Sept. 16, 1941. W. H. RICHARDS 2,255,811

PHOTOGRAPHIC PRINTER

Filed May 8, 1939 2 Sheets-Sheet 1

FIG. 1.

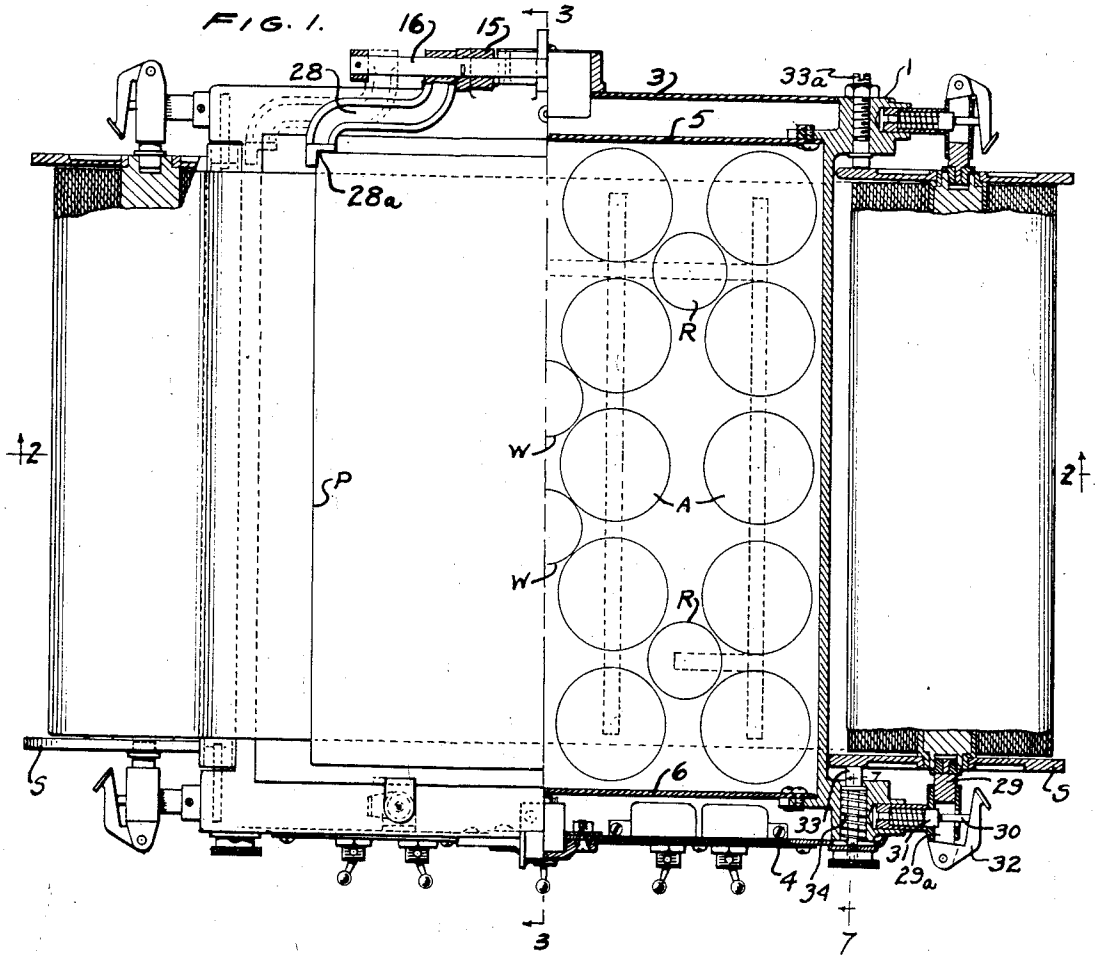
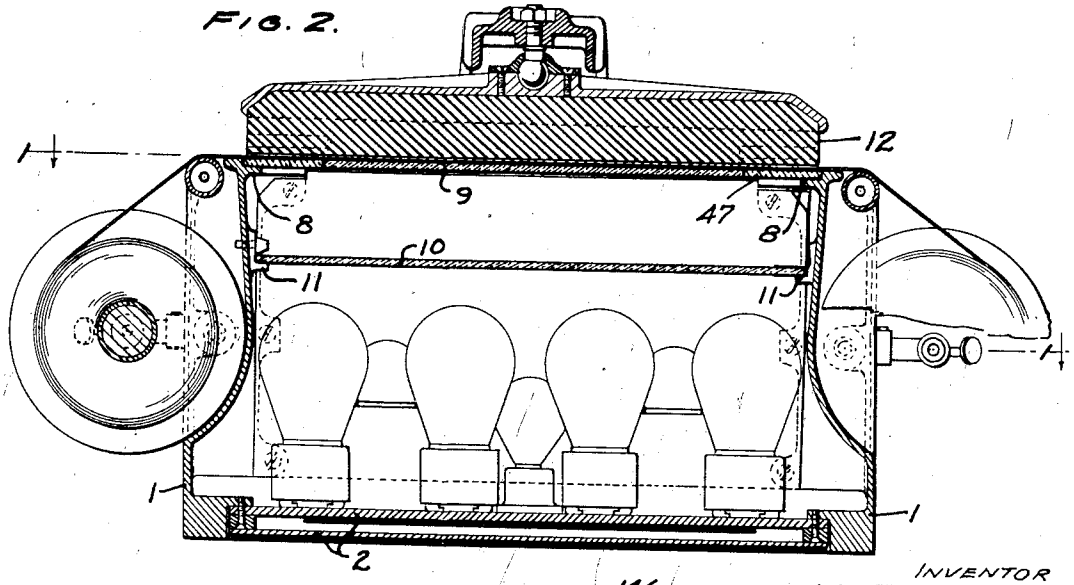


FIG. 2.



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FIG. 3.

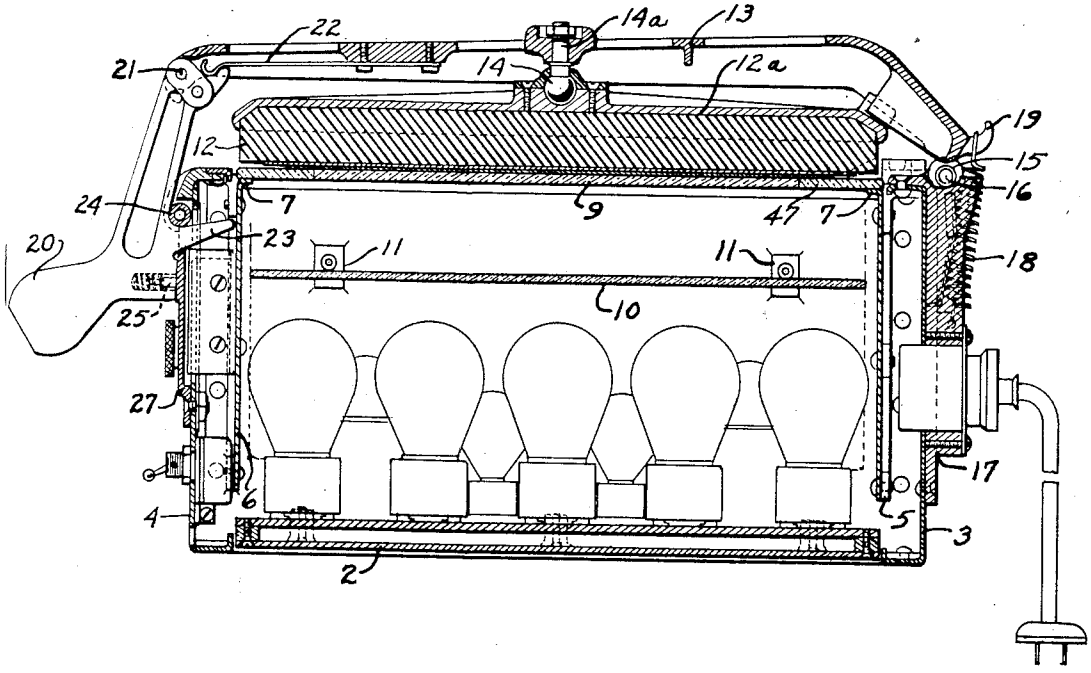


FIG. 4.

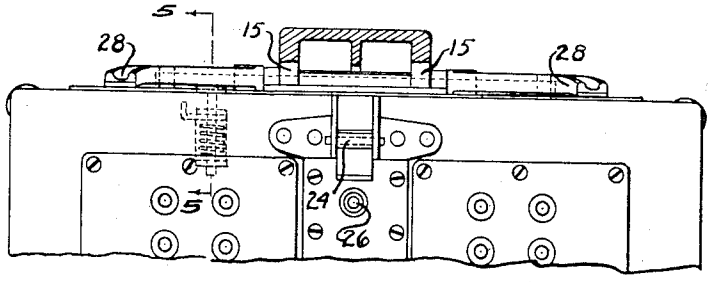


FIG. 5.

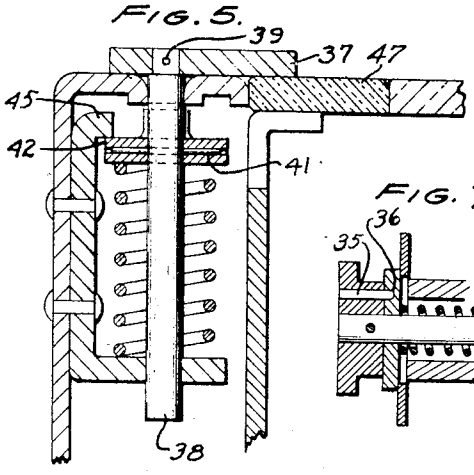
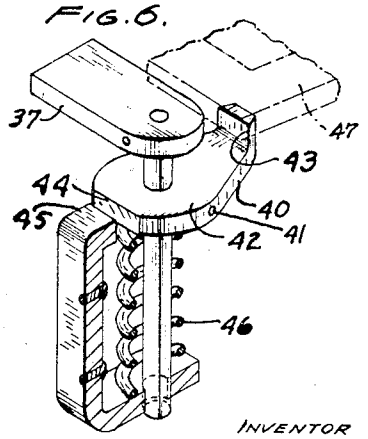


FIG. 7.

FIG. 6.



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2,255,811

UNITED STATES PATENT OFFICE

2,255,811

PHOTOGRAPHIC PRINTER

William H. Richards, Dayton, Ohio

Application May 8, 1939, Serial No. 272,444

4 Claims. (Cl. 95—75)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to a photographic printer made up of lightweight end, front, back, and bottom sections having features incorporated therein which make the assembled printer compact in construction and efficient in operation.

The end sections are provided with means for carrying the negative holding spools and braking means for holding the spools in adjusted position with the negative taut.

The front section carries switches, locking means for the platen carrying arm and a latch mechanism which holds the combined masking and supporting glass in operative position and which also serves to raise the glass so that it may be readily grasped for removal.

The back section is provided with means for electrically connecting to an external source of power, a bearing for the platen carrying arm and a bearing for the paper positioning means.

The bottom section is made double for convenience in wiring and for mounting the "Argon" printing lights, as well as the red and white lights.

Other novel features will be apparent from the description of the device as follows.

In the drawings:

Fig. 1 is a top plan view partly in section taken along the lines 1—1 of Fig. 2;

Fig. 2 is a longitudinal sectional view along the lines 2—2 of Fig. 1;

Fig. 3 is a cross-sectional view taken along the lines 3—3 of Fig. 1;

Fig. 4 is a partial front elevational view;

Fig. 5 is a cross-section taken along the lines 5—5 of Fig. 4;

Fig. 6 is an isometric view of the latch for holding the masking plate in position and for raising it when unlatched; and

Fig. 7 is a cross-section taken along the lines 7—7 of Fig. 1.

The printer casing is made up of spool carrying end members 1, a lamp carrying bottom member 2, a back member 3 and a front member 4. The bottom member 2 is made up of two spaced apart members for convenience in wiring. Back member 3 is wired for connection to an outside source of power and further has mounted thereon a platen carrying arm and paper guiding means. An auxiliary back plate 5 is connected to end members 1 to support the masking and paper supporting glass 9, provide a space for wiring, to present a finished appearance and to prevent absorption of light by the wiring and electrical connections. A front auxiliary plate 6 corresponds to plate 5 and performs substantially the same functions. The interior surface of the plates 5 and 6 as well as the interior surface of end members 1 and bottom member 2 are reflective. Plates 5 and 6 are provided with projecting portions 7 which cooperate with projecting portions 8 on end members 1 to support the masking glass 9. Masking glass 9 constituting a top member is positioned over the exposure opening in the casing and functions to support the negative and the sensitized paper during the printing operation. Obviously, a masking glass having a stained portion 47 and a clear portion of appropriate area is selected for each size of picture. A frosted glass 10 supported by clips 11 aids in the diffusion of light during printing and insures light uniformity.

The print and negative are firmly held against glass 9 by platen 12 connected to arm 13 for universal movement through the intermediary of ball and socket joint 14. Platen 12 may be adjusted relatively to arm 13 by placing shims between the bolt shank 14a and the lower portion of arm 13. Arm 13 is mounted on plate 3 by appropriate bearings 15 to pivot on rod 16 which in turn is mounted on bearing plate 17 appropriately fastened to plate 3. A spring 18 is hooked at one end to plate 17 and at the other end to arm 13 at 21 and serves as a means for raising position. Handle 20 is pivotally connected to arm 13 at 21 and serves as a means for raising and lowering the platen 12 and to lock the platen against glass 9. A spring 22 on arm 13 tends to rotate handle 20 in a clockwise direction to aid in operation of the device. Projection 23 on handle 20, the upper surface of which is inclined to provide a cammed surface cooperates with roller 24 to draw and hold platen 12 in locked printing position. A spring pressed plunger 25 cooperates with a suitable switch 26 to complete the printing light circuit when the handle 20 is in closed and locked position and to break the circuit when the handle is unlocked. Argon lights A, which emit a blue light and very little heat, are controlled by switch 26 although each light is individually controlled by a switch on front member 4 to assist in "dodging." Red lights R are operative by a hand switch only and provide necessary light when working around the machine with sensitized paper exposed. White lights W are also controlled by a hand switch only and are used for studying the negative to

determine exposure time and "dodging" requirements of the negative.

Roller 24 is carried by bracket 27 which in turn is fastened to front plate 4 by suitable mechanism. Projection 23 is so proportioned and mounted on the handle 20 and with respect to pivot 21 that the locking and unlocking movements are free and easy and the platen is firmly held against glass 9 in the closed position. Platen 12 is formed of suitable material such as rubber and is appropriately fastened to a metal backing 12a by cementing or other suitable means.

Sensitized printing paper P is properly positioned by arms 28 slidably and rotatably mounted on rod 16. Arms 28 hold down the back end of plate 9 and have cut-out portions 28a for engaging and positioning the sensitized photographic paper. The front portion of glass 9 is held in "down" position by latch 37 rigidly connected to rod 38 by pin 39. Member 40 extends at right angles to member 37 and is rigidly connected to rod 38 by pin 41. Member 40 has an enlarged portion 42 which fits under catch 45 when in the position shown in Fig. 5. When latch 37 is rotated to the position shown in Fig. 6, portion 42 becomes disengaged from catch 45, spring 46 pushes the assembly upwardly with edge 44 sliding past catch 45 until member 43 engages and raises plate 9 to a position where it may be readily grasped by hand.

The negative from which prints are to be made is wound on spools S rotatably mounted on end members 1 by means of slidable bearing shafts 29 which fit into the ends of spool S. Bearing shaft 29 is recessed at 29a to receive spring pressed pin 30 having an enlargement 31 thereon which projects into the path of movement of 29 and prevents unwanted disengagement of shaft 29 from the spool. Handle 32 pivotally mounted on the outer end of split section 29a of bearing 29 is adapted to engage the end of pin 30 to press it in a sufficient distance to allow 29 to be withdrawn from the spool S. A similar arrangement is provided for each side of each spool. In order to hold the spool S in position with the negative taut, a brake is provided consisting of a shaft 33 slidably urged against one side of spool S by means of spring 34. Pin 33a, adjustably mounted in end member 1, engages the other side of spool S to position it. When in braking position, pin 35 fits in recess 36. By withdrawing pin 35 from recess 36 and rotating slightly, 33 will be drawn away from the spool and the brake will become inoperative.

Various modifications may be made in the device and it is intended to be limited only by the appended claims.

I claim:

1. A casing for a photographic printer comprising end members having inwardly and outwardly projecting flange portions, and front, rear and bottom wall members connected to said end members, each of said wall members being composed of a pair of spaced panel members, the space between said panels of the front and back members being utilized for electric switches and wires carried by the outer of said panels, the inner panels of said front and back members constituting reflecting members, the inner panel of the bottom wall member constituting printing-lamp supporting means, said outer flanges providing attaching means for paying-out and receiving spools.

2. A photographic printer comprising a casing having an exposure opening, a transparent supporting plate overlying said opening, a combined holding and lifting latch carried by said casing and including a rotatable and slidable member having normally arranged projections thereon adapted to be selectively moved into plate overlying and plate underlying position, and a catch operatively associated with said member for holding it in position with said one projection in plate overlying position, rotation of said member serving to simultaneously move said one projection from overlying position and said other projection into underlying position, sliding movement of said member serving to raise said plate into position where it may be readily grasped.

3. A device as recited in claim 2 and further including means for constantly urging said member into plate raising position.

4. A photographic printer comprising a casing having an exposure opening, a transparent supporting plate overlying said opening, a support bearing including a bearing rod carried by said casing, a platen mounted to pivot about said bearing and adapted to overlie said supporting plate, and means rotatably and slidably mounted on said bearing rod for positioning printing paper on said supporting plate.

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