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PHOTOGRAPHIC PRINTER

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Fig. 2.

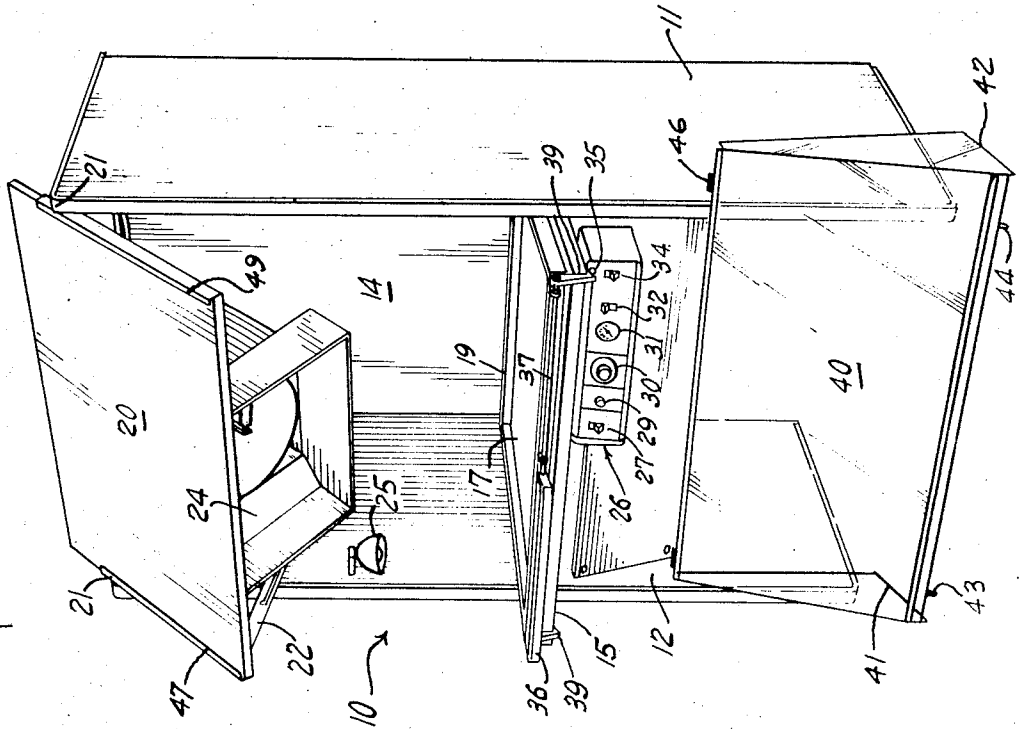
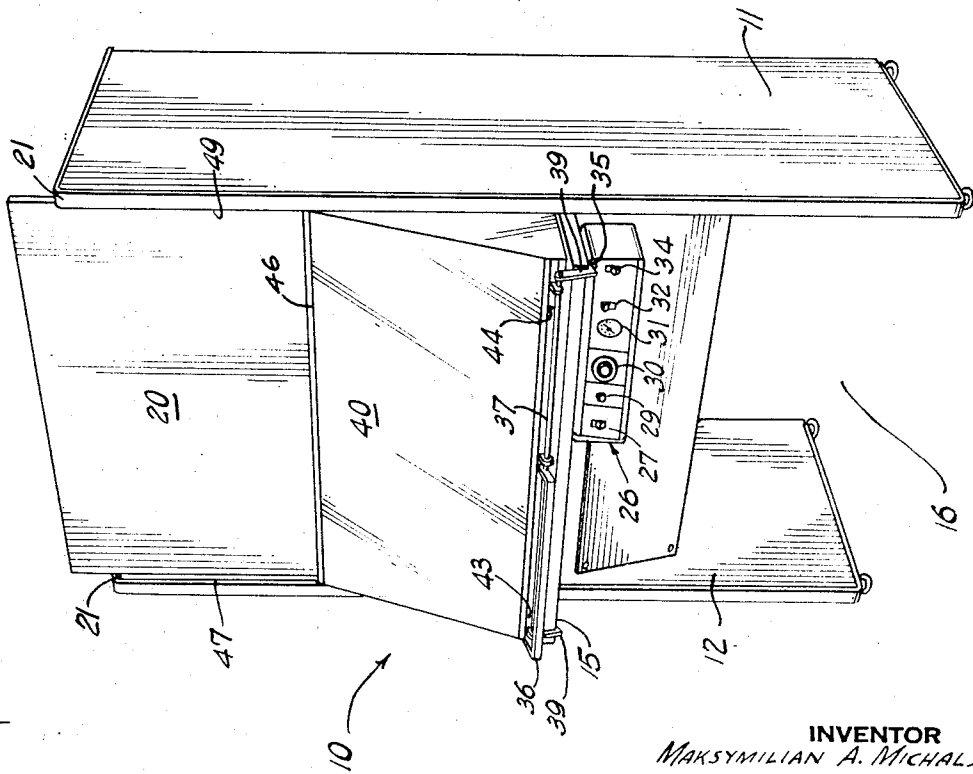


Fig. 1.



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**PHOTOGRAPHIC PRINTER**

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to Berkey Photo, Inc., New York, N.Y.  
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6 Claims

**ABSTRACT OF THE DISCLOSURE**

A printer for exposing photographic material is shown with a printing table horizontally mounted within a cabinet to receive photosensitive material and copy. A transparent plate is pivotably mounted to hold the photosensitive material and copy in contact above the table which may be of the vacuum type. The front of the vacuum table may or may not extend beyond the front of the cabinet. A pivotable panel may be provided to support a printing light above the table. A movable plate at least partially opaque to actinic rays may be moved upwardly as the transparent plate is raised. A safelight may be mounted within the cabinet. A control panel may be mounted under the vacuum table and a combination lifting and latching handle may be mounted at the front edge of the transparent plate.

The present invention relates to photographic printers and more particularly to printing apparatus for use in exposing photosensitive material in contact with copy.

Heretofore printers of this type have been provided some of which are nothing more than a table with a printing light suspended over the table. As the art has progressed printers have been developed of the types in which printing lights are positioned within enclosures and frames to hold the photosensitive material and copy in contact have been pivotably mounted at the top or at one of the sides of the enclosures. Obviously the open light printer must be used in rooms in which adequate means are provided to safeguard unexposed photosensitive material from being exposed by the printing light. Further, this construction is disadvantageous in that the operator is exposed to the bright rays of light from the printing lamp and thus finds it difficult to handle the exposed photosensitive material under safelights or the like until the operator's eyes become accustomed to the dim light. The swinging frame apparatus generally are of expensive construction and in some cases the heavy frames require considerable effort to be swung from printing to loading positions.

The present invention aims to overcome the difficulties and disadvantages of prior constructions by providing a printer in which the supporting table for the photosensitive material and copy is fixedly mounted in position.

In accordance with the invention a printer is provided including a table either partially or wholly housed within a cabinet. A transparent plate is provided to hold the copy in contact with the photosensitive material for printing. A panel at least partially opaque to light rays closes the front of the cabinet so that at least some of the rays from the printing light are blocked from reaching the operator, means being provided to raise the light blocking panel as the transparent plate is swung upwardly to insert or to remove the photosensitive material and copy.

In accordance with the invention in certain embodiments a vacuum table may be used to hold the copy and photosensitive material in good contact. In other embodiments the table may project outwardly from the front of the cabinet so as to provide a large printing area with a small sized cabinet. The panel blocking the printing light

rays may be wholly opaque to the printing light or may be partially opaque so that the operator may view the printing operation.

Other objects and advantages of the invention will be apparent from the following description and from the accompanying drawings which show, by way of example, an embodiment of the invention.

In the drawings:

FIG. 1 is a perspective view of a printer in accordance with the invention with the light blocking panel in position ready for operation.

FIG. 2 is a view according to FIG. 1 with the upper portion of the front panel swung open revealing the printing light. The front partially opaque panel has been removed and is positioned in front of the printer.

Referring to the drawings there is shown in FIG. 1 a printer 10 in accordance with the invention, the printer including a pair of sidewalls 11 and 12 which are opaque as is the back 14 of the panel. A table 15 is horizontally mounted within the cabinet at table height providing leg room thereunder as indicated at 16. The table 15 is covered with a transparent plate 17 pivotably mounted at its rear 19 using any suitable construction not shown. The pivotable mounting means may also include a conventional spring or counterbalance not shown to assist the operator in raising the transparent plate 17. A top front panel 20 is preferably opaque and is pivotably mounted as indicated at 21, conventional blocking arms 22 being provided to hold the top front panel 20 swung outwardly. On the inner surface of the panel 20 is a source of printing light 24 which is preferably a high intensity lamp type provided with a shutter as described in pending patent application Ser. No. 691,357, filed on Dec. 18, 1967 by myself and Peter Promuto and entitled Light Unit Assembly. Alternatively any other suitable source of printing light may be used. One or more safelights 25 may be mounted within the cabinet 10. On the underside of the vacuum table 15 may be positioned a control panel 26 including such controls as an on/off power switch 27, an open/close shutter switch 29, a printing light timer 30, a vacuum gauge 31, a vacuum motor on/off switch 32 and a safelight on/off switch 34. In addition, at the top of the panel hidden from view is a switch 35 for operating a vacuum pump motor automatically.

The transparent plate 17 is raised and lowered by a generally horizontally extending operating handle 36 carried by a rod 37 having a latching means 39 at both sides thereof. Any conventional construction may be utilized whereby the latching means 39 actuates a hidden switch 35 for the vacuum motor and also possibly actuates a vacuum valve not shown so that the vacuum is provided as soon as the transparent plate is swung into operating position. Above the transparent plate 17 and attached at the front end thereof is a light blocking panel 40 at least partially opaque to actinic rays and preferably formed with side members 41 and 42 of generally triangular shape. The light blocking panel 40 is attached to the front end of the transparent plate 17 by means of pins 43 and 44 extending from the front of the blocking panel 40 into openings in the frame of the transparent plate 17. The upper end 46 of the light blocking panel 40 is slideably mounted in guideways 47 and 49 so arranged that when the operating handle 36 is raised upwardly lifting the transparent plate 17 of the light blocking panel 40 is moved upwardly, its upper end 46 sliding in the guideways 47 and 49. If desired the top of the cabinet may be left open so as to provide ventilation for the printing lamp 24.

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In one embodiment the table 15 may be wholly positioned within the cabinet. If desired, and preferably, the table 15 may project from the front of the cabinet about a quarter more or less of its depth. Preferably in the larger constructions the table 15 is of the vacuum type operable by vacuum means which may take the form of an electric motor powered vacuum pump, not shown, but which may be mounted within or on the rear of the cabinet.

In use the printer is operated in a darkroom lighted by the usual safety lights. Also included in the darkroom is the developing apparatus and supplies of photographic material. In using the printer the operator may sit in front of the machine. The power switch 27 is turned on, the shutter switch 29 is turned to the closed position, the printing timer 30 is set to the desired time, and the vacuum motor switch 32 is turned on as is the safelight switch 4. The operating handle 36 is lifted which automatically disengages the latching means 39 which releases an actuator for the hidden switch 35 so that the vacuum motor is disconnected from its power source. As the operating handle 36 is lifted it moves the panel 40 upwardly and of course the transparent plate 17 so that the top of the vacuum table 15 is accessible and is illuminated by the safelight 25. The photosensitive material is placed in position over the vacuum table with copy placed in contact thereover. The operating handle 36 is moved downwardly which presses the transparent plate 17 against the upper surface of the copy pressing it against the photosensitive material. Simultaneously the latching means 39 is engaged and contacts an operating arm for the hidden switch 35 which starts the vacuum motor producing the desired amount of vacuum which may be noted on the gauge 31. As the operating handle has been moved downwardly lowering the transparent plate 17 the panel 40 has been moved downwardly. The operator thus can view the copy through the panel 40 and transparent plate 17 to assure that it has remained in proper position. The shutter switch 29 is opened and the desired exposure of the photosensitive material is made by the opening of the shutter for the lamp 24. The shutter is automatically closed at the end of a predetermined time as set on the timer 30.

In the event replacement of the bulb or cleaning of the light unit 24 is to be done the top front panel 20 is swung outwardly and automatically latched into position by the blocking arms 22. After the work has been completed the blocking arms 22 may be lifted so that the top front panel 20 is swung back into position.

If desired a developing apparatus or safe for undeveloped photosensitive material may be suitably arranged in the legroom space 16 under the table 15.

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While the invention has been described and illustrated with reference to specific embodiments thereof, it will be understood that other embodiments may be resorted to without departing from the invention. Therefore, the form of the invention set out above should be considered as illustrative and not as limiting the scope of the following claims.

I claim:

1. A printer for use in exposing photosensitive material comprising a cabinet, a table horizontally mounted within the cabinet, a transparent plate substantially covering the table, means pivotably mounting the transparent plate above the table to receive photosensitive material and copy therebetween, a source of printing light mounted within the cabinet and directed towards the transparent plate, a viewing panel at least partially opaque to actinic rays closing the front of the cabinet above the transparent plate and movable therewith, and guideway means on the cabinet for slideable movement of the viewing panel as it is raised and lowered with the transparent plate as the plate is swung upwardly and downwardly to provide space so as to insert or to remove the photosensitive material and the copy from between the plate and the table.

2. A printer according to claim 1 in which at least one safelight is positioned within said cabinet illuminating said table.

3. A printer according to claim 1 in which said means at least partially opaque to actinic rays is provided with side members.

4. A printer according to claim 1 in which a top front panel is provided and positioned to close at least a portion of said cabinet above said means at least partially opaque to actinic rays.

5. A printer according to claim 4 in which means are included pivotably mounting said top front panel of said cabinet so that it may be swung outwardly, and means are provided holding said upper front of the cabinet in said outward position.

6. A printer according to claim 5 in which said source of printing light is mounted on said top front panel.

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