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PHOTOPRINT MACHINE

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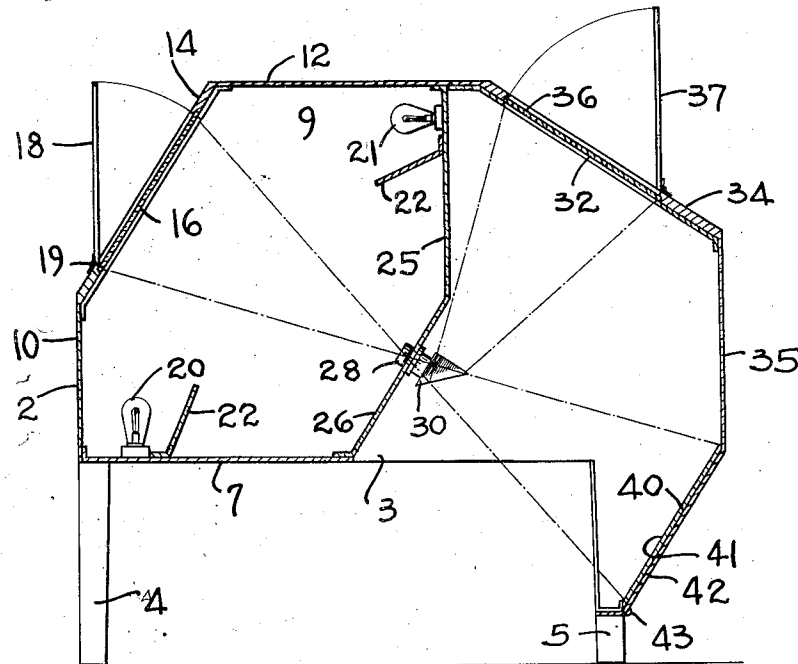


Fig. 1

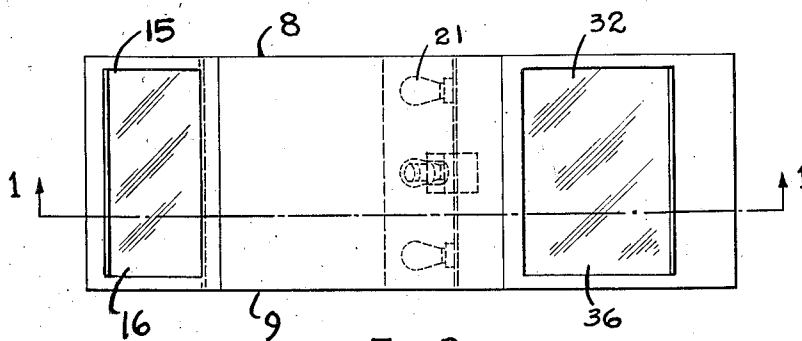


Fig. 2

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PHOTOPRINT MACHINE

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4 Claims. (Cl. 88—24)

The invention relates to an improvement in photo-print machines of a type wherein simplex, duplex and contact or negative reproductions may be made.

It is one of the objects of the invention to provide a simple and economical apparatus whereby photo-prints may be made of any desired subject.

Another object of the invention is to provide a light-proof box in combination with suitable supporting structure for making photo-prints.

Another object of the invention is to provide a light-proof box which carries a lens and reflector so that photo-prints may be made in the simplest manner.

Another object of the invention is to provide a photo-print machine wherewith positive and negative copies may be made of the subject.

Still another object of the invention is to provide a simple and compact apparatus which may be readily installed and operated with a view of reducing the cost and effort required to obtain a positive or negative photo-print.

Other and further objects of the invention will be apparent from the following description wherein:

Fig. 1 is a longitudinal sectional view showing the construction and arrangement of the machine and is taken on the line I—I of Fig. 2.

Fig. 2 is a top plan view looking down on the complete machine and showing the illuminating members in dotted lines and the transparent areas on the machine where the object and copy are to be positioned.

The device is designed for use in a dark room so that it may be conveniently operated but may be used otherwise with suitable attachments.

The invention may be incorporated in any suitable table, box, or housing, so long as it provides a light-proof box which is indicated generally at 2. This box may be of any desired configuration but is here shown as polygonal in order that a convenient arrangement of the several parts may be had. This box 2 forms a part of the machine generally which is indicated at 3 and is supported by the legs 4 and 5. The box 2 is closed by the base 7 and the sides 8 and 9. The outer end is defined by the wall 10 and the top is closed by the cover 12. Between the end wall 10 and the cover 12 is an inclined wall 14 which is provided with an opening 15 which carries a transparent material 16 such as glass. This is the subject area which is to receive the subject which is to be printed and is best seen in Fig. 2.

A further flap or closure member 18 is hinged

at 19 on this wall 14 so that the subject may be covered and confined in the exact position to obtain satisfactory prints. This flap 18 also serves to confine the subject and hold it securely against the transparent or subject area 16 and to also confine the light in the box.

Within the light box 2 are a plurality of illuminating elements 20 below the subject area 16, and another series of illuminating elements 21 above the subject area. In this manner light is diffused evenly over the subject. The reflectors 22 are provided adjacent each of the sets of illuminating elements in order to direct the light rays against the subject so that a suitable print may be had and to also keep a direct light from the lens 28.

The interior of the light box 2 is defined by the upper partition 25 and the lower partition 26. The lower partition is arranged at an angle parallel to the wall 14 and carries the lens 28. This lens is arranged at the proper distance from the subject area 16 so that it is focused upon the exact area. With this arrangement of parts the subject will be positioned on the subject area 16 and covered with the flap 18. The light will be thrown upon this subject and focused in the lens 28.

When it is desired to make a positive print a suitable reflector or prism 30 may be attached to the lens as seen in Fig. 1. A prism has been shown which is of a type which will reflect the light rays from the lens 28 and focus them upon the copy area 32. This copy area 32 is similar to the subject area and is carried by a part of the box or housing such as the wall 34. This wall is a continuation of the cover 12 and is supported by the end wall 35 which is supported by the sides 8 and 9 previously described.

The top area 32 has the transparent member 36 and the cover or flap 37 so that the sensitized paper upon which the copy is to be made can be firmly confined and will be subjected to the light rays from the prism 30.

In order to make positive photo-prints of any desired subject the subject will merely be placed upon the area 16 and sensitized paper on the area 32. The covers or flaps will be closed to confine the subject and copy and the light turned on in the box. After a suitable interval the copy may be removed and by this simple process a photo-print has been reproduced.

When a negative photo-print is desired, however, the prisms or reflectors 30 will be removed so that the light rays will pass directly through the lens 28 and be received upon the negative copy

area 40. This area is similar to the areas 15 and 32 and is provided with transparent portions 41 and the cover or flap 42 which is hinged at 43 so as to confine the paper upon which the copy is to be made. This area 40 is shown as being closed with the flap 42 in the position it would be in if a print were being made.

It seems obvious from the foregoing description that a simple and economical machine has been provided whereby ordinary contact prints can be made where the paper on which the copy is to be made and the subject are both placed on the subject area. The lens is not used with this type of print. Simplex prints can be made as described for the positive copy and duplex prints obtained by reversing the subject and copy to print both sides. The actual negatives can be made also as described above. The device is of particular advantage in reproducing letters, legal documents, trade circulars and in fact any reproduction desired.

Also, it is apparent that contact prints and positive or negative prints can be made simultaneously, and to do this it may sometimes be necessary to employ sensitized papers of different relative speeds.

What is claimed is:

1. A photo-print machine of unitary construction including a lens, a subject holder located in front of said lens and designed to receive a sensitized sheet of material for making a contact print if desired, means for illuminating a subject in said holder, a copy holder located in the rear of said lens in a position to receive reflected rays from the subject directly through said lens, a second copy holder disposed in perpendicular relation to said first mentioned copy holder, and a removable reflector in the rear of said lens for projecting onto said second copy holder the rays leaving said lens, the arrangement providing for the simultaneous production of a contact print with either a positive or a negative print, or the production separately of either a contact, positive, or negative print.

2. A copying machine of unitary construction comprising a housing formed with two oppositely disposed parallel sides and with a third side located in perpendicular relation thereto, a partition dividing said housing into a closed chamber including one of said parallel sides and a compartment including the other of said parallel sides and said third side, illuminating means in said chamber, a subject holder in the aforesaid side which is included in said chamber and a copy

holder in each of the aforesaid other two sides, said holders each comprising a transparent plate and a cover for the outer side of the plate, and said subject holder being constructed to receive a sensitized sheet of material for making a contact print if desired, a lens in said partition arranged to receive reflected rays from the subject and project them onto the copy holder in the side opposite said subject holder, and a removable reflector in the rear of said lens for projecting onto said other copy holder the rays leaving said lens, the arrangement providing for the simultaneous production of a contact print with either a positive or a negative print, or the production separately of either a contact, positive, or negative print.

3. A copying machine of unitary construction comprising a housing, a subject area and a copy area in said housing disposed at opposite sides of said housing in parallel relation, a second copy area in said housing located in perpendicular relation to said first mentioned areas, a partition dividing said housing into a closed chamber which includes said subject area and a compartment which includes both of said copy areas, illuminating means in said chamber, a lens in said partition and a removable reflector associated with said lens and adapted to project the light passing through the lens upon said second copy area, the arrangement providing for the simultaneous production of a contact print with either positive or negative print or the production separately of either a contact, positive, or negative print.

4. A copying machine of unitary construction comprising a housing formed with two oppositely disposed parallel sides and with a third side located in perpendicular relation thereto, a partition in parallel relation to said oppositely disposed sides dividing said housing into a closed chamber including one of the aforesaid parallel sides and a compartment including the other of said parallel sides and said third side, a subject area on the aforesaid side which is included in said chamber and a copy area on each of the aforesaid other two sides, illuminating means in said chamber, a lens in said partition, and a removable reflector carried by said lens and adapted to project the light passing through the lens upon said second copy area, whereby there may be simultaneous production of a contact print with either a positive or negative print or the production separately of either contact, positive, or negative print.

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