

Feb. 14, 1933.

R. P. LEAVITT

1,897,908

PHOTOGRAPHIC EDGE PRINTING APPARATUS

Filed March 19, 1932

2 Sheets-Sheet 1

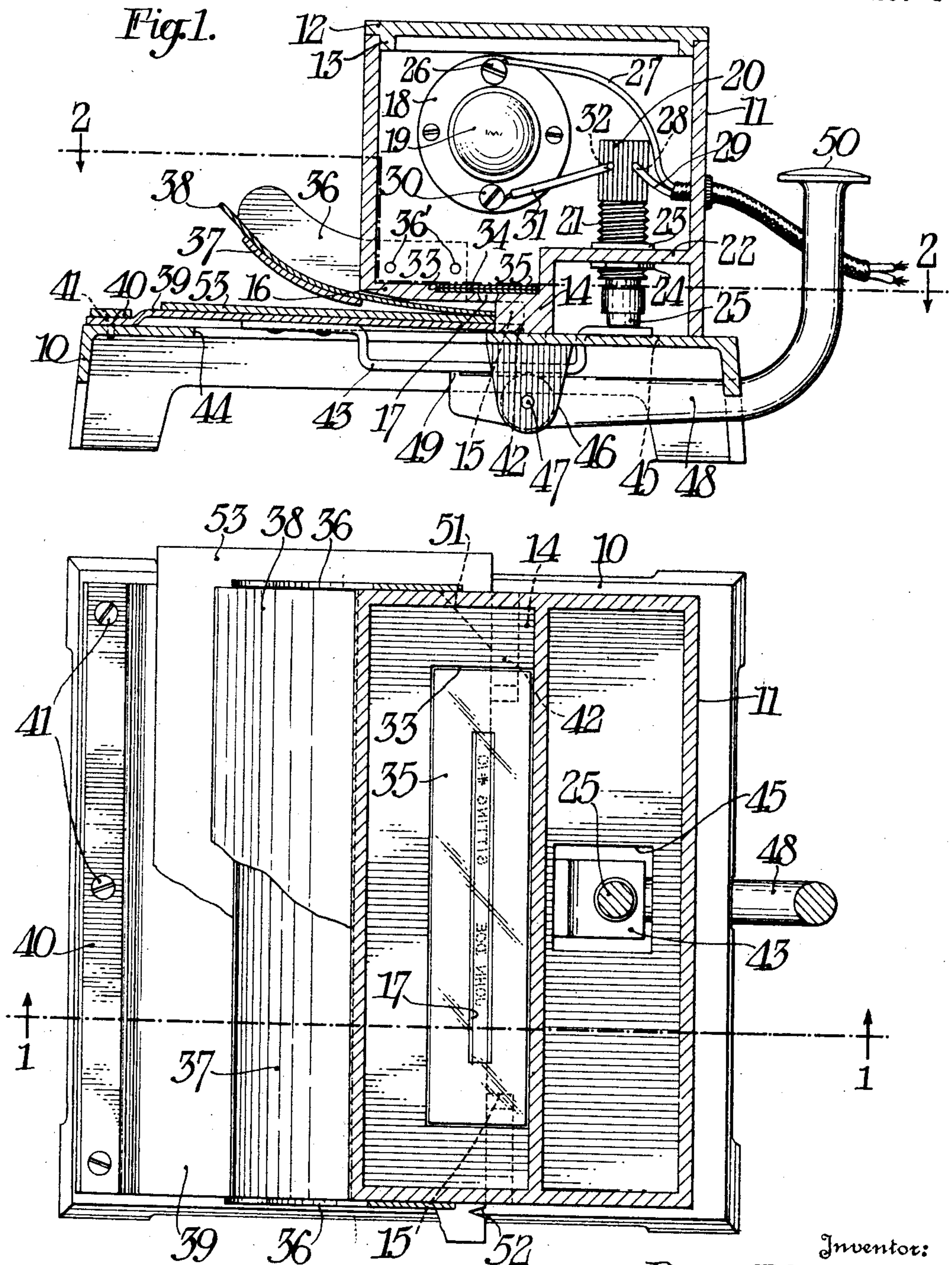


Fig. 2.

Inventor:
Roger P. Leavitt,

By

Newton W. Harris
George A. Gillette, Jr.

Attorneys

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2 Sheets-Sheet 2

Fig. 3

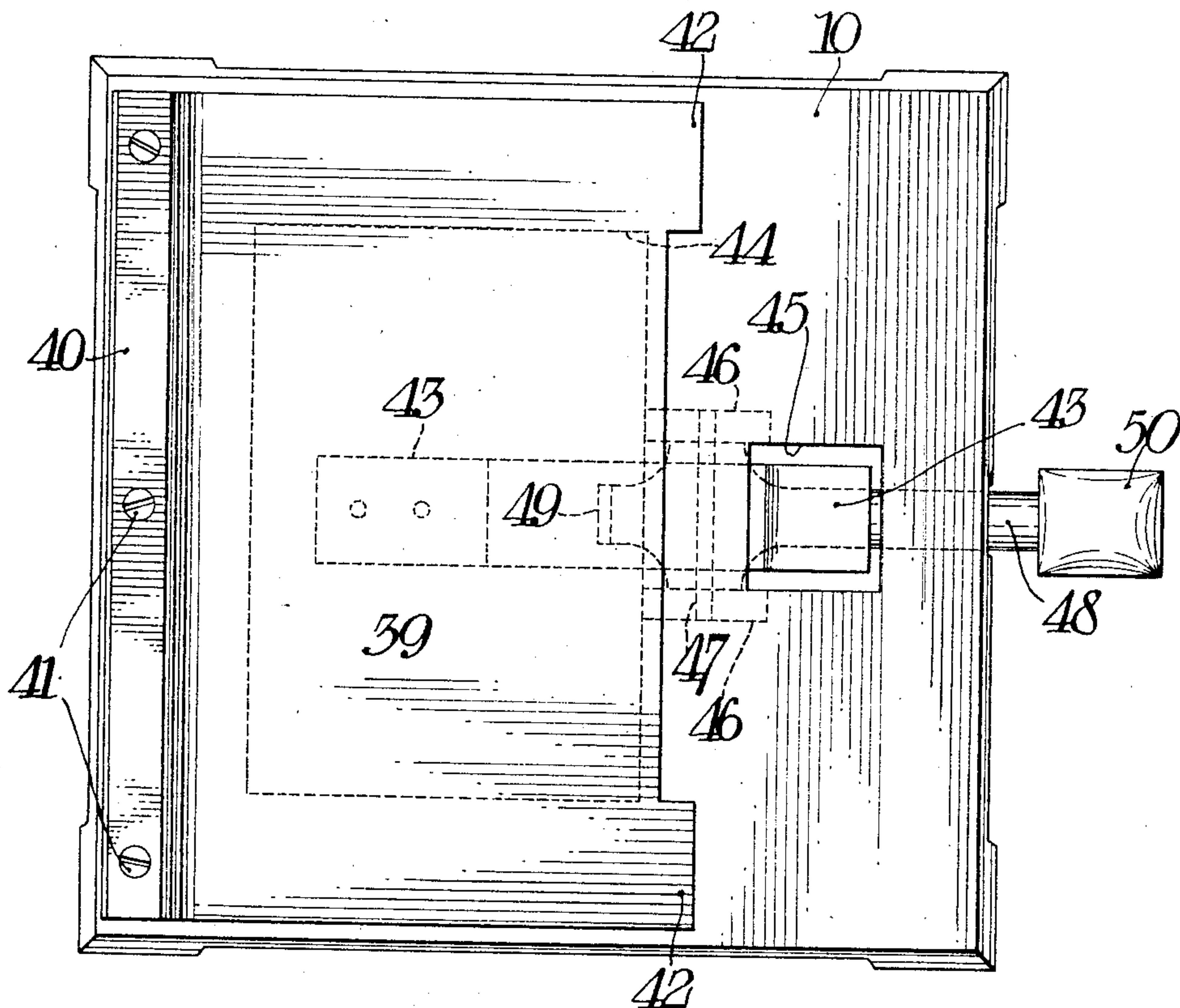


Fig. 4.

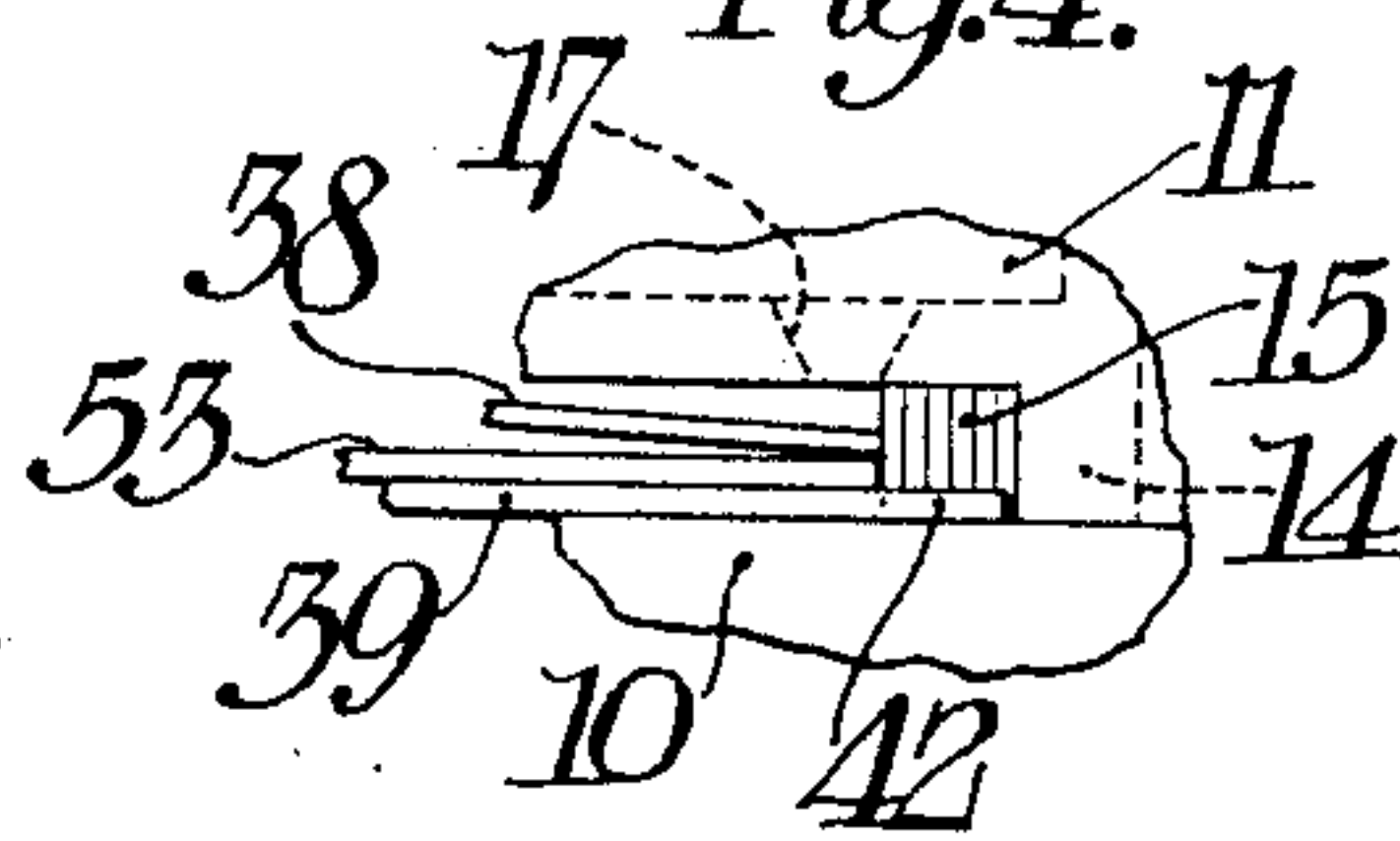
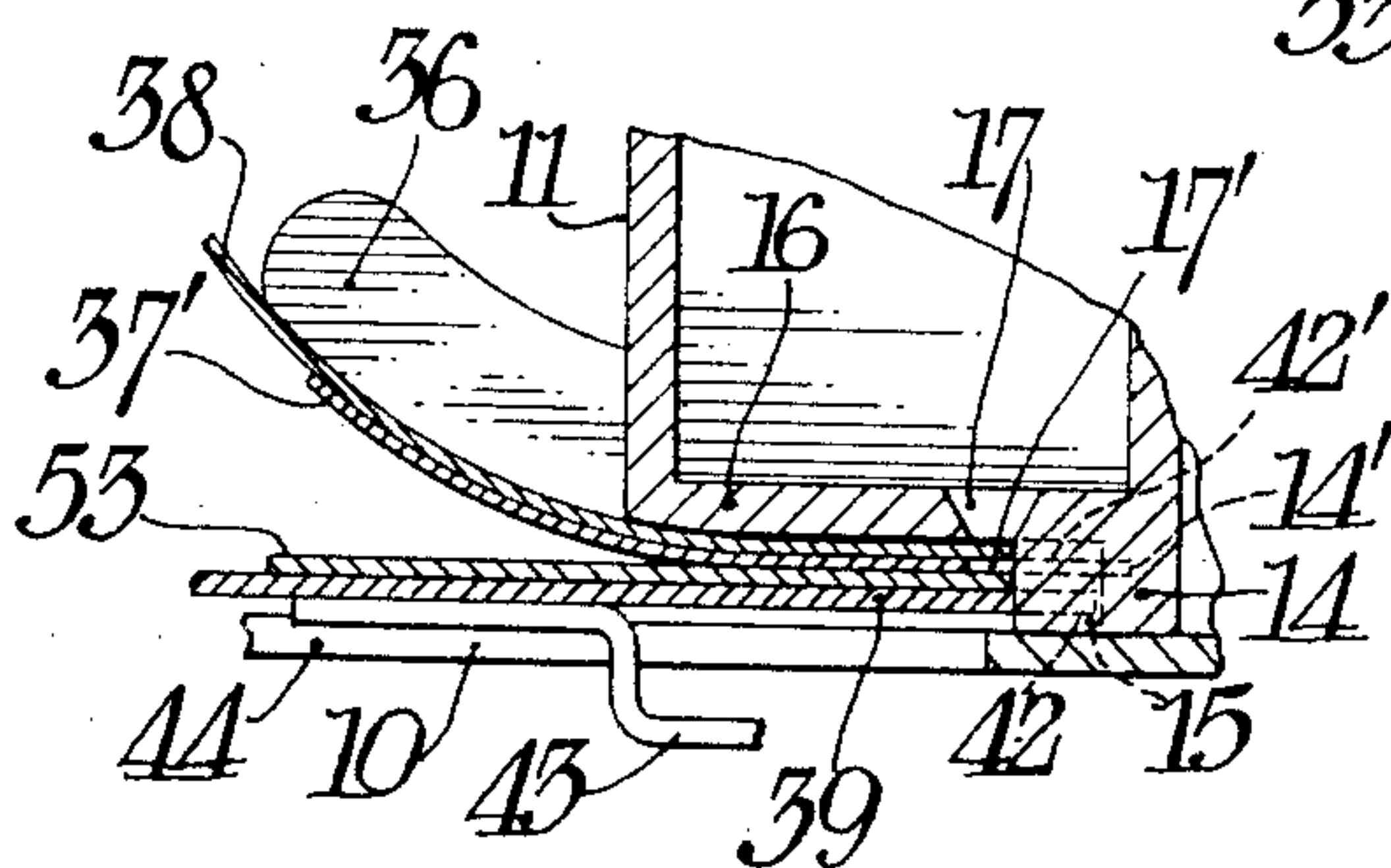


Fig. 5.



Inventor:

Roger P. Leavitt,

Newton M. Kline

George A. Gillette, Jr.

Attorneys.

UNITED STATES PATENT OFFICE

ROGER P. LEAVITT, OF ROCHESTER, NEW YORK, ASSIGNOR TO EASTMAN KODAK COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK

PHOTOGRAPHIC EDGE PRINTING APPARATUS

Application filed March 19, 1932. Serial No. 599,992.

The present invention relates to a photographic printer for creating a latent image of identifying data along the margin of light sensitive material and more particularly to an edge printer which may be readily operated in total darkness.

The modern trend in the photographic industry is toward faster or more rapid emulsions on the light sensitive materials. In fact at the present time emulsions of such speed are known that they are liable to become fogged upon exposure to any light no matter how dimmed or filtered if exposed to the same for any considerable length of time. The increased use of supersensitive emulsions has, for the reason above stated, greatly increased the difficulty of handling the film in the darkroom during processing. All operations should be such that they can be performed by relying solely on the operator's sense of touch.

Several forms of edge printers for creating latent images of identifying data on the margin of light sensitive material are known, most of which have been rendered obsolete by the necessity of manipulating the edge printer in total darkness.

Previously, the illumination required for viewing the dial or indicator settings could be of such low intensity that the light sensitive material would not be fogged, but with the advent of supersensitive emulsions even very low illumination intensities are dangerous. The accepted practice is to eliminate all illumination and to operate the processing room in total darkness. Consequently identification apparatus requiring even low illumination to set them must be discarded.

The primary object of the present invention is the provision of an edge printer for creating a latent image of identifying data on the margin of light sensitive material, said edge printer being readily, although manually, operative in total darkness.

Another object of the present invention is the provision of an edge printer which includes a platen for moving translucent sheet material bearing identifying data and light sensitive material into light-tight relation

with a slot provided in the bottom of an internally illuminated chamber.

A further object of the present invention is the provision of an edge printer including a hopper for guiding and maintaining translucent sheet material bearing identifying data into surface contact with the light sensitive material to be identified only along that portion of the sheet material bearing the identifying data.

Still another object of the present invention is the provision of an edge printer having a recess for the reception of translucent sheet material bearing identifying data and the light sensitive material, said recess being so provided and said sheet material being so positioned that the emulsion on the light sensitive material will not be marred or scratched.

A still further object of the present invention is the provision of an edge printer containing a light source energized through a switch means which is operated only when the platen has been moved to a definite position, said switch means being adjustably mounted so that the energization of the light source may take place when the platen reaches a predetermined position.

Another object of the present invention is the provision of an edge printer including a hopper which guides and maintains translucent sheet material in a definite position and which masks the image of identifying data formed on light sensitive material.

Other objects of the invention will present themselves to those skilled in the art as the disclosure proceeds hereinafter.

The invention broadly comprises a chamber containing a light source and provided with a slot in the bottom thereof, a base upon which the chamber is mounted, a platen normally in spaced relation to the slot in the chamber, and mechanical means for moving the platen toward the slot and for controlling energization of the light source. An important feature of the edge printer, according to the invention, is the provision of a hopper which is adapted to guide and maintain translucent sheet material bearing identifying data into a recess between the chamber and

platen so that only that portion of the sheet material bearing the identifying data is in contact with the light sensitive material which is adapted to be supported upon the platen. The light for printing the image of the identifying data on the light sensitive material is transmitted through the translucent sheet material leaving the light sensitive emulsion unexposed opposite the characters of the identifying data.

Reference is hereby made to the accompanying drawings in which similar elements are designated by similar reference numerals and in which:

Fig. 1 is a vertical longitudinal cross-section of the edge printer, according to the invention, taken on the line 1—1 of Fig. 2.

Fig. 2 is a horizontal cross-section through the edge printer, according to the invention, taken on the line 2—2 of Fig. 1.

Fig. 3 is a plane view of the base, platen mounted thereon and the manually operated mechanical means for moving the platen and for actuating the switch which controls energization of the light source in the chamber.

Fig. 4 is a fragmentary side elevation of the edge printer illustrating the abutment for positioning the front edges of the sheet and light sensitive materials.

Fig. 5 is a fragmentary vertical cross-section of an edge printer according to the invention with a modified form of hopper.

In the illustrated embodiment of the invention, a base 10 supports a chamber 11. The chamber 11 has a cover 12 provided with flanges 13 for the formation of a light-tight joint between chamber 11 and cover 12. A ridge 14 extends longitudinally of chamber 11 along the bottom thereof and is provided with an abutment 15, the purpose of which will be later described. The chamber 11 has a recessed bottom 16 which is provided with a slot 17.

A receptacle 18 is mounted upon one end of chamber 11 and supports a light source, such as an incandescent lamp 19. A switch 20 has a threaded sleeve 21 which is adjustably mounted in a ledge 22 of chamber 11 by means of internally threaded nuts 23 and 24, abutting opposite surfaces of ledge 22. The internal construction of switch 20 is well known and need not be here described but is of the normally open type adapted to be closed upon the actuation of a plunger 25 sliding within threaded sleeve 21. It should be noted that switch 20, threaded sleeve 21, and plunger 25 may be raised by loosening nut 24 and tightening nut 23 or may be lowered by loosening nut 23 and tightening nut 24.

One post 26 of receptacle 18 is connected to a suitable source of electrical energy by a wire 27, and one terminal 28 of switch 20 is connected to the source of electrical energy by a wire 29. The other post 30 of receptacle 18 is connected by a conductor 31 to the

other terminal 32 of the switch 20. As a result, the light source 19 is normally deenergized but upon actuation or elevation of plunger 25, the switch 20 is closed and the light source 19 is energized by the source of electrical energy through wire 27 and through wire 29, switch 20 and conductor 31.

The bottom of chamber 11 is provided with a depression 33 surrounding the slot 17 and containing strip material 34 of graded density and a glass plate 35 which is cemented or held in position by any suitable means. The material 34 of graded density is for the purpose of making the illumination along the slot 17 uniform and to compensate for the uneven illumination provided by the incandescent lamp 19.

An arcuate hopper includes arcuate sides 36 and an arcuate plate 37 therebetween, sides 36 of the hopper being attached to the ends of chamber 11 by means of bolts 36'. The lower surface of the recessed chamber bottom 16 is curved as shown in Fig. 1 to form a channel with the plate 37 of the hopper for the reception and guidance of sheet material 38 bearing identifying data, indicated by dotted lines within the slot 17 of Fig. 2.

A platen 39 is composed of a resilient plate which is covered with plush or other soft material to minimize the possibility of scratching the light sensitive material placed on the platen 39. A strip 40 lays over one edge of platen 39 and is fastened to base 10 by a plurality of bolts 41. The other end of platen 39 is provided with projections 42 which are on each side of and extended beyond the abutment 15 on chamber 11 to decrease the light leakage from slot 17 during raised position of platen 39 and energization of the light source. An arm 43 has one end attached to the under-surface of platen 39 and has the other end in contact with plunger 25 of switch 20, said arm 43 having an offset intermediate portion and said base 10 being apertured at 44 and 45 to permit passage of the arm 43 therethrough.

A pair of trunnions 46 extend downwardly from base 10 and form bearings for an axle 47 which rotatably supports a crank 48. One end of crank 48 has a ridge 49 engaging the intermediate portion of arm 43, while the other end of crank 48 is curved upwardly to receive a finger piece 50 so that crank 48 may be readily located and moved by the operator.

The translucent sheet material 38 may have abnormal or objectionable diffusing characteristics so that the image of the slot 17 on the light sensitive material has a ragged outline. In such event the hopper for the translucent sheet material 38 can be formed so as to form a mask for the identifying data as well as a guide and holder for the sheet material.

A modified form of hopper which effectively masks the light sensitive material is shown in Fig. 5. The hopper, as in the preferred form comprises the arcuate sides 36 attached to the exterior of chamber 11. The curved bottom plate 37' of the hopper, however, is co-extensive and in parallel spaced relation to the lower surface of the recessed bottom portion 16 of chamber 11. The lower or inner edge of plate 37' is spaced from abutment 15 a distance equal to the width of slot 17 or is directly beneath the forward edge of slot 17. Integral tongues 42' on the curved bottom plate 37' extend along each side of abutment 15 and are inserted into slots 14' in ridge 14. Consequently when the platen 39 is moved upward the light sensitive material 53 makes light tight contact with the bottom plate 37' of the hopper and the latent image of the identifying data is bordered with sharp or distinct lines.

Since all of the operations must be performed in the dark certain indicators must be provided on the translucent sheet material 38 and on the light sensitive material 53. It is standard practice to provide photographic films with a notch so that, when the film is held in the right hand with the forefinger on the notch, the emulsion surface of the film is face up. Such a notch 52 is shown provided in the light sensitive material 53. In order to utilize this training of dark room operators, the translucent sheet material 38 has a cut-off corner 51 located so that, when the sheet material 38 is held in the right hand with the fore-finger on cut-off corner 51, the identifying data on material 38 is face up. Before insertion of translucent sheet material 38 into the hopper, however, it must be inverted so that the written or printed data will be in contact with or adjacent to the emulsion surface of the light sensitive material 53.

The translucent sheet material 38 is preferably provided in the form of cards, such as catalogue or library cards, which may have already been in the files of the photographer. Such cards are easily provided with the required identifying data and may also be readily handled by the operator for determination of the face containing the data, for inversion and for insertion into the hopper of the edge printer, all accomplished in the darkness.

The operation of the edge printer, according to the invention, will now be described:

The sheet material 38 is introduced into the arcuate hopper and is guided thereby into a position having one edge against abutment 15. The light sensitive material 53 is introduced into the recess between the chamber 11 and platen 39 with the emulsion side up. The light sensitive material 53 is moved into the recess until it also strikes against the abutment 15 so that the edges of sheet material

38 and light sensitive material 53 are in alignment. It should be noted that in the preferred form of the edge printer there is no possibility of the emulsion on light sensitive material 53 becoming scratched because it makes contact with only the sheet material bearing the identifying data and then only with the portion of the sheet material which bears the identifying data. The sheet material 38 and light sensitive material 53 have both been accurately placed in position within the printer by the operator who has employed only his sense of touch. Lateral location of the light sensitive material 53 is not necessary because the location of the latent image of the identifying data along the margin of the light sensitive material is immaterial.

The finger piece 50 of the crank 48 is depressed and platen 39 is moved toward slot 17 until the sheet material 38 and light sensitive material 53 make surface contact with each other and the recessed bottom portion 16 of chamber 11, or until light sensitive material makes contact with plate 37'. When arm 43 has been moved sufficiently to accomplish the light-tight positioning of light sensitive material 53, then the outer end of arm 43 has moved plunger 25 so that the switch 20 is closed and the light source 19 is energized.

The light sensitive material 53 may be readily withdrawn after the release of finger piece 50, but if more than one piece of light sensitive material is to contain the same identification data, then sheet material 38 may be left in position and will be held accurately in position by the hopper. The accuracy with which sheet material 38 is held in position during repeated printing operations may be attributed to either the frictional contact with the plate 37 or 37' and bottom portion 16 of chamber 11 or the curvature introduced into the sheet material by the arcuate formation of plate 37 or 37'.

If the light source is being energized before light sensitive material 53 has been moved into light-tight relation with the sheet material 38 or plate 37', then switch 20 may be raised in the manner previously described, whereupon platen 39 must be moved vertically through a greater distance before arm 43 has moved plunger 25 a sufficient distance to close switch 20. On the other hand, if the light source is not being energized, even though sheet material 38 and light sensitive material 53 are in position, the switch 20 should be lowered in the manner already described.

Since many modifications, of the edge printer here disclosed, are possible without departing from the spirit of the invention, the present description is to be construed in an illustrative and not in a limiting sense.

Having now particularly described my in-

vention what I desire to secure by Letters Patent of the United States and what I claim is:

1. In a printer for creating latent images of identifying data on light sensitive material, the combination with a chamber provided with a slot and a platen normally in spaced relation to said slot, adapted to support the light sensitive material and adapted to move said light sensitive material into exposure position with respect to said slot, of a hopper adapted to receive translucent sheet material bearing identifying data and adapted to guide said translucent sheet material into a position between the slot and the light sensitive material with said identifying data in registry with said slot.
2. In a printer for creating latent images of identifying data on light sensitive material, the combination with a chamber provided with a slot and a platen normally in spaced relation to said slot, adapted to support the light sensitive material and adapted to move said light sensitive material into exposure position with respect to said slot, of a hopper adapted to receive translucent sheet material bearing identifying data and adapted to maintain said translucent sheet material in a position between the slot and the light sensitive material with said identifying data in registry with said slot.
3. In a printer for creating latent images of identifying data on light sensitive material, the combination with a chamber provided with a slot and a platen normally in spaced relation to said slot, adapted to support the light sensitive material and adapted to move said light sensitive material into exposure position with respect to said slot, of a hopper adapted to receive translucent sheet material bearing identifying data and adapted to guide and maintain said translucent sheet material into and in, respectively, a position between the slot and the light sensitive material with said identifying data in registry with said slot.
4. In a printer for creating latent images of identifying data on light sensitive material, the combination with a chamber provided in the bottom thereof with a slot, and an arcuate hopper attached to said chamber and adapted to guide and maintain translucent material bearing identifying data in definite relation to said slot, of a resilient platen located below and normally in spaced relation to the bottom of said chamber, adapted to support said light sensitive material and adapted to move said light sensitive material and said translucent material upwardly into light-tight relation with each other and the bottom of said chamber adjacent said slot.
5. A printer for creating latent images of identifying data on light sensitive material, comprising a base, a chamber having a re-

cessed bottom portion in spaced relation to said base and provided with a slot, a resilient platen extending beneath the recessed portion of said chamber and beneath said slot, an arm on said platen and a crank adapted to actuate said arm to move said platen toward said slot.

6. A printer for creating latent images of identifying data on light sensitive material, comprising a base, a chamber having a recessed bottom portion in spaced relation to said base and provided with a slot, an arcuate hopper attached to said chamber and adapted to guide the material adjacent the recessed bottom portion of said chamber and said slot, a resilient platen extending beneath the recessed bottom portion of said chamber and beneath said slot, an arm on said platen and a crank adapted to actuate said arm to move said platen toward said slot.

7. In a printer for creating latent images of identifying data on light sensitive material, the combination with a chamber provided with a slot, a light source within said chamber, and a normally open switch including a plunger adapted to close said switch and to control the energization of said light source, of a platen normally located and resiliently maintained in spaced relation to said slot, an arm on said platen, adapted to move said plunger and to close said switch when said platen is adjacent said slot, and a crank for actuating said arm to move said platen adjacent to said slot and to close said switch.

8. In a printer for creating latent images of identifying data on light sensitive material, the combination with a chamber provided with a slot, a light source within said chamber, and a normally open switch including a plunger adapted to close said switch and to control the energization of said light source, of a platen normally located and resiliently maintained in spaced relation to said slot, an arm on said platen, adapted to move said plunger and to close said switch when said platen is adjacent said slot, an adjustable mounting for said switch to permit variation of the movement of said arm of the plunger necessary to close said switch, and a crank for actuating said arm to move said platen adjacent to said slot and to close said switch whereby the switch may be adjusted to close only when a platen has been moved a pre-determined distance.

9. In a printer for creating latent images of identifying data on light sensitive material, the combination with a chamber containing a source of illumination and provided with a slot, and a platen located in spaced relation to said slot, adapted to support the light sensitive material and adapted to be moved adjacent said slot, of a hopper adapted to receive translucent sheet mate-

rial bearing identifying data along one edge thereof, and adapted to guide into and hold in surface contact the data bearing portion only of said sheet material and the margin of the light sensitive material on said platen.

5 10. In a printer for creating latent images of identifying data on light sensitive material, the combination with a chamber containing a source of illumination and provided with a slot, and a platen located in spaced
10 relation to said slot, adapted to support the light sensitive material and adapted to be moved adjacent said slot, of a hopper adapted to receive translucent sheet material bearing
15 identifying data along one edge thereof and adapted to guide said translucent sheet material into position with the data bearing portion only in surface contact with the light sensitive material on said platen.

20 11. In a printer for creating latent images of identifying data on light sensitive material, the combination with a chamber containing a source of illumination and provided with a slot, and a platen located in spaced
25 relation to said slot, adapted to support the light sensitive material and adapted to be moved adjacent said slot, of a hopper adapted to receive translucent sheet material bearing
30 identifying data along one edge thereof and adapted to maintain said translucent sheet material in position with the data bearing portion only in surface contact with the light sensitive material on said platen.

35 12. In a printer for creating latent images of identifying data on light sensitive material, the combination with a chamber containing a source of illumination and provided with a slot, and a platen located in spaced
40 relation to said slot, adapted to support the light sensitive material and adapted to be moved adjacent said slot, of a hopper adapted to receive translucent sheet material bearing
45 identifying data along one edge thereof and adapted to mask off all but the data bearing portion of said sheet material.

50 13. In a printer for creating latent images of identifying data on light sensitive material, the combination with a chamber containing a source of illumination and provided with a slot, and a platen located in spaced
55 relation to said slot, adapted to support the light sensitive material and adapted to be moved adjacent said slot, of a hopper adapted to receive translucent sheet material bearing
identifying data along one edge thereof and provided with a recess registering with said slot to permit transmission of light through the data bearing portion only of said translucent sheet material.

60 Signed at Rochester, New York, this 11 day of March 1932.

ROGER P. LEAVITT.