

July 24, 1923.

1,463,009

G. M. DYE

PRESSER BACK MECHANISM FOR PHOTOPRINTING MACHINES

Filed Sept. 10. 1921

3 Sheets-Sheet 1

Fig. 2

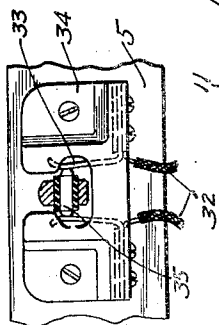
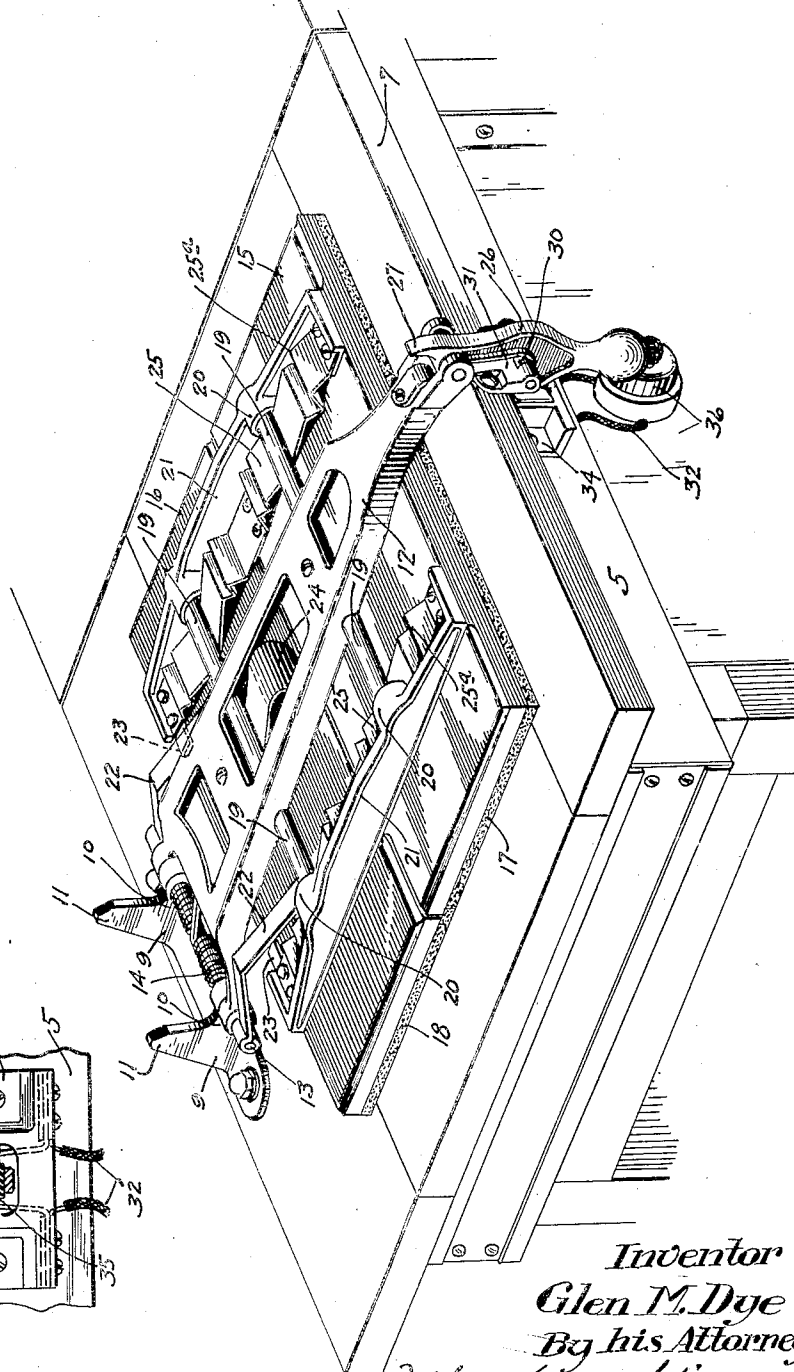


Fig. 1



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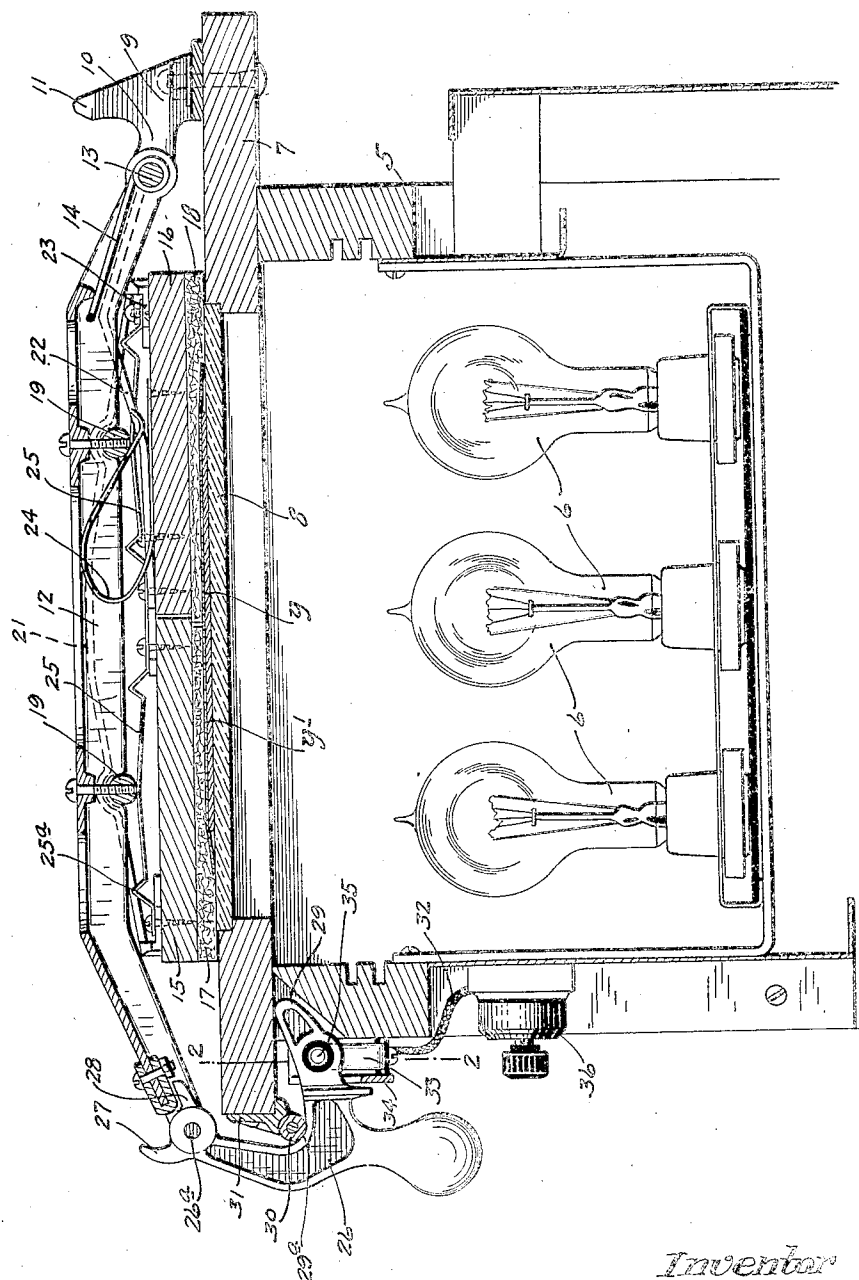
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Fig. 3



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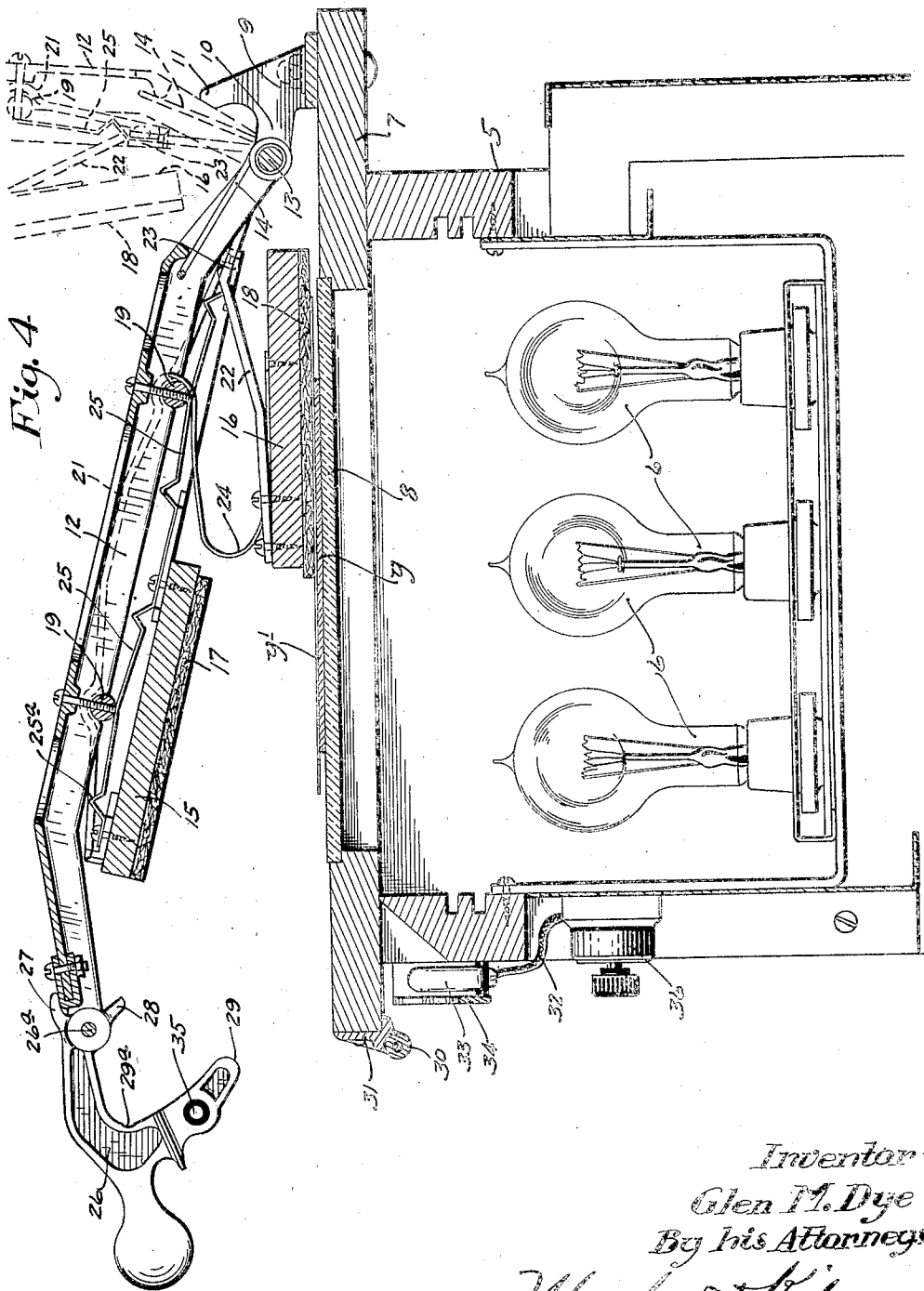
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE.

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PRESSER-BACK MECHANISM FOR PHOTOPRINTING MACHINES.

Application filed September 10, 1921. Serial No. 499,723.

To all whom it may concern:

Be it known that I, GLEN M. DYE, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Presser-Back Mechanism for Photoprinting Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to photographic printing machines and is directed to the provision of an improved presser back mechanism for such machines.

Generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

As is well known, so-called "presser back mechanism" of photo-printing machines usually includes a lever and front and rear presser boards yieldingly connected thereto, in some manner, whereby the rear presser board will be engaged with a print, to hold the same positioned on the transparent plate or glass of the printing head frame in advance of the engagement of the front presser board with the print.

One feature of my invention is directed to an improved connection between the presser lever and the front and rear presser boards, whereby the presser boards are universally adjustable to prints, negatives and associated devices which vary in thickness and may be more or less irregular in exposed surface.

Another feature of this invention is directed to an improved form of lever lock whereby, by the very easy movement of the lock, the lever may be very firmly pulled down and securely fastened in its operative or presser board depressing position.

Still another feature of the invention provides a switch for the lamp circuit, whereby the lamp circuit will be closed, not, per se, by a downward movement of the presser lever but by movement of the lever lock to its operative position while or after said lever has been depressed and the presser boards caused to firmly clamp the print and negative against the glass plate or transparent top of the lamp housing.

The above, generally noted, as well as minor but important novel features, are illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a perspective showing the improved presser back mechanism co-operatively applied to the printing head frame of the light house of a photo-printing machine;

Fig. 2 is a fragmentary detail partly in elevation, with some parts sectioned on the line 2—2 of Fig. 3;

Fig. 3 is a vertical section taken from front to rear centrally through the presser back-mechanism and lamp housing shown in Fig. 1; and

Fig. 4 is a view corresponding to Fig. 3, but with the presser lever shown as partly raised by full lines and as completely raised by dotted lines.

The lamp housing, which, in itself, constitutes no part of the present invention, may be of any suitable construction and, hence, is here indicated as an entirety by the numeral 5, the electric lamp or light bulbs located within the same being indicated by the numeral 6. This lamp housing supports a suitable printing head frame 7 provided with the customary glass plate 8.

Bolted or otherwise anchored to the rear central portion of the frame 7 is a hinge bracket 9 that is provided with laterally spaced forwardly projecting hinge lugs 10 and upstanding stop lugs 11.

The presser lever, which, as shown and preferred, is a cast skeleton member 12, is provided at its rear end with laterally spaced lugs that are pivotally connected to the hinge lugs 10 by a transverse hinge pin 13. The presser lever 12 will be normally held in a raised position indicated by dotted lines in Fig. 4, stopped against the lugs 11, by a torsion spring 14 coiled about the hinge pin 13 and re-acting against said lever and the hinge bracket 9. The front and rear presser boards 15 and 16, respectively, are provided with the customary felt or pliable under-facings 17 and 18 and are connected to the presser lever 12 in a novel manner already generally indicated and preferably by means involving further and important novel details of construction and which is as follows: Front and rear transversely extended presser spring riders, in the form of small rods 19, 110

are rigidly secured to the presser lever 12 and their projecting ends engage the open bottom pockets 20 of so-called presser spring saddle bars 21. The front end portions of these saddle bars 21, by screws or otherwise, are rigidly secured to the front presser board 15 while the rear portions of said saddle bars loosely overlie the rear presser board 16 but are not directly connected thereto and, hence, are capable of a limited rising movement above the same for an important purpose which will presently appear.

The rear presser board 16 is directly connected to the front ends of arms or so-called hinge straps 22, the rear ends of which are pivoted on the ends of the hinge pin 13. At their rear ends, the saddle bars 21 are provided with inward projections or lifting lugs 23, which, when the lever 12 has been raised, approximately as shown by full lines in Fig. 4, engage said hinge straps 22 and cause said lever 12, when moved further upward, to lift said rear presser board. The rear presser board 16, however, is yieldingly pressed downward or away from the saddle bars and presser lever, by a U-shaped spring 24, the lower end of which is attached to said presser board 16 and the upper end of which bears against the rear presser spring rider 19.

The saddle bars 21 are yieldingly pressed downward from the presser lever 12, as far as the tops of the pockets 20 and the ends of the spring riders 19 will permit, by presser springs 25 shown as formed from flat strips of spring-tempered metal and located one just inward of each saddle bar and extended under the front and rear presser spring riders 19. The front, rear and intermediate portions of these presser springs 25 are attached to flanges of the respective presser bars 21, by screws or otherwise and, adjacent to the points of attachment, are shown as provided with transverse corrugations 25^a that increase the resilience thereof.

The lock for securing the presser lever in its depressed position, as preferably designed, is in the form of a hand piece pivoted to the end of said lever and provided with a cam-acting hook that is eccentric to the axis of the pivotal connection between said lever and hand piece. Stated in another way, the lock is in the form of an eccentric hook provided with a handle adapted to be used as a lock lever and is engageable with an abutment or bearing on the printing head frame. Said lock 26, on its hub, has stop lugs 27 and 28 that limit its oscillatory movement in respect to the presser lever 12. The eccentric cam-acting hook portion 29 has an inner surface, which, in a direction inward from its end, is eccentric to and gradually approaches the axis of the pivotal connection 26^a between said lock and lever, and, at the inner extremity of said eccentric surface, is a slight depression 29^a. Said eccentric cam

surface, when the presser lever is depressed, is engageable with an abutment roller 30 pivoted to a small bracket 31 rigidly secured to the front edge of the printing head frame 7.

The electric lamps or light bulbs 6 are in an electric circuit 32 that includes spaced spring contacts 33 that are secured to but insulated from a bracket 34 suitably fixed on the upper front portion of the lamp house 5. The bracket 34 is bifurcated so as to freely pass the cam-acting hook 29 of the lever lock, without contact therewith, and said hook 29 is provided with a contact pin 35 that is insulated therefrom and has projecting ends that will engage the spring contacts 33 when and only when the presser lever has been completely depressed and the lever lock forced to its extreme locking position. The numeral 36 indicates an "on" and "off" switch, which is also interposed in the lamp circuit 32 and which is adapted to be manually operated at will. Of course, the switch 36 will be closed when the lamp circuit is put under the control of the lever lock described but will be opened when it is desired to cut the lamps entirely out of action.

The operation of the device described is quite obvious from the foregoing description and statement made, but the following comments are thought to be desirable:

In the drawings, a negative y is shown as placed on the glass plate 8 and a print y^1 upon said negative, both being in position for proper printing. The negative and print thus properly positioned may be held in position by one hand or otherwise while the presser lever and the presser boards are being given initial downward movement. Under such downward movement, the rear presser board 16 will be brought against the print when the presser lever and front presser board 15 have reached approximately the position shown in Fig. 4, whereupon the hand may be removed from the print and the print and negative will be then held properly positioned by the rear presser board while the presser lever and front presser board are being given complete downward movement. The front presser board will be yieldingly pressed against the print before the presser lever has completed its extreme downward movement. When the presser lever has nearly reached its lowermost position, the cam-acting hook 29 of the lock 26 will be engaged with the roller 30 and then, by movement of said lock into the position shown in Fig. 3, the final downward movement of the presser lever will be completed by a very powerful cam action, which, without any particular effort from the operator, will compress the springs 24 and 25.

It should be noted that the two presser boards adapt themselves to the surface of the negative, regardless of the combined thick-

ness of the negative and print and any other devices used in connection therewith, such as ordinary masks and border-tinting masks.

The spring connections between the presser lever and presser boards also permits the under surfaces of said boards always to assume positions parallel to the glass plate regardless of the altitude or distance at which they are stopped away from said glass plate. Otherwise stated, the said presser boards are universally adjustable to the combined pack made up of the print, glass, negative, film and other associated devices. The engagement of the depression 29^a of the hook 29 prevents the lever lock from being accidentally moved from its locking position.

It should be further noted that, under downward movement of the presser lever 12, the rear presser board 16 is first pressed against the print by the spring 24, but that, when the front presser board 15 has been forced against the print and brought to final pressing position, the rear portions of the saddle bars 21 will press against the top of the rear presser board 16, thereby additionally holding the latter and aligning the same with the front presser board. The so-called saddle bars 21 are, of course, universally adjustable in vertical planes to the positions of the presser boards 15 and 16, through their yielding connections, to wit: the presser springs 25.

As already indicated, the lamp circuit will be closed simultaneously with the movement of the lock to its extreme or final locking position, by engagement of the contact pin 35 with the spring contacts 33; and, of course, the initial movement of the lever lock from its extreme locking position shown in Fig. 3, will break the lamp circuit and cut out the lamps.

Under the above operations, there is absolute assurance that the lamp will not be turned on until the negative and print have been firmly clamped in position by both of the presser boards.

It will, of course, be understood that the device and mechanism described are capable of many modifications within the scope of my invention, as herein disclosed and claimed. The so-called presser boards 15 and 16 are preferably, although not necessarily, made of wood and, hence, it will, of course, be understood that this expression is used in a generic sense and does not at all limit the invention to any particular kind of material which may be employed. Also, the statement that the "plate of the head frame is transparent" is used in a liberal sense, not to limit the same to a completely transparent plate but to cover any kind of a plate through which light may pass to produce a print.

What I claim is:

1. In a photo-printing machine, the com-

bination with a transparent plate and its support, of cooperating presser back mechanism comprising a pivoted presser lever, having rigid front and rear lateral projections on its opposite sides, front and rear presser boards, and independent yielding connections between said front and rear presser boards and the front and rear lateral projections of said lever, arranged to yieldingly press said front and rear boards to operative positions, the latter in advance of the former, under downward movements of said lever.

2. In a photo-printing machine, the combination with a transparent plate and its support, of a co-operating presser back mechanism comprising a presser lever, laterally spaced saddle bars yieldingly connected to said lever, and front and rear presser boards, the former being firmly connected to the front ends of said saddle bars and the latter having a yielding connection to said lever.

3. In a photo-printing machine, the combination with a transparent plate and its support, of a co-operating presser back mechanism comprising a presser lever, laterally spaced saddle bars yieldingly connected to said lever, and front and rear presser boards, the former being firmly connected to the front ends of said saddle bars and the latter having a yielding connection to said lever, and subject to said saddle bars when said lever is depressed.

4. In a photo-printing machine, the combination with a transparent plate and its support, of a co-operating presser back mechanism comprising a presser lever having rigidly secured transversely projecting presser spring riders, laterally spaced saddle bars movably connected to the ends of said spring riders, and front and rear presser boards, the former rigidly connected to said saddle bars and the latter movably connected to said presser lever and arranged to be engaged by said saddle bars when the latter are depressed.

5. The construction defined in claim 4 in which said presser springs are flat metal structures extended along said saddle bars and having certain portions attached to said bars and other portions pressing upward against said spring riders.

6. The construction defined in claim 4 in which there is a spring interposed between said presser lever and rear presser board.

7. In a photo-printing machine, the combination with a transparent plate and its support, of a hinged presser lever, transversely extended presser spring riders secured to said lever, saddle bars connected to the ends of said spring riders for limited movements, springs interposed between said saddle bars and spring riders, front and rear presser boards, the former secured to the front portions of said saddle bars, hinge

straps pivoted on the lever hinge and attached to said rear presser board, and a spring interposed between said rear presser board and presser lever, said rear presser board having a limited downward movement in respect to said presser lever, the rear portions of said saddle bars being engageable with said rear presser board when said lever is depressed.

10 8. In a photo-printing machine, the combination with a transparent plate and its support, of a hinged presser lever, transversely extended presser spring riders secured to said lever, saddle bars connected to

15 the ends of said spring riders for limited movements, springs interposed between said saddle bars and spring riders, front and rear presser boards, the former secured to the front portions of said saddle bars, hinge

straps pivoted on the lever hinge and attached to said rear presser board, and a spring interposed between said rear presser board and presser lever, said rear presser board having a limited downward movement in respect to said presser lever, the rear portions of said saddle bars being engageable with said rear presser board when said lever is depressed, said lever at its free end having a lock engageable with an abutment on said support to lock said lever in a depressed position.

20 25 30

9. The construction defined in claim 8 in further combination with a spring operative to raise said presser lever when the latter is released.

In testimony whereof I affix my signature.

GLEN M. DYE.