

Nov. 19, 1929.

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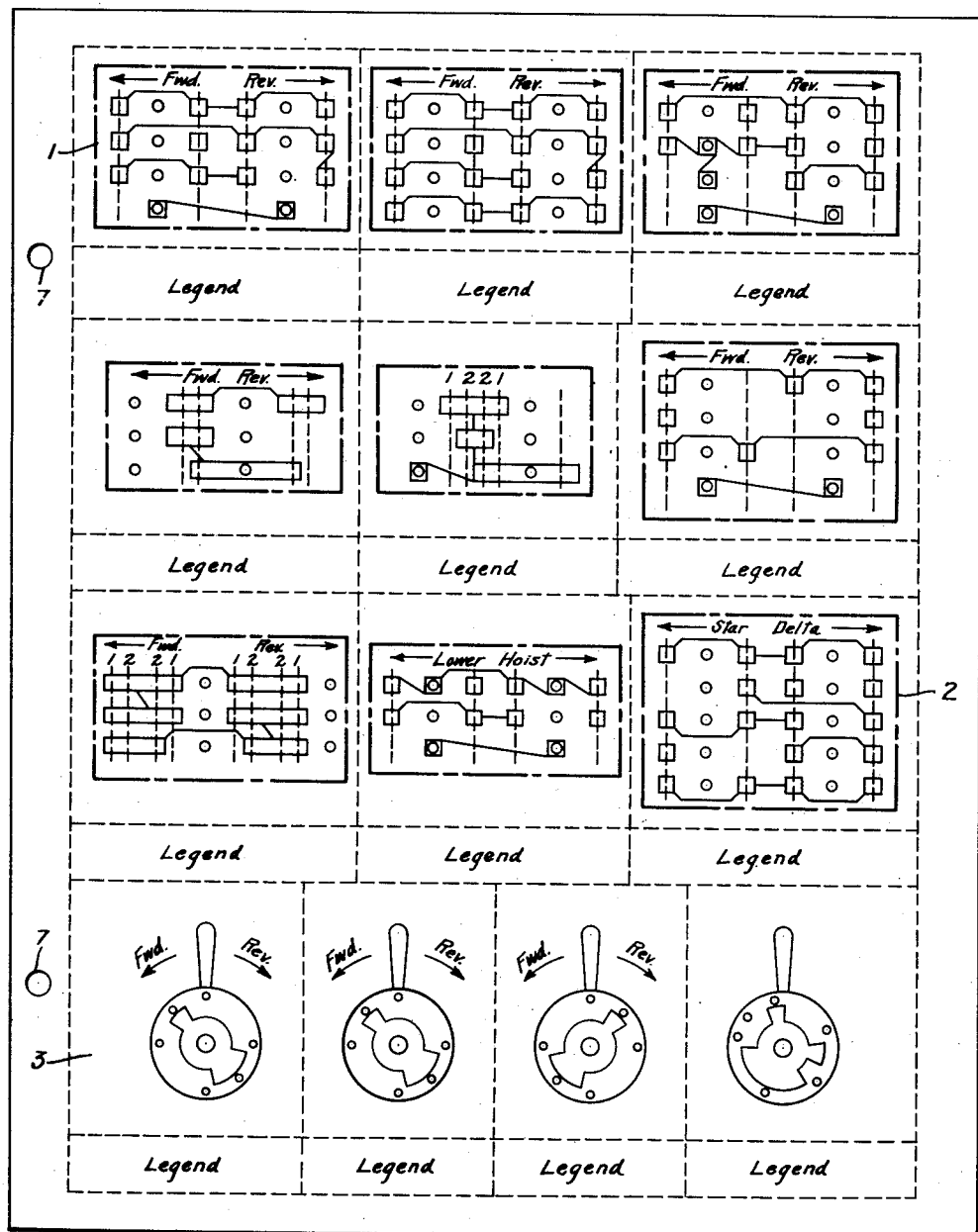
1,736,445

PROCESS OF MAKING TRACINGS

Filed Oct. 20, 1927

2 Sheets-Sheet 1

Fig. 1.



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2 Sheets-Sheet 2

Fig. 2.

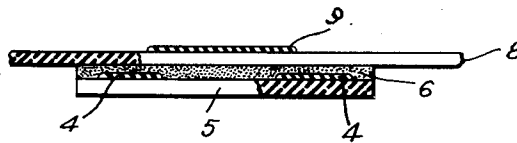
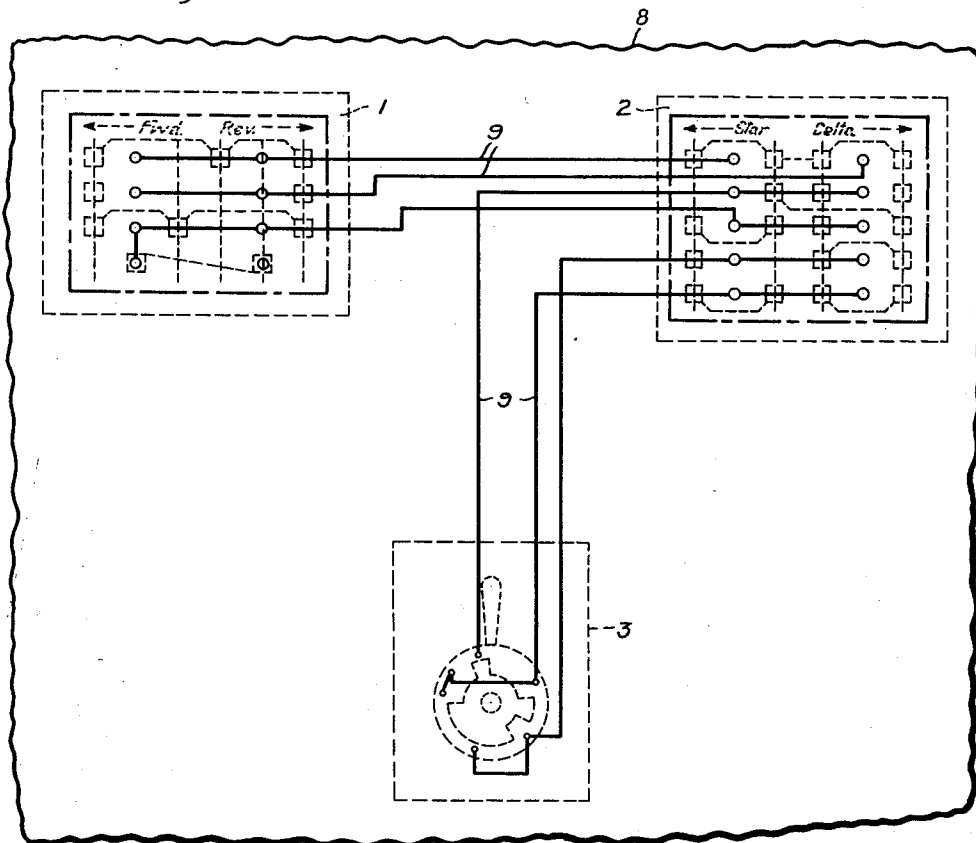


Fig. 3.



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ROY L. JANNENGA AND ROBERT C. LEMMERHART, OF EAST PITTSBURGH, PENNSYLVANIA, ASSIGNORS TO WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA

PROCESS OF MAKING TRACINGS

Application filed October 20, 1927. Serial No. 227,450.

Our invention relates to processes of making tracings from which multiple copies may be made and it has specific relation to a simplified process for making tracings in which a number of standard symbols are used.

An object of our invention is to simplify and shorten the process of preparing tracings.

Another object of our invention is to shorten the time consumed in making tracings in which a plurality of standard symbols appear.

The process of making blue-prints consists, essentially, in drawing the desired figures on a sheet of transparent material, such as a specially prepared linen or a transparent paper, placing the tracing so formed against a sheet of glass and placing a sheet of sensitized paper against the tracing. The tracing and sensitized paper are then exposed to light and, when the paper is developed, the lines of the tracing appear as white lines against a blue back-ground. The blue print is, in fact, a negative of the tracing, since the black lines of the tracing form the white areas of the blue print.

In certain types of work, a number of symbolic representations are used, and the drawing of these symbolic representations consumes a great portion of the time required in making the drawing on the tracing cloth. Our invention simplifies this process and materially reduces the time used in making the tracing.

Our invention may be better understood by reference to the accompanying drawings, in which like figures indicate like parts.

Figure 1 is a face view of a sectionalized sheet of symbolic representations of electric machinery, such as switches and controllers;

Fig. 2 is a sectional view showing various symbolic representations or "symbol stickers" applied to the underside of a sheet of tracing paper; and

Fig. 3 is a face view of the "symbol stickers" applied to the underside of the tracing paper, connections having been drawn between points of the symbols to indicate the complete electrical circuit.

In practicing our invention, the first step is to make up a number of "symbol stickers"

1, 2 and 3 such as are shown in Fig. 1. This is done by drawing the symbols, such as the switch connections shown in Fig. 1, on a transparent material, such as paper or linen. From the sheet so prepared, a negative is made according to the well known photo-engraving or photo-lithographic process. In the photo-lithographic process, the usual zinc etching is prepared and is used to print a number of sheets of symbol stickers, such as shown in Fig. 1. The printed lines thus constitute opaque bodies on the transparent sheet of paper 5 (Fig. 2). A coating of glue or other adhesive material 6 is applied to the face of the sheet which is preferably perforated between the symbols, as indicated by dotted lines, so that each symbol may be readily disengaged. The sheets may be provided with two small holes 7 at the left side, so that they may be bound into books convenient for the draftmen's use.

If, for instance, a draftsman wishes to make a tracing of a certain wiring diagram, such as the one shown in Fig. 3, he selects the proper "symbol stickers" from a sheet, such as shown in Fig. 1, and permanently applies them to the underside of the usual tracing sheet 8. The draftsman then supplies the lines 9 connecting the various symbols and supplies any figures or wording which may be necessary.

Referring to Fig. 3, for instance, it will be seen that the Figures 1, 2 and 3 which are supplied by the symbol stickers, represent the greater part of the drawing and that only a small part of the draftsman's time is consumed in connecting up the various points on the drawings.

From the tracing so produced, a brown negative print or a "brownie" is prepared. Since the symbol stickers constitute a second layer beneath the layer upon which the lines are drawn, the area covered by the "symbol sticker" appears on the "brownie" as a light grayish area. A master tracing is then printed from the "brownie". The grayish area on the brownie appears on the print but is removed during the developing process.

From the master tracing, any number of blue prints may be made according to the

well known blue-printing process hereinbefore described. Any minor additions or changes may be made on the master tracing.

It is obvious that some of the steps herein described may be eliminated or the process may be altered, for instance, the "symbol sticker" may be applied to the upper side of the tracing sheet and the connecting lines made accordingly. Such modifications may be made without departing from the spirit and scope of our invention, as defined in the appended claims.

We claim as our invention:

1. A tracing comprising a sheet of material having figures thereon and applicable members having symbolic figures thereon attached to a face of said sheet, the figures on the sheet being drawn so that they will connect the symbolic members.

2. A tracing comprising a transparent sheet of material having opaque figures thereon and transparent applicable members having opaque symbolic figures thereon attached to a face of said sheet, the figures on the sheet being drawn so that they will connect the symbolic members.

3. The process of making prints comprising superimposing a semi-transparent member upon another to provide a semi-transparent composite member, placing a sensitized sheet on the composite member, and making a print from said composite member by exposing the sensitized sheet to the light rays which have passed through said semi-transparent composite member.

4. A process of making blue prints comprising providing transparent stickers having conventional symbols printed thereon, attaching them by gluing to the reverse side of a transparent sheet of drawing paper, drawing various figures on the obverse side of said transparent sheet, printing a negative print from the drawing so secured, making a master tracing therefrom and making blue prints from said master tracing.

5. A tracing comprising a transparent sheet of paper, applicable members, having symbols thereon, attached to said paper and manually drawn lines connecting a plurality of said symbols.

6. A tracing comprising a transparent sheet of paper, applicable members, having symbols printed thereon, attached to one side of said sheet, said symbols appearing on the obverse side of said sheet as parts of a drawing, and manually drawn lines connecting a plurality of said symbols to form the complete drawing.

7. A tracing comprising a transparent sheet of paper, a plurality of applicable members attached to one side of said sheet and having symbols printed thereon which represent conventional parts of a wiring diagram, said symbols appearing on the obverse side of

the sheet as parts of a drawing, and manually drawn lines connecting the symbols to form a complete drawing.

8. The process of making a tracing which comprises attaching transparent stickers, having symbolic figures thereon forming parts of a drawing, to a transparent sheet and connecting a plurality of said symbols by means of manually drawn lines.

9. The process of making a tracing which comprises attaching transparent stickers, having printed symbolic figures thereon, to the reverse side of a transparent sheet of paper so that the symbols will appear on the obverse side as portions of a drawing and connecting a plurality of said symbols together by means of lines manually drawn on the obverse side of the transparent sheet.

10. The process of making a master tracing from which blue prints may be made which comprises attaching transparent stickers, having symbolic figures printed thereon, to a transparent sheet of paper, connecting the symbols together by means of manually drawn lines to form a complete drawing, printing a negative from the drawing and making the master tracing from the negative.

In testimony whereof, we have hereunto subscribed our names this 7th day of October, 1927.

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