

Sept. 5, 1944.

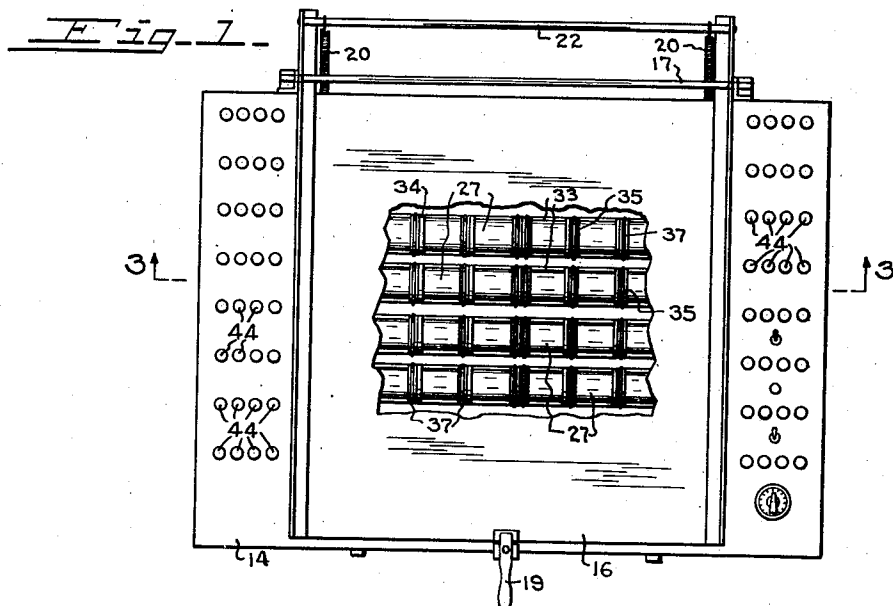
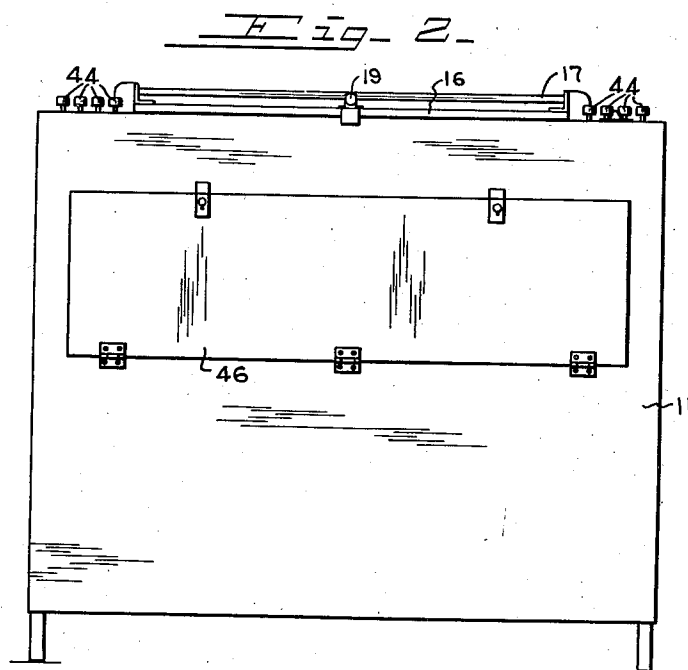
M. P. PFEIL

2,357,541

CONTACT PRINTER

Filed Oct. 31, 1942

3 Sheets-Sheet 1



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Sept. 5, 1944.

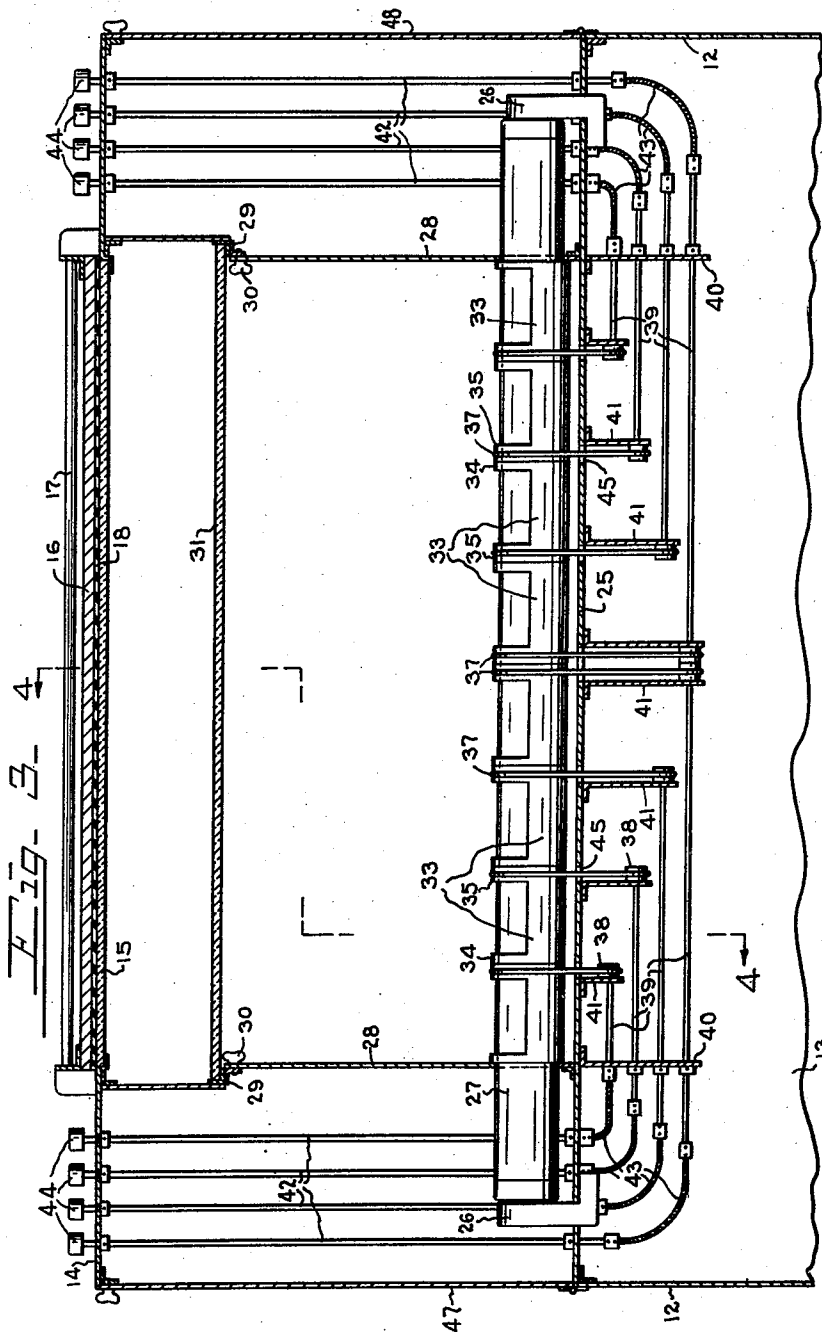
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CONTACT PRINTER

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3 Sheets-Sheet 2



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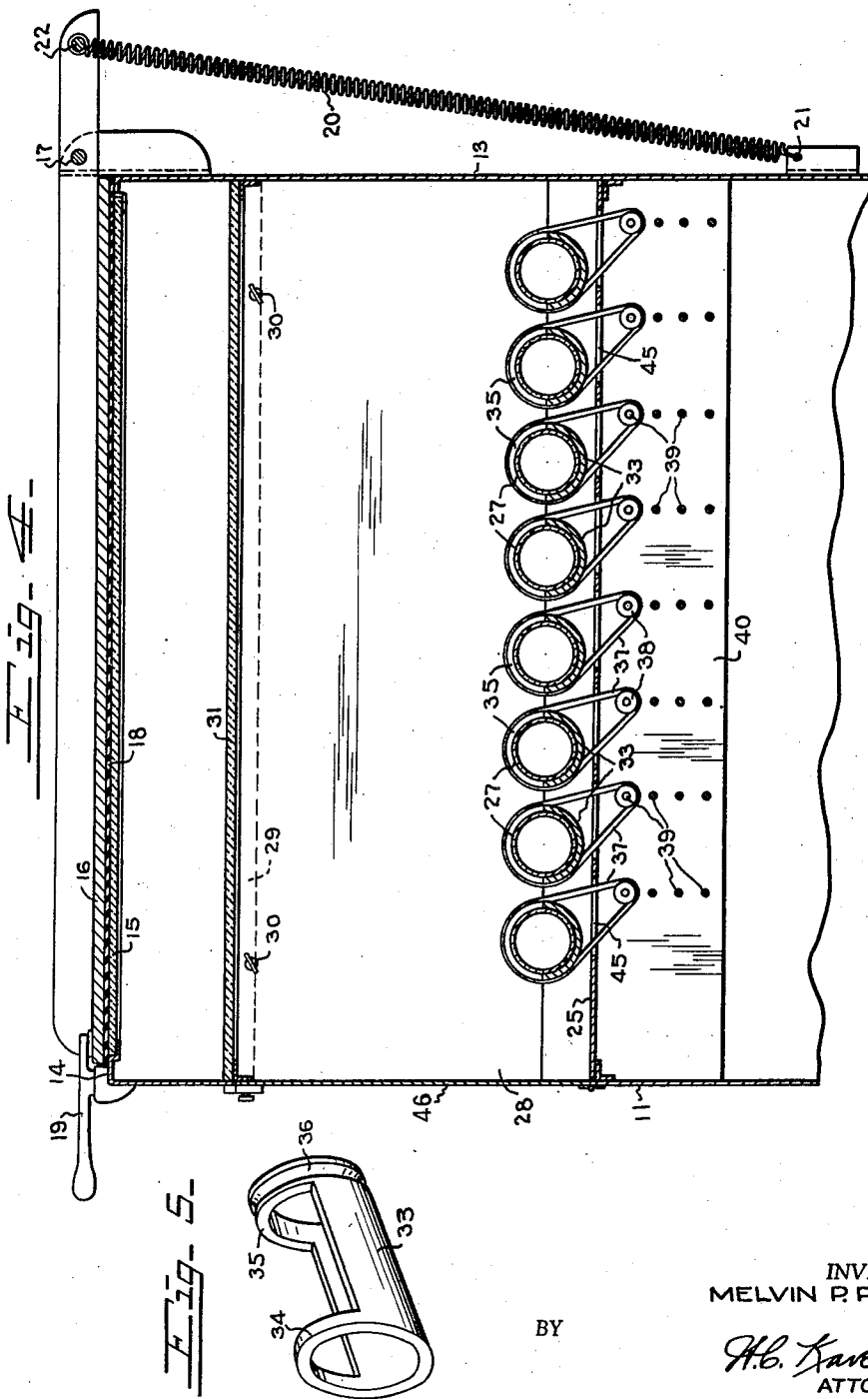
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CONTACT PRINTER

Filed Oct. 31, 1942

3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,357,541

CONTACT PRINTER

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Application October 31, 1942, Serial No. 464,125

4 Claims. (Cl. 240—2)

My invention relates to an improved contact printer employing fluorescent lamps as the light producing agency. Heretofore, contact printers employed incandescent or argon lamps having individual switches for the purpose of dodging the negative. Considerable heat was produced by these lamps which often affected the negative. In my improved printer, the heat element is low and by providing a plurality of individually controlled shields, the dodging of the negative can be minutely controlled.

The object of my invention is to provide in a contact printer, a lamp compartment having a plurality of lamps, and means to shield any desired portion of the lamp compartment.

A further object is to provide in a contact printer a plurality of fluorescent lamps having means associated therewith to minutely control the light rays reaching the printing surface.

A still further object is to provide means to shield the ends of the fluorescent lamps to prevent the starting glow from entering the printing compartment.

My invention will be further readily understood from the following description and claims, and from the drawings, in which latter:

Fig. 1 is a plan view of my improved contact printer, partly broken away.

Fig. 2 is a front view of the same.

Fig. 3 is a vertical cross-section of the same, taken in the plane of the line 3—3 of Fig. 1.

Fig. 4 is a transverse vertical section of the same, taken in the plane of the irregular line 4—4 of Fig. 3, and;

Fig. 5 is a perspective view of one of the shields.

My improved contact printer comprises a front panel 11, side panels 12, and a rear panel 13 suitably secured together and supporting a top panel 14. A transparent printing surface 15 is supported on the top panel 14. A cover or platen 16 is suitably hinged on a rod 17 whereby the cover can be raised to permit the placing of negatives and printing paper on the surface 15. The cover 16 is provided with a pad 18 to firmly secure the negative and photographic paper to the printing surface. A suitable clamp 19 is provided to lock the cover to the housing. A pair of springs 20 have one end secured to the housing as at 21, and the other end secured to a cross rod 22 secured in extensions of the cover 16 for

counter-balancing the cover to permit easy manipulations of the same. The housing is provided with a supporting shelf 25 to which suitable fluorescent light sockets 26 are secured and arranged to receive tubular fluorescent lamps 27. Sub-panels 28 extend throughout the length of the housing having suitable cut-outs to encircle the lamps. The panels are arranged a substantial distance inwardly from the end of the lamps with the upper half of the panel removable to permit removal and changing of the lamps. This upper portion of the panel is secured to cross bars 29 as by bolts and nuts 30. A diffusing plate 31 is interposed between the printing surface 15 and the lamps 27 and is preferably made of glass having a ground surface to cause the light emitted from the lamps to equalize itself on the printing surface.

It is desirable in a contact printer of this type, which is mainly used for printing from large negatives, to provide means permitting a greater intensity of light to certain portions of the negative than other portions to compensate for densities in the negative. Therefore, I provide a plurality of semi-cylindrical shields 33 having end rings 34 and 35 received on each lamp. The shields are arranged in juxtaposition and provided with means for individually rotating each shield whereby the shields can be rotated to either expose or shield any desired portion of any of the lamps. I provide a groove 36 on the end 35 of each shield, arranged to receive a belt 37 extending about the shield and being engaged by a pulley 38 secured to a horizontal shaft 39 supported in an end plate 40 and a bracket 41. The shaft 39 is connected to a vertical shaft 42 by means of a section of flexible shafting 43. The upright shaft 42 extends through the top plate 14 and has a controlling knob 44 secured to the upper end of the shaft for rotating the shield. Similar controlling mechanism is provided for each of the shields. Suitable apertures 45 are provided in the shelf 25 to permit the belts 37 to extend therethrough. Thus it will be seen that each of the multiple shields are individually rotatable for minutely controlling the light rays contacting the printing surface. The front and sides of the printer are provided with hinged doors 46, 47 and 48 to permit access to the interior of the printer.

It is a well known fact that fluorescent lamps require starting switches to start the lamps. The lamps have a cathode and an anode heating element in the ends of the lamp which during the starting period causes a glow in the end

of the lamp. Therefore, the panel shields 28 are arranged a substantial distance from the ends of the lamp to prevent the starting glow from entering the light compartment and interfering with the timing of the exposure.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A contact printer comprising a housing, a transparent printing surface, a plurality of lamps below said surface, means for diffusing the light to said surface, and shields associated with said lamps movable into shielding position between said lamps and printing surface.

2. A contact printer comprising a housing, a transparent printing surface, a light diffusing plate below said surface, a plurality of fluorescent lamps below said plate, end shields for said lamps, means for starting simultaneously all of said lamps, a plurality of rotatable shields on each lamp arranged to shield or expose said lamps, and means for independently rotating said shields.

3. A contact printer comprising a housing, a transparent printing surface, a light diffusing plate below said surface, a plurality of fluorescent lamps below said plate, means for shielding the ends of said lamps, a plurality of rotatable shields on each lamp arranged to shield or expose said lamps, and means for independently rotating said shields.

4. A contact printer comprising a housing, a transparent printing surface, a platen, a light compartment in said housing, a plurality of fluorescent lamps extending through said light compartment and mounted in said housing, said light compartment walls shielding the starting glow of said lamps, a plurality of semi-tubular shields on each lamp, and manual means extending outside said housing for individually rotating each shield to dodge any desired portion of said printing surface.

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