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2,706,436

PHOTOGRAPHIC PRINTING APPARATUS

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2 Sheets-Sheet 2

Fig. 3.

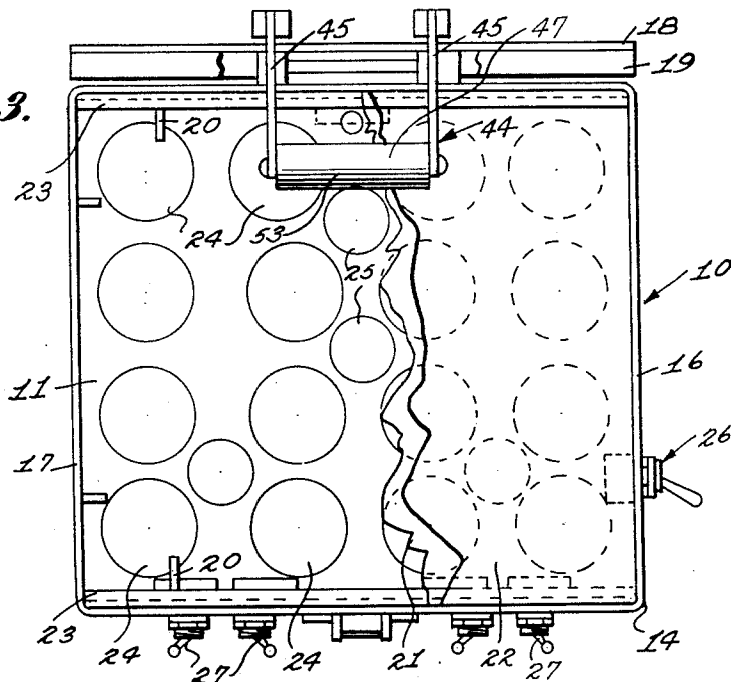
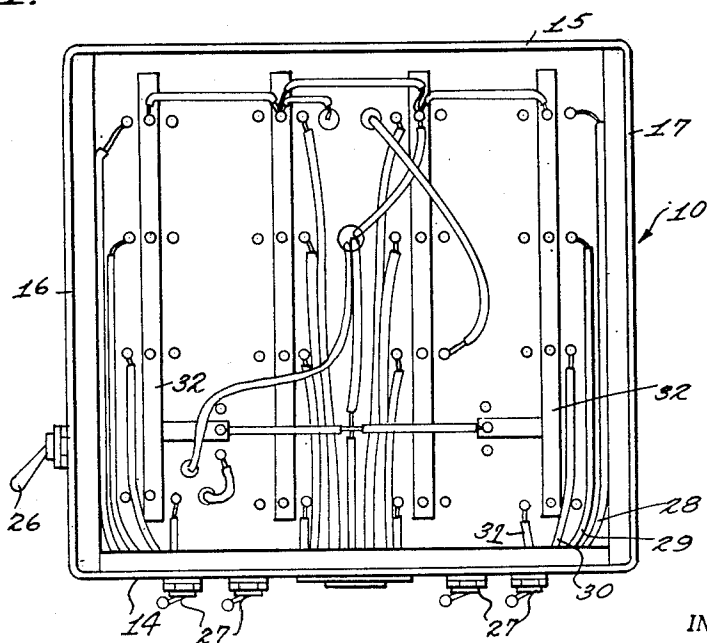


Fig. 4.



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PHOTOGRAPHIC PRINTING APPARATUS

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1 Claim. (Cl. 95—73)

This invention relates to the art of photography, and more particularly to an apparatus for printing by artificial light.

The object of the invention is to provide a photographic printer which includes means for controlling the artificial lights therein whereby the intensity of light on any particular portion of the film may be controlled to insure that an even print is produced.

Another object of the invention is to provide a printing machine which includes a cabinet or housing having a top hingedly connected thereto, there being a pair of horizontally disposed spaced parallel glass plates arranged in the housing, the machine of the present invention including a latching means for insuring that the cover or top is held tightly in closed position.

A further object of the invention is to provide a photographic printing machine which is extremely simple and inexpensive to manufacture.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this application, and in which like numerals are used to designate like parts throughout the same:

Figure 1 is a front elevational view of the printing machine, constructed according to the present invention.

Figure 2 is a rear elevational view of the machine of the present invention.

Figure 3 is a top plan view with the cover open, and with parts broken away and in section.

Figure 4 is a bottom plan view with the base plate removed.

Figure 5 is a vertical sectional view taken through the machine of the present invention.

Figure 6 is a sectional view taken on the line 6—6 of Figure 1.

Referring in detail to the drawings, the numeral 10 designates a housing or cabinet which may be fabricated of any suitable material, and the housing 10 includes a horizontally disposed bottom wall 11. Arranged in spaced parallel relation below the bottom wall 11 and detachably connected thereto is a base plate 12. Thus, the base plate 12 may be removed in order to gain access to the wires arranged thereabove. The housing 10 further includes a front wall 14 and arranged in spaced parallel relation with respect to the front wall 14 is a back wall or rear wall 15.

The housing 10 further includes spaced parallel vertically disposed side walls 16 and 17, Figure 5. A cover 18 is hingedly connected to the housing, and the cover 18 is mounted for movement into and out of closing relation with respect to the open top of the housing. Carried by the undersurface of the cover or lid 18, in any suitable manner, as for example by a suitable adhesive, is a pad 19 which may be made of a resilient material such as foam rubber.

Extending inwardly from the side and front and rear walls is a plurality of horizontally disposed securing elements such as screws 20, and the screws 20 provide a support for a ground glass plate 21.

Arranged in spaced parallel relation above the ground glass plate 21 is a clear glass plate 22, the plate 22 being supported on flanges 23.

Mounted in suitable sockets within the housing 10 is a plurality of light bulbs 24, and dark room bulbs 25. A manually operable switch 26 is mounted in the side wall 16 for selectively controlling actuation of the bulbs within the housing. Supported by the front wall 14 is a plurality

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of manually operable switches 27 which are adapted to control the various bulbs arranged within the housing. The switches may be electrically connected to the bulbs by means of suitable conductors 30, 28, 29, and 31, and suitable bus bars 32 may be arranged contiguous to the wires 28 through 31. The bus bars 32 and wires may be interposed between the bottom wall 11 and the base plate 12. The photographic printing machine of the present invention can be electrically connected to a suitable source of electrical energy. Arranged within the housing 10 and supported by the front wall 14 is a button switch 35 which is adapted to be actuated by a button 36 which will later be described in this application.

A bracket 34 is secured to the rear wall 15 and formed integral with the bracket 34 or secured thereto is a pair of spaced apart lugs 37, Figure 2. Each of the lugs 37 is provided with a slot for the projection therethrough of a pivot pin or bolt 39. Arranged contiguous to each of the slotted lugs 37 is an apertured end or apertured ear 38 which also has the pivot bolt 39 extending therethrough. The ears 38 represent or constitute the ends of a pair of bars 40 which are arranged in spaced parallel relation with respect to each other. The bars 40 extend across the top of the cover 18 and are secured thereto in any suitable manner. Suitable braces 41 extend between the bars 40 and are secured thereto for maintaining the bars 40 in their proper spaced relationship with respect to each other.

For maintaining the rear end of the cover 18 tightly closed on the housing, a pair of coil springs 43 are provided, and the upper ends of the coil springs 43 may be arranged in engagement with the pivot bolt 39. The lower ends of the coil springs 43 are connected to extensions 42 which project from a collar 43 that is formed integral with or secured to the bracket 34.

Pivotally connected to the front end of the bars 40 is a handle member 44. The handle member 44 includes a pair of arms 45 which are pivotally connected to the front ends of the bars 40 by suitable securing elements such as pivot pins 46. A block 47 is interposed between the pair of arms 45 and secured thereto.

A latch or locking means is carried by the handle and the latching means includes a prong 48 which extends from the block 47 and the prong 48 is adapted to extend into or through an opening 49 in the front wall 14 of the housing 10. The prong 48 is adapted to coact with a roller 50 which is mounted in the front wall, whereby the cover 18 will be maintained in its locked position. A finger 51 is carried by the block 47, and the finger 51 is adapted to engage the button 36 when the handle 44 is in the position shown in Figure 6 whereby the switch 35 will be actuated.

Extending from the pair of arms 45 is a pair of spaced parallel rods 52 which support a cylindrical hand grip 53 therebetween whereby the handle member 44 can be readily manipulated.

From the foregoing, it is apparent that a photographic printer has been provided which includes the cover 18 that will eliminate premature exposures and the switches can be operated either by the left or right hand. The safety lock including the prong 48 and roller 50 insure that the exposure will be protected and color contact can be accomplished. Furthermore, the various parts such as the upper glass plate 22 and the diffusion glass plate 21 as well as the bulbs can be removed when the parts are to be cleaned. Furthermore, condensation or overheating is prevented and either A. C., D. C., or storage battery or home generators can be used for actuating the machine. Any type light bulb can be used in the lighting system, and the construction of the present invention insures that there will be maximum performance with a minimum of cost. The machine can be built in various sizes and if desired foot operation can be used therewith. The present invention will save time and will also insure that dense negatives are penetrated. Furthermore, the machine can be operated simply and is portable and light or it can be set so that it remains stationary. Viewing facilities are provided for use while the switches are manually operated and the negative and/or paper is held under tension to prevent accidental movement thereof. Furthermore, permanent masking facilities are provided and there is no possibility of exposure without contact.

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In use, the paper is placed on the top of the plate 21 and the lid or top 18 is closed whereby the lights go on after which the top is opened and the lights go off. Thus, initially the negatives are put on the clear plate 22 and then the button switch 35 is held in its open position with the user's or operator's finger. Then, the switches 27 are used for actuating the bulbs 24 in order to provide the best exposure. Then, the button 36 of the switch 35 is released whereby all of the lights go off and then the sensitized paper is put on top of the negative. Then, the lid 18 is put down and the operator grips the grip 53 and causes the prong 48 to enter the opening 49 to insure that the cover 18 fits down very tightly on the housing. Immediately thereafter the finger 51 contacts the button 36 so that the lights will be actuated and as soon as pressure is released on the grip 53, the finger 51 will move away from the button 36 so that the lights within the housing will go off. The springs 43 in the rear of the housing insure that the back portion of the lid 18 is held down tightly on the housing.

The small bulbs 25 are dark room lights and the entire operation is accomplished in the dark preferably. The large bulbs 24 are cold lights which do not give off any heat but do provide a large amount of light. The switch 26 on the side of the housing serves to operate the small dark room lights and the dark room lights 25 may be left on all the time. Furthermore, the large bulbs 24 are preferably connected in electrical series through the switches so that all of the bulbs 24 are in a series connection with the switches. Thus, by cutting on or off certain of the bulbs 24 by means of the switches 27, the operator can get a good even light over the entire negative. In adjusting the machine, the operator holds his or her finger on the button 36 and while holding this button in, the switches 27 are operated until an even distribution of light over the entire negative is obtained to bring out any particular features of the negative. By means of the present invention there is no possibility that the lights will go on too soon or that the paper will slip.

We claim:

A photographic printer comprising a box-like housing having an upstanding wall and an open top, a cover hingedly carried by the housing to enclose the top, a plu-

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rality of light bulb sockets disposed within the housing, manually operable presetting switches mounted on the exterior of the housing and connected to the sockets for controlling the illumination of bulbs in the sockets, a horizontally disposed ground glass plate mounted in the housing, means in the housing supporting the ground glass plate, a clear glass plate mounted in said housing in parallel spaced relation above said ground glass plate, a master button switch mounted on said wall of the housing interiorly thereof and connecting the switches to a source of electrical energy, a handle pivotally connected to the cover at one edge and adapted to depend therefrom when the cover is in its closed position, said handle paralleling the wall in such position, a prong extending laterally from the handle, said wall having an opening of a diameter to slidably receive in light sealed fashion the prong when the cover is closed and the handle is arranged parallel with the wall in adjacency thereto, frictional locking means carried by said wall on the inside thereof for locking engagement with the prong, and a rigid finger projecting laterally from the handle in the same direction as the prong and paralleling the prong, said wall having an opening aligned with the button of the button switch receiving the finger which lies below the prong and is of less length than the prong so that the finger depresses the button to actuate the button switch after the prong is lockingly engaged by the frictional locking means and the bulbs that have been set for potential illumination by the pre-setting switches are simultaneously illuminated.

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