulating, or semiconductor material present or removed from the layers of a semiconductor chip product; and (2) in which series the relation of the images to one another is that each image has the pattern of the surface of one form of the semiconductor chip product.

The integrated circuits, better known as semiconductor chips, used to operate many consumer, medical, commercial, and industrial products and machinery are defined in the Act as: the final or intermediate form of any product (1) having two or more layers of metallic, insulating, or semiconductor material, deposited or otherwise placed on or etched away or otherwise removed from a piece of semiconductor material in accordance with a predetermined pattern; and (2) intended to perform electronic circuitry functions.

Protection under the Act extends to the three-dimensional images or patterns formed on or in the layers of metallic, insulating, or semiconductor material and fixed in a semiconductor chip product, i.e., the "topography" of the "chip." Although these images or patterns are purely functional features, they are nevertheless protected, provided that the particular mask work is neither dictated by a particular electronic function nor is one of only a few available design choices that will accomplish that function.

Protection under the Act does not extend to any idea or concept associated with a mask work. Just as ideas are not protected by copyright, no protection is available for any procedure, process, system, method of operation, concept, principle, or discovery associated with a mask work, regardless of the form in which it is described, explained, illustrated, or embodied in a mask work. (17 U.S.C. §902 (c))

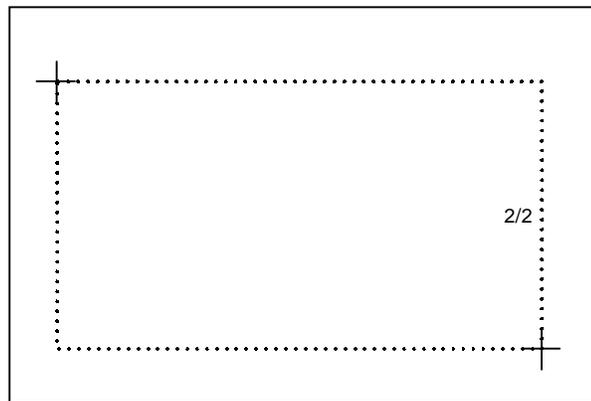
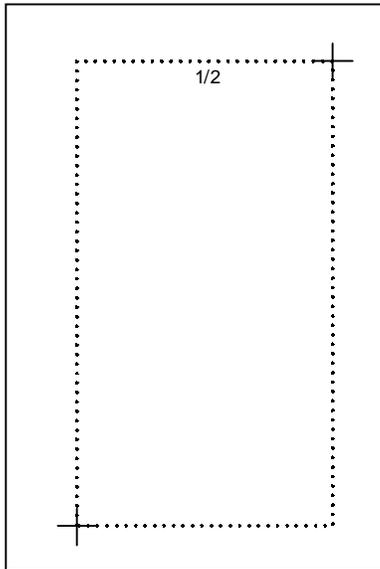
## **Numbering of sheets of drawings**

The sheets of drawings should be numbered in consecutive Arabic numerals, starting with 1. The numbering is in the following format: "sheet number/total number of sheets." Hence, numbering would be "1/4" for the first sheet of a series of 4 sheets for a patent.

These numbers, if present, must be placed in the middle of the top of the sheet, but not in the margin. The numbers can be placed on the right-hand side if the drawing

extends too close to the middle of the top edge of the usable surface. The drawing sheet numbering must be clear and larger than the numbers used as reference characters to avoid confusion. A good rule of thumb might be 1/5 inch, 5 mm or 22 point font type.

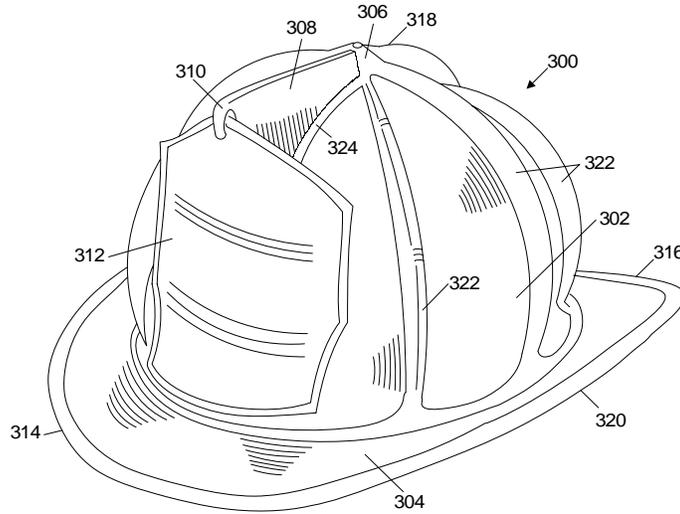
If some drawings are in the portrait orientation and others in the landscape orientation, the sheet number for the landscape orientation should be on the right side and oriented as if the sheet were in the portrait orientation. All other numbering on the drawing should be oriented to be easily read in the landscape orientation.



## Numbering of views

The different views must be numbered in consecutive Arabic numerals, starting with 1, independent of the numbering of the sheets and, if possible, in the order in which they appear on the drawing sheet(s). Partial views intended to form one complete view, on one or several sheets, must be identified by the same number followed by a capital letter.

View numbers must be preceded by the abbreviation "FIG." Where only a single view is used in an application to illustrate the claimed invention, it must not be numbered and the abbreviation "FIG." must not appear. Ornate lettering styles are not desirable, nor is writing out the word "Figure." If the drawing depicts prior art, the words "Prior Art" should appear below the "Fig. 1." Prior art means existing articles or processes that do not form part of the invention.



**FIG. 1**

Prior Art

An actual office action rejection for this formality read as follows:

*“Drawings*

*Figure 1 should be designed by a legend such as – Prior Art – because only that which is old is illustrated. See MPEP § 608.02(G). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84©) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.”*

Numbers and letters identifying the views must be simple and clear and must not be used in association with brackets, circles, or inverted commas. The view numbers must be larger than the numbers used for reference characters.

U.S. Patent

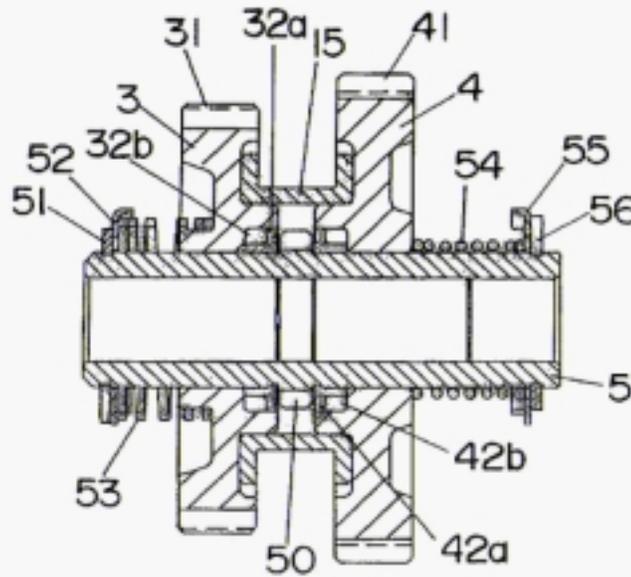
Jan. 24, 2006

Sheet 7 of 10

US 6,988,563 B2

Easy to read reference numbers

Fig. 7



## Identification of drawings

Traditionally, patent drawings contained markings to indicate the invention, invention name, and sometimes, the patent attorney name. This often appeared at the bottom portion of the page off to one side. More recently, however, it is not typical for patent drawings to contain identifying markings. However, if you have been asked to include such features, the patent drawings rules requires that

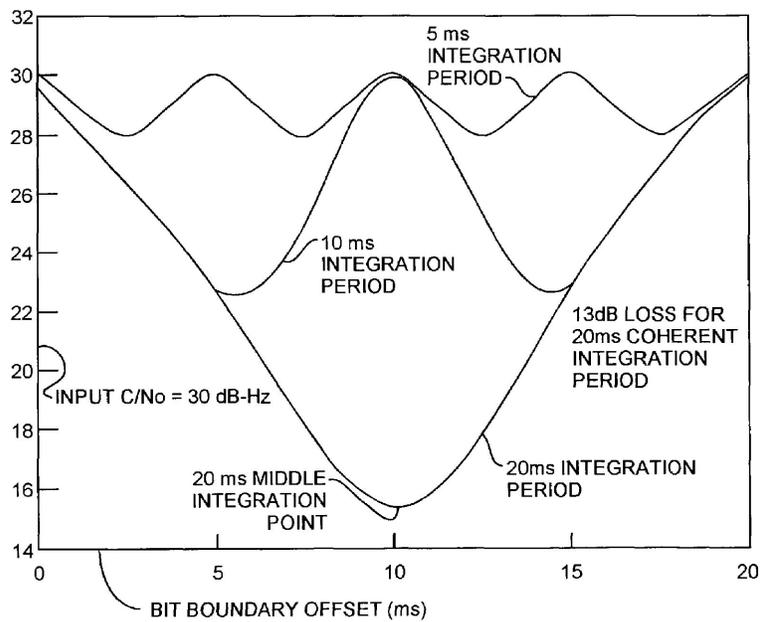
*Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin.*

This may be required, for example, if you are asked to do replacement drawings for an already filed patent application.

## Graphic forms in drawings

Chemical or mathematical formulae, tables, and waveforms may be submitted as drawings and are subject to the same requirements as drawings. Each chemical or mathematical formula must be labeled as a separate figure, using brackets when necessary, to show that information is properly integrated. Each group of waveforms must be presented as a single figure, using a common vertical axis with time extending along the horizontal axis. Each individual waveform discussed in the specification must be identified with a separate letter designation adjacent to the vertical axis.

U.S. Patent May 9, 2006 Sheet 1 of 4 US 7,042,930 B2



EFFECTIVE BIT BOUNDARY INTEGRATION ALIGNMENT

FIG. 2

## Design Patents

Design patent drawings must accurately illustrate the ornamental features of the article: shape, contours, proportions, textures, special material properties and all features visible during normal use of the article. Shading is required to depict transparency, surface contours, and to distinguish solid and open areas.

Orthogonal views of the object from each of the six sides of a cube are required (even when several may be virtually the same). The angle should maximize the view of the invention. In some cases, sectional views are necessary to clearly depict all of the invention's features. 0.2-0.3 mm lines for edges lines and broken lines work well.



(11) **United States Design Patent** (12) **Patent No.:** **US D521,106 S**  
**Barbaugh** (13) **Date of Patent:** **May 16, 2006**

(14) **INVENTOR** Kenneth A. Barbaugh, 9836  
Riverswood Ct., Douglasville, GA (US)  
30033  
1002,344 G \* 01992 *Comp* ..... D03/204  
1001,370 S \* 01999 *Auto* ..... D00/113  
1001,400 S \* 02002 *Lin* ..... D03/204  
0,040,741 US \* 113003 *Residue* ..... 11400-1

(15) **Term:** **14 Years** \* cited by examiner  
*Primary Examiner—Robin Wilshire*  
*(24) Attorney, Agent or Firm—Edgerton, Shookin, LLP*

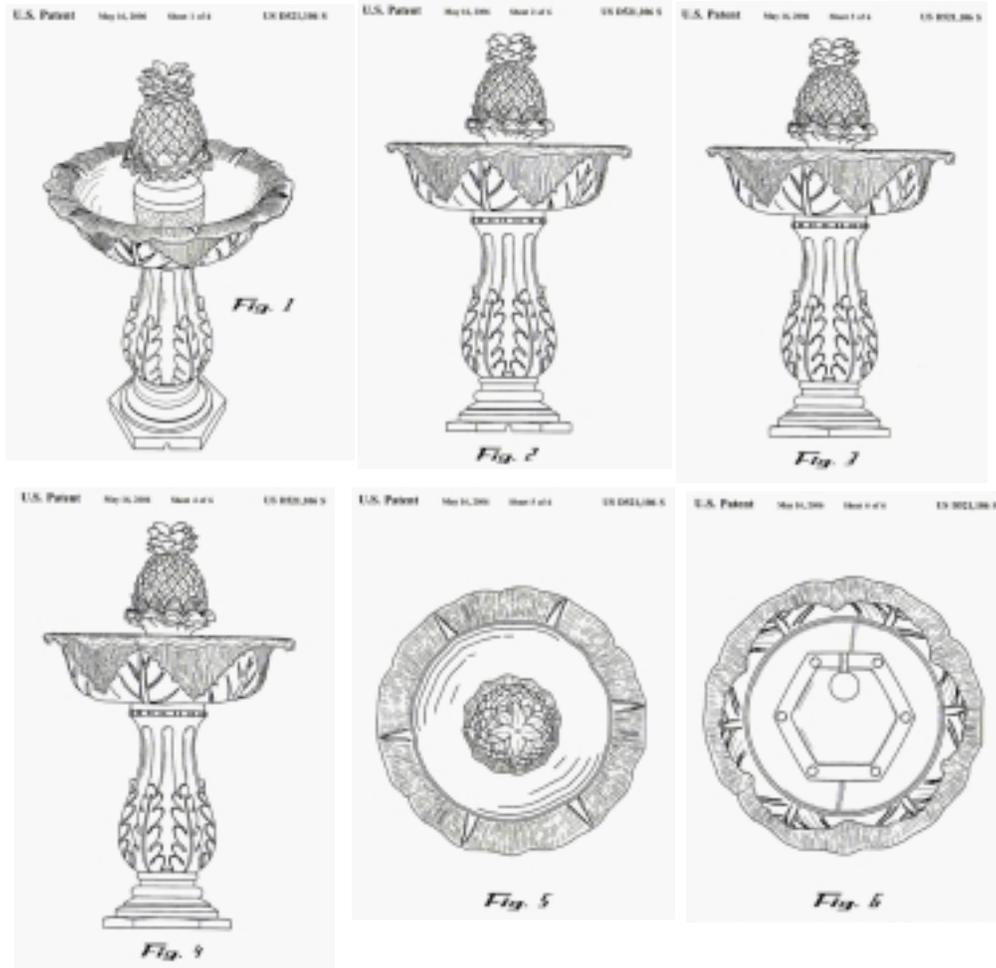
(16) **Appl. No.:** 29221389 (17) **CLASSIFICATION**  
(18) **Filed:** **Jan. 28, 2005** (19) **U.S. Cl.:** **D03/204**

(20) **LOC (IN CL)** ..... 24-01  
(21) **U.S. Cl.** ..... D03/204  
(22) **Field of Classification Search** ..... D03/204;  
23917, 25, 19, 30, 21; D540/13  
See application file for complete search history.

(23) **References Cited**  
**U.S. PATENT DOCUMENTS**  
241,617 S \* 121884 *House* ..... D03/204  
2481,703 S \* 11998 *Kashim* ..... D03/204  
3221,337 S \* 81971 *Base* ..... D03/204

(25) **DESCRIPTION**  
The ornamental design for a fountain, substantially as shown and described.  
FIG. 1 is a perspective view showing the fountain;  
FIG. 2 is a front view thereof;  
FIG. 3 is a side view thereof, the opposite side view being the same;  
FIG. 4 is a rear view thereof;  
FIG. 5 is a top view thereof; and,  
FIG. 6 is a bottom view thereof.  
**3 Claims, 6 Drawing Sheets**





There are some exceptions to the general rules that all six sides of the cube are required: (1) mirror image of opposing sides, (2) thin, flat objects and (3) plain, unornamented sides. The patent attorney/agent should assist in determining the necessary views.

Objects with several parts should show them assembled and independently in the required views.

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(11) **United States Design Patent** (12) Patent No.: **US D521,201 S**  
 (13) Inventor: **Giulio Iacchetti** (14) Date of Patent: **May 16, 2006**

(15) **COMBINED BRUSH, BRUSH AND DESIGN**  
 (16) Inventor: **Giulio Iacchetti, Cattolica (IT)**  
 (17) Assignee: **Artemis di Ripand G. & C. S.R.L., Mantova (IT)**  
 (18) Term: **14 Years**  
 (19) Appl. No. **2004/0046**  
 (20) Filed: **Oct. 18, 2004**  
 (21) LDC (D) Cl. **94/01**  
 (22) U.S. Cl. **D23/02**  
 (23) Field of Classification Search: **D23/00, D23/01, D23/02, D23/03, D23/04, D23/05, D23/06, D23/07, D23/08, D23/09, D23/10, D23/11, D23/12, D23/13, D23/14, D23/15, D23/16, D23/17, D23/18, D23/19, D23/20, D23/21, D23/22, D23/23, D23/24, D23/25, D23/26, D23/27, D23/28, D23/29, D23/30, D23/31, D23/32, D23/33, D23/34, D23/35, D23/36, D23/37, D23/38, D23/39, D23/40, D23/41, D23/42, D23/43, D23/44, D23/45, D23/46, D23/47, D23/48, D23/49, D23/50, D23/51, D23/52, D23/53, D23/54, D23/55, D23/56, D23/57, D23/58, D23/59, D23/60, D23/61, D23/62, D23/63, D23/64, D23/65, D23/66, D23/67, D23/68, D23/69, D23/70, D23/71, D23/72, D23/73, D23/74, D23/75, D23/76, D23/77, D23/78, D23/79, D23/80, D23/81, D23/82, D23/83, D23/84, D23/85, D23/86, D23/87, D23/88, D23/89, D23/90, D23/91, D23/92, D23/93, D23/94, D23/95, D23/96, D23/97, D23/98, D23/99, D23/00**  
 See application file for complete search history.

(24) **References Cited**  
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 0044,004 S \* 1/1999 **Bliss** D05774  
 0051,005 S \* 1/1999 **Method** D0131  
 041,000 S \* 7/1999 **Nobiline et al.** D0121  
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 6,100,207 S \* 7/2001 **Combs** D0102

\* cited by examiner

1 Claim, 5 Drawing Sheets



U.S. Patent May 16, 2006 Sheet 1 of 5 US D521,201 S



**Fig. 1**



**Fig. 2**



**Fig. 3**

U.S. Patent May 16, 2006 Sheet 1 of 5 US D521,201 S

**Fig. 7**



**Fig. 8**

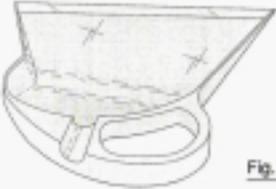


U.S. Patent May 16, 2006 Sheet 1 of 5 US D521,201 S

**Fig. 9**

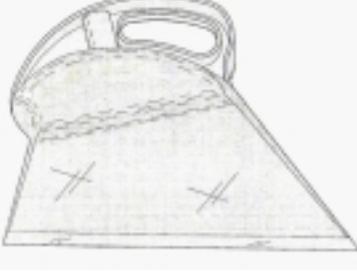


**Fig. 10**

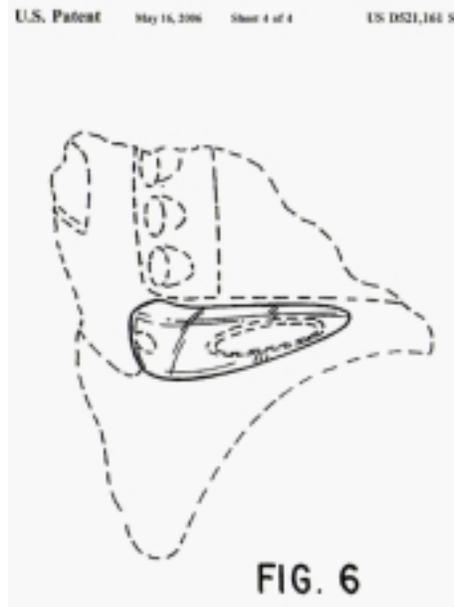


U.S. Patent May 16, 2006 Sheet 1 of 5 US D521,201 S

**Fig. 11**



Some patent practitioners also include a view of the object in its intended use as a seventh view. (The non-claimed subject matter should be in dashed lines.)



Anything that is not claimed as part of the invention should be shown in dashed or phantom lines. These may include objects around the device in use or persons using the device. Purely functional and non-ornamental parts that do not add to the esthetic design being claimed are not generally shown. If there are portions behind transparent surfaces, these portions should be drawn with thinner, but solid, lines to distinguish them from the forefront. 0.1 mm lines work well.

Labels and other markings may be omitted or shown in dashed lines as examples. Labels and logos that are part of the design should be shown in continuous lines and will be part of the claimed invention.

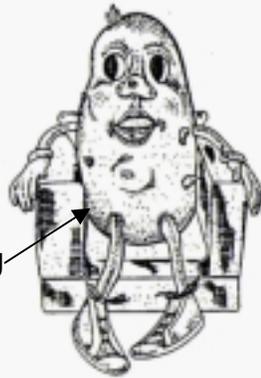
Moving parts may not be shown in alternate figures in the same drawing, but may be shown in several drawings in the various positions.

No reference numbers are used in design patent drawings (because there is no written description).

Shading should be applied as if the light source were in the upper left of the drawing, producing shadows to the right and bottom sides of the article. Shading may be done with linear straight lines (continuous or broken) or stippled with tiny dots. Shading should be with 0.1 mm lines. Shading of opaque surfaces should be parallel to the vertical or horizontal edges of the surface while shading for shiny or transparent surfaces should be slanted on a 45 degree angle with respect to the object. With various surface textures, a combination of the two may be appropriate. 3-D CAD programs that apply different types of shading may only be used to generate informal drawings.

U.S. Patent Aug. 20, 1991 Sheet 1 of 2 Des. 319,231

FIG. 1



Stippled shading

FIG. 2

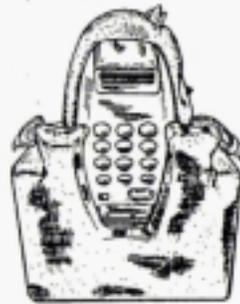
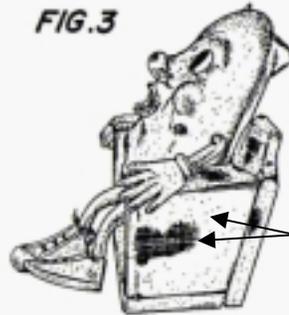
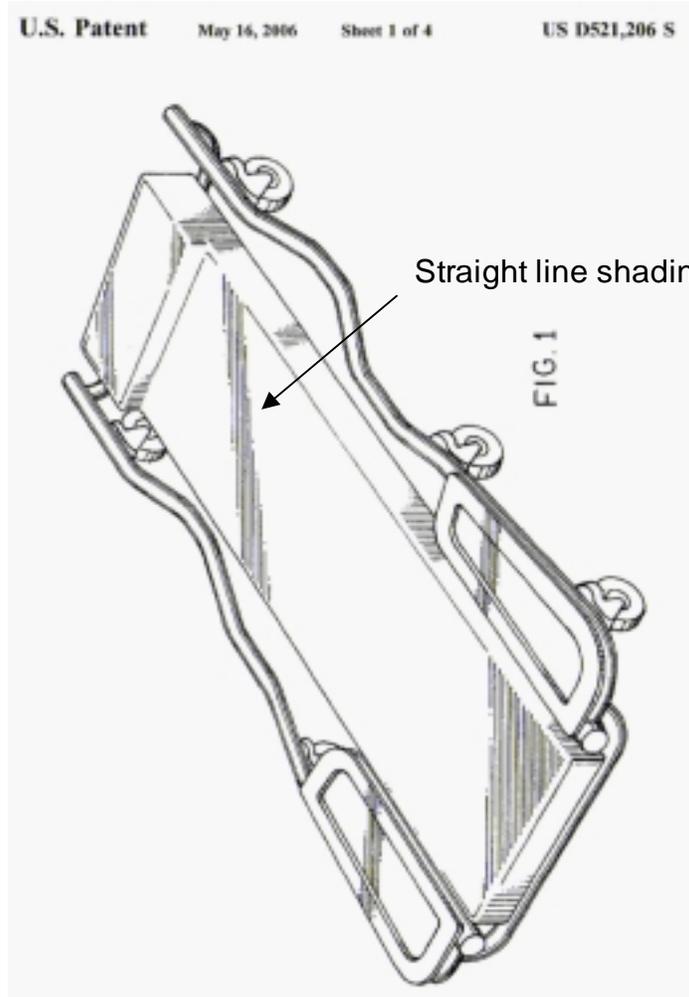


FIG. 3



Combination of stippled shading and straight line shading



Color may be represented by standard (hatch) drafting symbol patterns. It only needs to be represented when it is important to the claimed invention. The hatching is applied in continuous lines with no regard to the surface contours of the article. 0.1mm lines are best for shading and should be continuous, straight, parallel, slanted and regularly spaced.

A great resource for examples is the USPTO patent database of issued patents at [www.USPTO.gov](http://www.USPTO.gov). A word of caution, however, many drawings contain errors or deviate from the formal drawing requirements. Just because one Examiner permitted such deviation does not mean another Examiner will do likewise. It is best to review the rules periodically to re-familiarize yourself and prevent falling into sloppy habits.

Appendix [Extract of Manual of Patent Examining Procedure](#)  
[Sample utility patent \(a fun patent to read\)](#)  
[Sample design patent](#)  
[Extract of "A Guide to Filing a Design Patent Application"](#)