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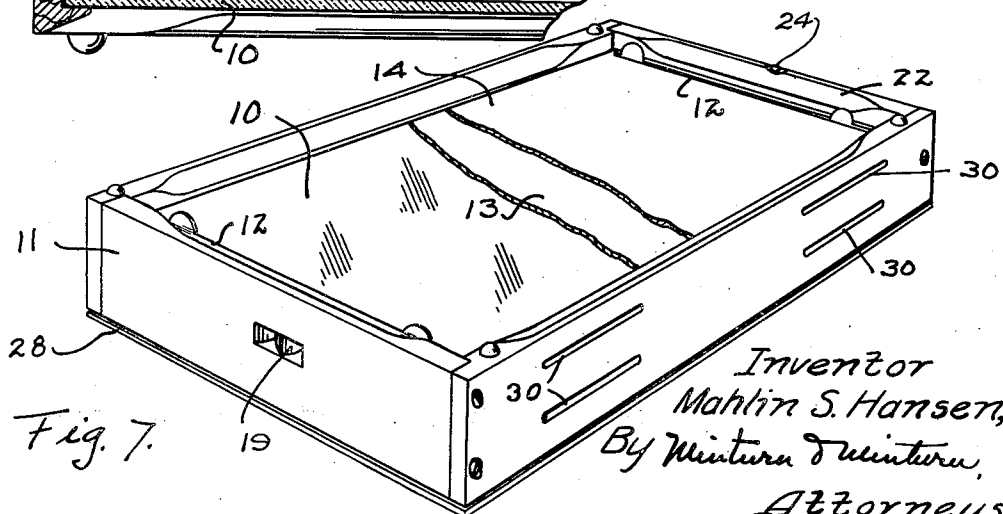
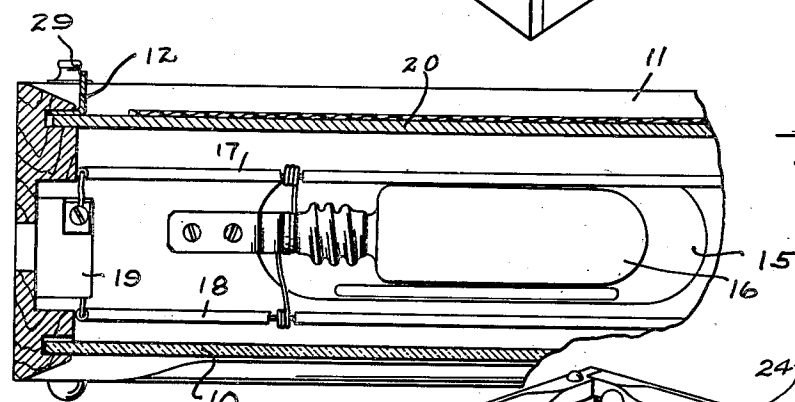
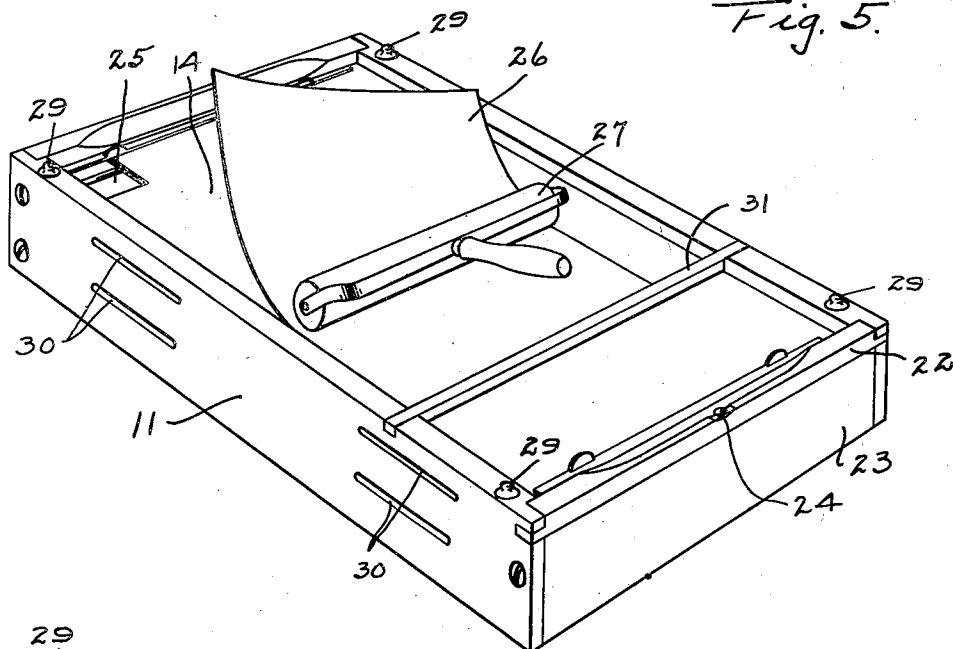
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2,166,992

FLAT TYPE DUPLICATOR

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2 Sheets-Sheet 2



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FLAT TYPE DUPLICATOR

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8 Claims. (Cl. 101—125)

This invention relates to duplicating devices of the type wherein a stencil is initially cut and then laid over an ink pad to receive a sheet of paper thereover for an impression of ink through the stencil.

A primary object of the invention is to provide means in a common unit which will maintain the stencil in a warm condition and support it over a uniformly lighted table while it is being cut, and at the same time will permit warming of the ink pad by the common heating and lighting means so as to permit speed in the sequence of operations from the cutting of the stencil to the making of the final impressions.

A further important object of the invention is to provide means for initially heating and maintaining the stencil in a softened condition so as to permit use thereof without danger of cracking or checking and without initial delay.

The structure forming the invention lends itself particularly to the making of multi-colored final impression by the use of a plurality of stencils and separately colored ink pads properly brought into register by the device.

These and many other objects and advantages of the invention will become apparent to those versed in the art in the following description of one particular form of the invention as shown by the accompanying drawings, in which

Fig. 1 is a plan view of the imprinting side of a structure embodying the invention with various elements broken away to disclose the interior thereof;

Fig. 2, a central longitudinal vertical section through the device;

Fig. 3, a detail on enlarged scale on the line 3—3 in Fig. 1;

Fig. 4, a detail on enlarged scale on the line 4—4 in Fig. 2;

Fig. 5, a view in perspective of the imprinting side of the device with the cover removed;

Fig. 6, a detail in vertical section through an end of the device; and

Fig. 7, a top view in perspective of the stencil cutting side of the device.

Like characters of reference indicate like parts throughout the several views in the drawings.

I form a box-like structure to carry a translucent glass 10 as a bottom enclosure. This glass 10 may be of any type such as ground or sand-blasted glass which will set up a diffusion of light from individual sources. This glass 10 is preferably mounted in the box, which is generally designated by the numeral 11, to be held in a permanent manner against removal. Preferably the

glass is set below the boundary edges of the side walls and ends of the box 11 so as to provide a retaining ridge therearound to receive the copy and stencil sheets therebetween and on the glass 10. The glass 10 is carried within retaining grooves in the box side walls and ends in a manner sufficiently loose as will permit the insertion of retaining clips 12 particularly at each end of the glass, the stencil and copy sheets having their ends overlapped by these clips as indicated in Fig. 7 where the copy sheet 13 is shown as being in contact with the glass 10 and the stencil sheet 14 overlies the copy sheet 13, both sheets preferably extending by their ends under the respective clips 12.

Each of the side walls of the box 11 is provided with a number of pockets 15, here shown as two in each wall, and these pockets are sufficiently large to receive a lamp 16 therein, the lamp preferably being of a cylindrical or pencil type. The lamp is carrier by any suitable socket device such as the structure indicated in Fig. 4, and electrical conductors 17 and 18 interconnect the lamps in parallel with an outlet receptacle 19 carried in one end of the box 11.

The other side of the box 11 is enclosed by a board or plate 20 which carries an ink pad 21 on its outer face. This plate 20 is entered from one end of the box 11 into grooves cut in the side walls. A strip 22 is removably carried by the end 23 of the box 11, from which end the plate 20 is inserted. This strip 22 has its end interengaging with the side walls of the box 11 in any suitable manner such as by a dovetail arrangement, and is maintained in position by a latch comprising a pin 24 passing through the strip 22 and received within a socket in the end wall 23, Fig. 3. Thus by removing the strip 22, the ink pad plate 20 may be withdrawn from the box at will and like plates inserted in its place.

The ink pad plate 20 has a corner cut away to leave a window 25 in one corner, preferably the left-hand corner, Figs. 1 and 5. This window is provided to facilitate the handling of the sheets of paper 26 which are placed over the stencil 14 to receive the impression. The papers are laid on the stencil one at a time and the roller 27 passed thereover in the usual manner, the paper being lifted behind the roller. This lifting is quickly accomplished by permitting the operator's finger to grasp the corner of the sheet 26 where it projects over the window 25.

Normally this side of the device is covered by a lid 28 when the device is not in operation. This lid 28 covers the entire area of the box 11 and is

preferably spaced above the edges and ends of the box a slight distance by suitable fasteners 29, here shown as one near each corner. These fasteners in the present form are of the glove type and normally space the cover 28 as indicated in Fig. 2.

The side walls at least of the box 11 are provided with vent holes, here shown as slots 30, two being formed through the box wall in each pocket 15.

In operation, the initial position of the device is that as shown in Fig. 7 where the glass 10 is then uppermost. The lamps 16 are illuminated by bringing any suitable source of current into circuit through the receptacle 19. The entire interior of the box 11 including the under side of the plate 20 is preferably made to be of a light-reflecting nature. The lamp 16 being set back in the recesses in the side walls of the box, and the glass 10 being of a translucent and diffusing nature, the entire area of the glass 10 then appearing is equally and uniformly illuminated so that the lines on the copy sheet 13 may be readily traced and followed in cutting the stencil sheet 14 laid thereover.

Since the lamps inherently produce heat an advantage is taken of this fact by permitting air to circulate through the box by reason of the presence of the vents 30. This circulation prevents the glass plate from becoming too warm for good cutting of the stencil but at the same time there is sufficient heat afforded to make the stencil sufficiently pliable for easy cutting and sharp line work.

After the stencil sheet 14 has been cut, the sheet is removed and the device is turned over to have the glass 10 on the under side as indicated in Figs. 1, 2 and 5. While the stencil is being cut, the ink pad plate 20 was being warmed by the heat from the lamp 16. The cover 28 is removed and the stencil laid over the ink pad 21 to have its ends engage under the clips 12 whereby the stencil will be maintained in a smooth condition without tendency to lift or shift. Where the paper sheet 26 is shorter than the largest size usable on the device, such as the ordinary letter size sheet in place of the legal size sheet, a locating stop 31 is provided to have its ends fit rather snugly into transverse slots provided across the edges of the said walls of the box 11, as indicated in Figs. 1 and 5. The sheet 26 may then have its lower edge brought against this stop 31 so as to properly position it on the stencil 14. The sheet 26 is then pressed against the stencil sheet 14 in the usual manner by starting the roller 27 at the upper edge and carrying it toward the lower edge as the sheet 26 is lifted up thereafter.

The ink in the pad 21 is kept at the proper and desired temperature even though the room temperature may be low by reason of the heat supplied from the lamp 16, this heat being prevented from becoming excessive by reason of the vents 30 permitting circulation of air through the box.

As above indicated, this device is very well suited for use in multi-colored work. For example, a number of stencils 14 may be cut, one each for each separate color of ink to be employed. Then there is provided a separate ink pad plate 20 for each color of ink. For that particular color stencil, there is placed in the device a corresponding colored ink on its own plate 20 and the sheet 26 is impressed thereover for that particular color. Then the subsequent color ink

plate 20 is substituted for the first and the sheet given the second impression, and so on throughout the number of colors to be imprinted. This gives an extremely elastic duplicating means in a flat form which greatly facilitates high class work with a minimum number of operations and with good registry.

While I have herein shown and described my invention in the one particular form, it is obvious that structural variations may be employed without departing from the spirit of the invention, and I, therefore, do not desire to be limited to that precise form beyond the limitations as may be imposed by the following claims.

I claim:

1. In a flat duplicator, side and end enclosing walls, a diffusing glass secured by the walls, an ink pad plate also carried by the walls, said plate and glass being mounted in spaced apart relation, and a plurality of illuminating and heating lamps carried by the walls, said walls being provided with vents adjacent the lamps.

2. In a flat duplicator, side and end enclosing walls, a diffusing glass secured by the walls, an ink pad plate also carried by the walls, said plate and glass being mounted in spaced apart relation, and a plurality of illuminating and heating lamps carried by the walls, said walls being provided with vents adjacent the lamps, said walls being provided with guides to receive said plate in a sliding manner over one of the walls, whereby said plate may be rapidly interchanged with other ink pad plates, and shiftable means normally retaining the plate in position.

3. In a flat duplicator, side and end enclosing walls, a diffusing glass secured by the walls, an ink pad plate also carried by the walls, said plate and glass being mounted in spaced apart relation, and a plurality of illuminating and heating lamps carried by the walls, said walls being provided with vents adjacent the lamps, said plate having a window therethrough at one corner.

4. In a flat duplicator, side and end enclosing walls, a diffusing glass secured by the walls, an ink pad plate also carried by the walls, said plate and glass being mounted in spaced apart relation, and a plurality of illuminating and heating lamps carried by the walls, said walls being provided with vents adjacent the lamps, said glass having an area sufficient to receive a stencil sheet thereover, and means engaging said walls compressibly retaining the stencil sheet in a flat condition over the glass.

5. In a flat duplicator, side and end enclosing walls, a diffusing glass secured by the walls, an ink pad plate also carried by the walls, said plate and glass being mounted in spaced apart relation, and a plurality of illuminating and heating lamps carried by the walls, said walls being provided with vents adjacent the lamps, said walls being provided with guides to receive said plate in a sliding manner over one of the walls, whereby said plate may be rapidly interchanged with other ink pad plates, and shiftable means normally retaining the plate in position, and stencil retaining members compressibly engaging between said guides and said plate to retain a stencil sheet thereover.

6. In a flat duplicator, side and end enclosing walls, a diffusing glass secured by the walls, an ink pad plate also carried by the walls, said plate and glass being mounted in spaced apart relation, and a plurality of illuminating and heating lamps carried by the walls, said walls being provided with vents adjacent the lamps, and a

sheet locating strip removably positioned across said plate and engaging opposite walls.

7. In a flat duplicator, side and end enclosing walls, a diffusing glass secured by the walls, an ink pad plate also carried by the walls, said plate and glass being mounted in spaced apart relation, and a plurality of illuminating and heating lamps carried by the walls, said walls being provided with vents adjacent the lamps, those walls carrying said lamps being formed to have recesses within which the major portions at least of the lamps are received.

8. In a flat duplicator, side and end enclosing walls, a diffusing glass secured by the walls, an ink pad plate also carried by the walls, said plate and glass being mounted in spaced apart relation, and a plurality of illuminating and heating lamps carried by the walls, said walls being provided with vents adjacent the lamps, those walls carrying said lamps being formed to have recesses within which the major portions at least of the lamps are received, and said vents being located in the backs of said recesses.

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