EXHIBIT 1

PART 4 OF 5

If an application >as filed< incorporates essential material by reference to a U.S. patent or a pending and commonly owned * U.S. application **, applicant may be required prior to examination to furnish the Office with a copy of the referenced material together with an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the copy consists of the same material incorporated by reference in the referencing application. However, if a copy of a printed U.S. patent is furnished, no affidavit or declaration is required.

**

>Prior to allowance of an application that incorporates essential material by reference to a pending U.S. application, the examiner shall determine if the referenced application has issued as a patent. If the referenced application has issued as a patent, the examiner shall enter the U.S. Patent No. of the referenced application in the specification of the referencing application (see MPEP § 1302.04). If the referenced application has not issued as a patent,< applicant will be required to amend the disclosure of the referencing application to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating the amendatory material consists of the same material incorporated by reference in the referencing application.

Improper Incorporation

The filing date of any application wherein essential material is improperly incorporated by reference to a foreign application or patent or to a publication will not be affected because of the reference. In such a case, the applicant will be required to amend the specification to include the material incorporated by reference. The following form paragraphs may be used.

¶ *6.19 Incorporation by Reference, Foreign Patent or Application*

The incorporation of essential material by reference to a foreign application or foreign patent or to a publication inserted in the specification is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. *In re Hawkins*, 486 F. 2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); *In re Hawkins*, 486 F. 2d 577, 179 USPQ 167 (CCPA 1973).

¶ *6.19.>0<1 Improper Incorporation by Reference*

The attempt to incorporate subject matter into this application by reference to [1] is improper because [2].

Examiner Note:

1. In bracket 1, identify the document such as application or patent number or other identification.

2. In bracket 2, give reason why it is improper.

The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant stating that the amendatory material consists of the same material incorporated by reference in the referencing application. *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); *In re Hawkins*, 486 F.2d 577, 179 USPQ 167, (CCPA 1973).

Reliance on a commonly assigned copending application by a different inventor may ordinarily be made for the purpose of completing the disclosure. See *In re Fried*, 329 F.2d 323, 141 USPQ 27, (CCPA 1964), and *General Electric Co.* v. *Brenner*, 407 F.2d 1258, 159 USPQ 335 (D.C. Cir 1968).

Since a disclosure must be complete as of the filing date, subsequent publications or subsequently filed applications cannot be relied on to establish a constructive reduction to practice or an enabling disclosure as of the filing date. *In re Glass*, 492 F.2d 1228, 181 USPQ 31 (CCPA 1974); In *re Scarbrough*, 500 F.2d 560, 182 USPQ 298 (CCPA 1974); *White Consolidated Industries, Inc.* v. *Vega Servo-Control, Inc.*, 713 F.2d 788, 218 USPQ 961 (Fed. Cir. 1983).

2. Review of Applications Which Are Relied on To Establish an Earlier Effective Filing Date.

The limitations on the material which may be incorporated by reference in U.S. patent applications which are to issue as U.S. patents do not apply to applications relied on only to establish an earlier effective filing date under 35 U.S.C. 119 or 35 U.S.C. 120. The reason for incorporation by reference practice with respect to applications which are to issue as U.S. patents is to provide the public with a patent disclosure which minimizes the public's burden to search for and obtain copies of docu-

ments incorporated by reference which may not be readily available. Through the Office's incorporation by reference policy, the Office ensures that reasonably complete disclosures are published as U.S. patents

The same policy concern does not apply where the sole purpose for which an applicant relies on an earlier U.S. or foreign application is to establish an earlier filing date. Incorporation by reference in the earlier application of (1) patents or applications published by foreign countries or regional patent offices, (2) nonpatent publications, (3) a U.S. patent or application which itself incorporates "essential material" by reference, or (4) a foreign application, is not critical in the case of a benefit" application.

When an applicant, or a patent owner in a reexamination or interference, claims the benefit of the filing date of an earlier application which incorporates material by reference, the applicant or patent owner may be required to supply copies of the material incorporated by reference. For example, an applicant may claim the benefit of the filing date of a foreign application which itself incorporates by reference another earlier filed foreign application. If necessary, due to an intervening reference, applicant should be required to supply a copy of the earlier filed foreign application, along with an English language translation. A review can then be made of the foreign application and all material incorporated by reference to determine whether the foreign application discloses the invention sought to be patented in the manner required by the first paragraph of 35 U.S.C. 112 so that benefit may be accorded, *In re Gosteli*, 872 F.2d 1008, 10 USPQ2d 1614 (Fed. Cir. 1989).

* SIMULATED OR PREDICTED TEST RESULTS OR PROPHETIC EXAMPLES

Simulated or predicted test results and prophetical examples (paper examples) are permitted in patent applications. Working examples correspond to work actually performed and may describe tests which have actually been conducted and results that were achieved. Paper examples describe the manner and process of making an embodiment of the invention which has not actually been conducted. Paper examples should not be represented as work actually done. No results should be represented as actual results unless they have actually been achieved. Paper examples should not be described using the past tense.

NOTE. For problems arising from the designation of materials by trademarks and trade names, see MPEP § 608.01(v).

608.01(q) Substitute or Rewritten Specification [R-1]

37 CFR 1.125. Substitute specification.

If the number or nature of the amendments shall render it difficult to consider the case, or to arrange the papers for printing or copying, the examiner may require the entire specification, including the claims, or any part thereof, to be rewritten. A substitute specification may not be accepted unless it has been required by the examiner or unless it is clear to the examiner that acceptance of a substitute specification would facilitate processing of the application. Any substitute specification filed must be accompanied by a statement that the substitute specification includes no new matter. Such statement must be a verified statement if made by a person not registered to practice before the Office.

The specification is sometimes in such faulty English that a new specification is necessary; in such instances, a new specification should be required.

Form Paragraph 6.28 may be used in where the specification is in faulty English.

¶ *6.28 Idiomatic English*

A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52 (a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter. Such statement must be a verified statement if made by a person not registered to practice before the Office.

Form Paragraph 6.28.>0<1 may be used to require a substitute specification for reasons other than faulty English.

¶ *6.28.>0<1 Substitute Specification*

A substitute specification is required because [1]. The substitute specification filed must be accompanied by a statement that it contains no new matter. Such statement must be a verified statement if made by a person not registered to practice before the Office.

Examiner Note:

1.In bracket 1, insert clear and concise examples of why a new specification is required.

2. A new specification is required if the number or nature of the amendments render it difficult to consider the *>application< or to arrange the papers for printing or copying, 37 CFR 1.125.

3. See also form paragraph 13.01 for partial rewritten specification.

Under current practice, substitute specifications may be voluntarily filed by the applicant if desired. A substitute specification will normally be accepted by the Office even if it has not been required by the examiner. Substitute specifications will be accepted if applicant submits

therewith a marked–up copy which shows the portions of the original specification which are being added and deleted and a statement that the substitute specification includes no new matter and that the substitute specification includes the same changes as are indicated in the marked–up copy of the original specification showing additions and deletions. Such statement must be a verified statement if made by a person not registered to practice before the Office. Additions should be clearly indicated in the marked–up copy such as by underlining, and deletions should be indicated between brackets. Examiners may also require a substitute specification where it is considered to be necessary.

However, any substitute page of the specification, or entire specification, filed must be accompanied by * a statement indicating that no new matter was included. The statement must be verified if made by a person not registered to practice before the Office. There is no obligation on the examiner to make a detailed comparison between the old and the new specifications for determining whether or not new matter has been added. If, however, an examiner becomes aware that new matter is present, objection thereto should be made.

The filing of a substitute specification rather than amending the original application has the advantage for applicants of eliminating the need to prepare an amendment of the specification. If word processing equipment is used by applicants, substitute specifications can be easily prepared. The Office receives the advantage of saving the time needed to enter amendments in the specification and a reduction in the number of printing errors.

A substitute specification should normally be entered. See MPEP § 714.20.

New matter in amendment, see MPEP § 608.04.

Application prepared for issue, see MPEP § 1302.02.

608.01(r) Derogatory Remarks About Prior Art Specification

The applicant may refer to the general state of the art and the advance thereover made by his or her invention, but he or she is not permitted to make derogatory remarks concerning the inventions of others. Derogatory remarks are statements disparaging the products or processes of any particular person other than the applicant, or statements as to the merits or validity of applications or patents of another person. Mere comparison with the prior art are not considered to be disparaging, per se.

608.01(s) Restoration of Cancelled Matter

Cancelled text in the specification or a cancelled claim can be restored only by presenting the cancelled matter as a new insertion. See 37 CFR 1.124, MPEP § 714.24.

608.01(t) Use in Subsequent Application

A reservation for a future application of subject matter disclosed but not claimed in a pending application will not be permitted in the pending application, 37 CFR 1.79, MPEP § 608.01(e).

No part of a specification can normally be transferred to another application. Drawings may be transferred to another application only upon the granting of a petition filed under the provisions of 37 CFR 1.182.

608.01(u) Use of Formerly Filed Incomplete Application

Parts of an incomplete application which have been retained by the Office may be used as part of a complete application if the missing parts are later supplied. See MPEP § 506 and § 506.01.

608.01(v) Trademarks and Names Used in Trade [R–2]

The expressions "trademarks" and "names used in trade" as used below have the following meanings:

Trademark: a word, letter, symbol, or device adopted by one manufacturer or merchant and used to identify and distinguish his or her product from those of others. It is a proprietary word pointing distinctly to the product of one producer.

Names Used in Trade: a nonproprietary name by which an article or product is known and called among traders or workers in the art, although it may not be so known by the public, generally. Names used in trade do not point to the product of one producer, but they identify a single article or product irrespective of producer.

Names used in trade are permissible in patent applications if:

(1) Their meanings are established by an accompanying definition which is sufficiently precise and definite to be made a part of a claim, or

(2) In this country, their meanings are well-known and satisfactorily defined in the literature.

Condition (1) or (2) must be met at the time of filing of the complete application.

TRADEMARKS

The relationship between a trademark and the product it identifies is sometimes indefinite, uncertain, and arbitrary. The formula or characteristics of the product may change from time to time and yet it may continue to be sold under the same trademark. In patent specifications, every element or ingredient of the product should be set forth in positive, exact, intelligible language, so that there will be no uncertainty as to what is meant. Arbitrary trademarks which are liable to mean different things at the pleasure of manufacturers do not constitute such language; *Ex Parte Kattwinkle,* 12 USPQ 11 (Bd. Apps. 1931).

However, if the product to which the trademark refers is ** set forth in such language that its identity is clear, the examiners are authorized to permit the use of the trademark if it is distinguished from common descriptive nouns by capitalization. If the trademark has a fixed and definite meaning, it constitutes sufficient identification unless some physical or chemical characteristic of the article or material is involved in the invention. In that event, as also in those cases where the trademark has no fixed and definite meaning, identification by scientific or other explanatory language is necessary; *In re Gebauer-Fuelnegg,* 50 USPQ 125 (CCPA 1941).

The matter of sufficiency of disclosure must be decided on an individual case-by-case basis, *In re Metcalfe and Lowe,* 161 USPQ 789; 869 O.G. 691 (CCPA 1969).

Where the identification of a trademark is introduced by amendment, it must be restricted to the characteristics of the product known at the time the application was filed to avoid any question of new matter.

If proper identification of the product sold under a trademark, or a product referred to only by a name used in trade, is omitted from the specification and such identification is deemed necessary under the principles set forth above, the examiner should hold the disclosure insufficient and reject on the ground of insufficient disclosure any claims based on the identification of the product merely by trademark or by the name used in trade. If the product cannot be otherwise defined, an amendment defining the process of its manufacture may be permitted. Such amendments must be supported by satisfactory showings establishing that the specific nature or process of manufacture of the product as set forth in the amendment was known at the time of filing of the application.

Although the use of trademarks having definite meanings is permissible in patent applications, the proprietary nature of the marks should be respected. Trademarks should be identified by capitalizing **>each letter of the mark<. Every effort should be made to prevent their use in any manner which might adversely affect their validity as trademarks.

Form Paragraph 6.20 may be used.

¶ *6.20 Trademarks and Their Use*

The use of the trademark [1] has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Examiner Note:

Capitalize each letter of the word in the bracket.

The examiner should not permit the use of language such as "the product X (a descriptive name) commonly known as Y (trademark)" since such language does not bring out the fact that the latter is a trademark. Language such as "the product X (a descriptive name) sold under the trademark Y" is permissible.

The use of a trademark in the title of an application should be avoided as well as the use of a trademark coupled with the word "type"; i.e., "Band-Aid type bandage."

>In the event that the proprietary trademark is a "device" depicted in a drawing, either the brief description of the drawing or the detailed description of the drawing should specify that the "device" is a registered trademark of Company X.<

The owner of a trademark may be identified in the specification.

Group directors should reply to all trademark misuse complaint letters and forward a copy to the editor of this manual.

See Appendix I for a partial listing of trademarks and the particular goods to which they apply.

INCLUSION OF COPYRIGHT OR MASK WORK NOTICE IN PATENTS

37 CFR 1.71 Detailed description ...

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(d) A copyright or mask work notice may be placed in a design or utility patent application adjacent to copyright and mask work material contained therein. The notice may appear at any appropriate portion of the patent application disclosure. For notices in drawings, see 1.84(s). The content of the notice must be limited to only those elements required 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. Inclusion of a copyright or mask work notice will be permitted only if the authorization language set forth in paragraph (e) of this section is included at the beginning (preferably as the first paragraph) of the specification.

(e) The authorization shall read as follows:

A portion of the disclosure of this patent document contains material which is subject to (copyright or mask work) protection. The (copyright or mask work) owner has no objection to the facsimile reproduction by anyone of the patent document or the patent disclosure, as it appears in the Patent and Trademark Office patent file or records, but otherwise reserves all (copyright or mask work) rights whatsoever.

*****

37 CFR 1.84 Standards for drawings

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(s) 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. Inclusion of a copyright or mask work notice will be permitted only if the authorization language set forth in § 1.71(e) is included at the beginning (preferably as the first paragraph) of the specification.

*****

The Patent and Trademark Office will permit the inclusion of a copyright or mask work notice in a design or utility patent application, and thereby any patent issuing therefrom,which discloses material on which copyright or mask work protection has previously been established, under the following conditions:

(1) The copyright or mask work notice must be placed adjacent to the copyright or mask work material. Therefore, the notice may appear at any appropriate portion of the patent application disclosure, including the drawing. However, if appearing in the drawing, the notice must comply with 37 CFR 1.84(s). If placed on a drawing in conformance with these provisions, the notice will not be objected to as extraneous matter under 37 CFR 1.84.

(2) The content of the notice must be limited to only those elements required by law. For example, "©1983 John Doe"(17 U.S.C. 401) and "M John Doe"(35 U.S.C. 909) would be properly limited, and under current statutes, legally sufficient notices of copyright and mask work respectively.

(3) Inclusion of a copyright or mask work notice will be permitted only if the following authorization in 37 CFR 1.71(e) is included at the beginning (preferably as the first paragraph) of the specification to be printed for the patent:

> A portion of the disclosure of this patent document contains material which is subject to [copyright or mask work] protection. The [copyright or mask work] owner has no objection to the facsimile reproduction by any one of the patent disclosure, as it appears in the Patent and Trademark Office patent files or records, but otherwise reserves all [copyright or mask work] rights whatsoever.

(4) Inclusion of a copyright or mask work notice after a Notice of Allowance has been mailed will be permitted only if the criteria of 37 CFR 1.312 have been satisfied.

The inclusion of a copyright or mask work notice in a design or utility patent application, and thereby any patent issuing therefrom, under the conditions set forth above will serve to protect the rights of the author/inventor, as well as the public, and will serve to promote the mission and goals of the Patent and Trademark Office. Therefore, the inclusion of a copyright or mask work notice which complies with these conditions will be permitted. However, any departure from these conditions may result in a refusal to permit the desired inclusion. If the authorization required under condition (3) above does not include the specific language "(t)he [copyright or mask work] owner has no objection to the facsimile reproduction by anyone of the patent document or the patent disclosure, as it appears in the Patent and Trademark Office patent files or records,..." the notice will be objected to as improper by the examiner of the application. If the examiner maintains the objection upon reconsid-

eration a petition may be filed in accordance with 37 CFR 1.181.

608.02 Drawing [R-2]

35 U.S.C. 113. Drawings.

The applicant shall furnish a drawing where necessary for the understanding of the subject matter to be patented. When the nature of such subject matter admits of illustration by a drawing and the applicant has not furnished such a drawing, the Commissioner may require its submission within a time period of not less than two months from the sending of a notice thereof. Drawings submitted after the filing date of the application may not be used (i) to overcome any insufficiency of the specification due to lack of an enabling disclosure or otherwise inadequate disclosure therein, or (ii) to supplement the original disclosure thereof for the purpose of interpretation of the scope of any claim.

37 CFR 1.81. Drawings required in patent application.

(a) The applicant for a patent is required to furnish a drawing of his or her invention where necessary for the understanding of the subject matter sought to be patented; this drawing, or a high quality copy thereof, must be filed with the application. Since corrections are the responsibility of the applicant, the original drawing(s) should be retained by the applicant for any necessary future correction.

(b) Drawings may include illustrations which facilitate an understanding of the invention (for example, flow sheets in cases of processes, and diagrammatic views).

(c) Whenever the nature of the subject matter sought to be patented admits of illustration by a drawing without its being necessary for the understanding of the subject matter and the applicant has not furnished such a drawing, the examiner will require its submission within a time period of not less than two months from the date of the sending of a notice thereof.

(d) Drawings submitted after the filing date of the application may not be used to overcome any insufficiency of the specification due to lack of an enabling disclosure or otherwise inadequate disclosure therein, or to supplement the original disclosure thereof for the purpose of interpretation of the scope of any claim.

37 CFR 1.84. Standards for drawings.

(a) Drawings. There are two acceptable categories for presenting drawings in utility patent applications:

(1) Black ink. Black and white drawings are normally required. India ink, or its equivalent that secures solid black lines, must be used for drawings, or

(2) Color. On rare occasions, color drawings may be necessary as the only practical medium by which to disclose the subject matter sought to be patented in a utility patent application or the subject matter of a statutory invention registration. The Patent and Trademark Office will accept color drawings in utility patent applications and statutory invention registrations only after granting a petition filed under this paragraph explaining why the color drawings are necessary. Any such petition must include the following:

(i) The appropriate fee set forth in § 1.17(h);

(ii) Three (3) sets of color drawings; and

(iii) The specification must contain the following language as the first paragraph in that portion of the specification relating to the brief description of the drawing:

"The file of this patent contains at least one drawing executed in color. Copies of this patent with color drawing(s) will be provided by the Patent and Trademark Office upon request and payment of the necessary fee."

If the language is not in the specification, a proposed amendment to insert the language must accompany the petition.

(b) Photographs.

(1) Black and white. Photographs are not ordinarily permitted in utility and design patent applications. However, the Office will accept photographs in utility and design patent applications only after granting a petition filed under this paragraph which requests that photographs be accepted. Any such petition must include the following:

(i) The appropriate fee set forth in § 1.17(h); and

(ii) Three (3) sets of photographs.

Photographs must either be developed on double weight photographic paper or be permanently mounted on bristol board. The photographs must be of sufficient quality so that all details in the drawing are reproducible in the printed patent.

(2) Color. Color photographs will be accepted in utility patent applications if the conditions for accepting color drawings have been satisfied. See paragraph (a)(2) of this section.

(c) Identification of drawings. Identifying indicia, if provided, should include the application number or the title of the invention, inventor's name, docket number (if any), and the name and telephone number of a person to call if the Office is unable to match the drawings to the proper application. This information should be placed on the back of each sheet of drawings a minimum distance of 1.5 cm. (5/8 inch) down from the top of the page.

(d) 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.

(e) Type of paper. Drawings submitted to the Office must be made on paper which is flexible, strong, white, smooth, nonshiny, and durable. All sheets must be free from cracks, creases, and folds. Only one side of the sheet shall be used for the drawing. Each sheet must be reasonably free from erasures and must be free from alterations, overwritings, and interlineations. Photographs must either be developed on double weight photographic paper or be permanently mounted on bristol board. See paragraph (b) of this section for other requirements for photographs.

(f) Size of paper. 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:

(1) 21.6 cm. by 35.6 cm. (8 1/2 by 14 inches),

(2) 21.6 cm. by 33.1 cm. (8 1/2 by 13 inches),

(3) 21.6 cm. by 27.9 cm. (8 1/2 by 11 inches), or

(4) 21.0 cm. by 29.7 cm. (DIN size A4).

(g) Margins. The sheets must not contain frames around the sight; i.e., the usable surface. The following margins are required:

(1) On 21.6 cm. by 35.6 cm. (8 1/2 by 14 inch) drawing sheets, each sheet must include a top margin of 5.1 cm. (2 inches), and bottom and side margins of .64 cm. (1/4 inch) from the edges, thereby leaving a sight no greater than 20.3 cm. by 29.8 cm. (8 by 11 3/4 inches).

(2) On 21.6 cm. by 33.1 cm. (8 1/2 by 13 inch) drawing sheets, each sheet must include a top margin of 2.5 cm. (1 inch) and bottom and side margins of .64 cm. (1/4 inch) from the edges, thereby leaving a sight no greater than 20.3 cm. by 29.8 cm. (8 by 11 3/4 inches).

(3) On 21.6 cm. by 27.9 cm. (8 1/2 by 11 inch) drawing sheets, each sheet must include a top margin of 2.5 cm. (1 inch) and bottom and side margins of .64 cm. (1/4 inch) from the edges, thereby leaving a sight no greater than 20.3 cm. by 24.8 cm. (8 by 9 3/4 inches).

(4) On 21.0 cm. by 29.7 cm. (DIN size A4) drawing sheets, each sheet must include a top margin of at least 2.5 cm., a left side margin of 2.5 cm., a right side margin of 1.5 cm., and a bottom margin of 1.0 cm., thereby leaving a sight no greater than 17.0 cm. by 26.2 cm.

(h) Views. The drawing must contain as many views as necessary to show the invention. The views may be plan, elevation, section, or perspective views. Detail views of portions of elements on a larger scale if necessary, may also be used. All views of the drawing must be grouped together and arranged on the sheet(s) without wasting space, preferably in an upright position, clearly separated from one another, and must not be included in the sheets containing the specifications, claims, or abstract. 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.

(1) Exploded views. 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 which is on the same sheet as another figure, the exploded view should be placed in brackets.

(2) Partial views. When necessary, a view of a large machine or device in its entirety may be broken into partial views on a single sheet, or extended over several sheets if there is no loss in facility of understanding the view. Partial views drawn on separate sheets must always be capable of being linked edge to edge so that no partial view contains parts of another partial view. A smaller scale view should be included showing the whole formed by the partial views and indicating the positions of the parts shown. When a portion of a view is enlarged for magnification purposes, the view and the enlarged view must each be labeled as separate views.

(i) Where views on two or more sheets form, in effect, a single complete view, the views on the several sheets must be so arranged that the complete figure can be assembled without concealing any part of any of the views appearing on the various sheets.

(ii) A very long view may be divided into several parts placed one above the other on a single sheet. However, the relationship between the different parts must be clear and unambiguous.

(3) Sectional views. The plane upon which a sectional view is taken should be indicated on the view from which the section is cut by a broken line. The ends of the broken line should be designated by Arabic or Roman numerals corresponding to the view number of the sectional view, and should have arrows to indicate the direction of sight. Hatching must be used to indicate section portions of an object, and must be made by regularly spaced oblique parallel lines spaced sufficiently apart to enable the lines to be distinguished without difficulty. Hatching should not impede the clear reading of the reference characters and lead lines. If it is not possible to place reference characters outside the hatched area, the hatching may be broken off wherever reference characters are inserted. Hatching must be at a substantial angle to the surrounding axes or principal lines, preferably 45°. 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.

(4) Alternate position. 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.

(5) Modified forms. Modified forms of construction must be shown in separate views.

(i) 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 abscissa (of X) and the axis of ordinates (of Y).

(j) View for *Official Gazette*. One of the views should be suitable for publication in the *Official Gazette* as the illustration of the invention.

(k) Scale.

(1) 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. Views of portions of the mechanism on a larger scale should be used when necessary to show details clearly. Two or more sheets may be used if one does not give sufficient room. The number of sheets should be kept to a minimum.

(2) When approved by the examiner, the scale of the drawing may be graphically represented. 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.

(3) Elements of the same view must be in proportion to each other, unless a difference in proportion is indispensable for the clarity of the view.

Instead of showing elements in different proportion, a supplementary view may be added giving a larger-scale illustration of the element of the initial view. The enlarged element shown in the second view should be surrounded by a finely drawn or "dot-dash" circle in the first view indicating its location without obscuring the view.

(l) Character of lines, numbers, and letters. 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 however fine, to shading, and to lines representing cut surfaces in sectional views. Lines and strokes of