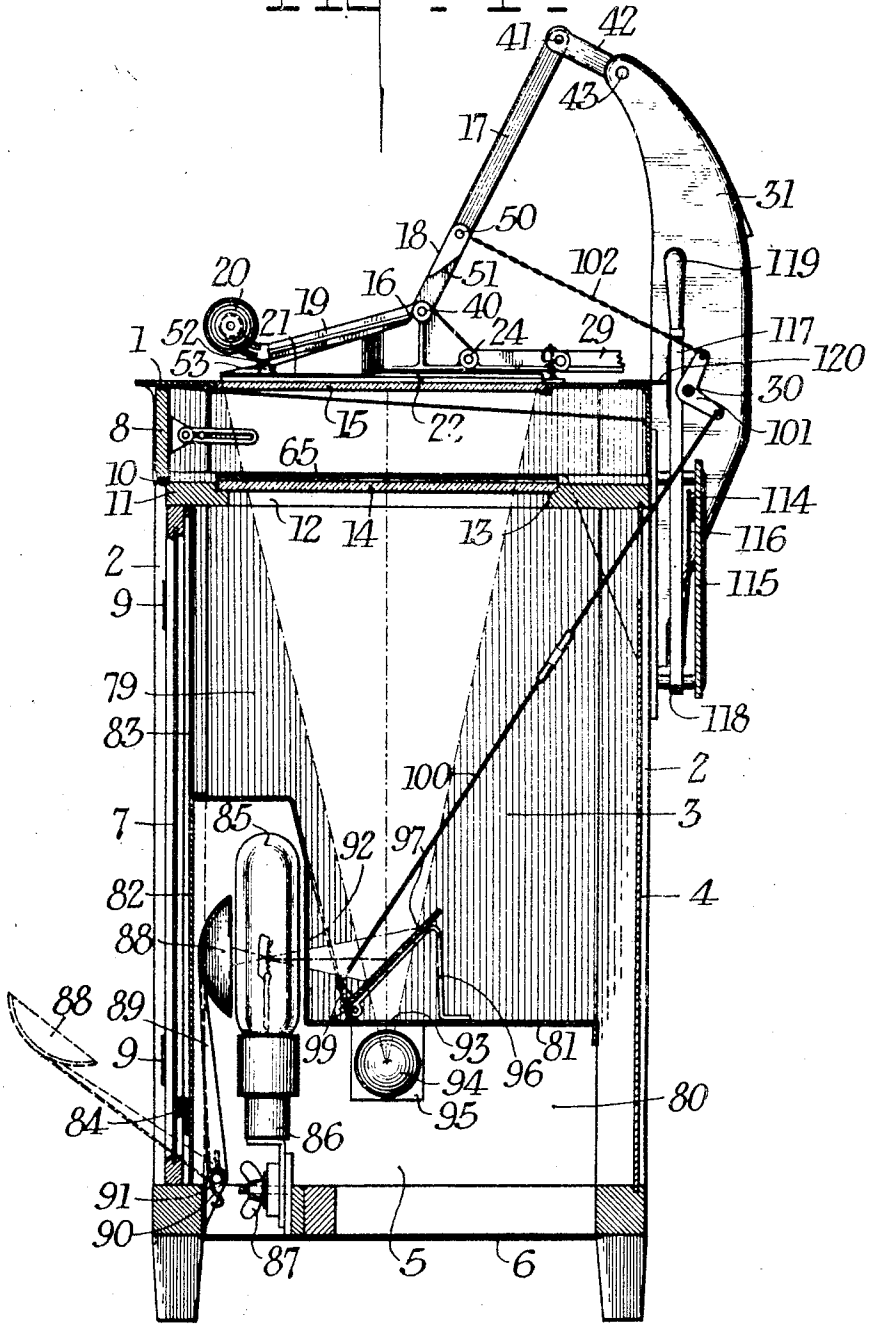
Nov. 10, 1931. R. S. HOPKINS 1,831,248

PHOTOGRAPHIC PRINTING MACHINE

Original Filed Dec. 10, 1926 6 Sheets-Sheet 1

FIG - 1 -



INVENTOR,
Roy S. Hopkins,
BY P. L. Stinchfield
Russell K. Stewart,
ATTORNEYS.

Nov. 10, 1931. R. S. HOPKINS 1,831,248

PHOTOGRAPHIC PRINTING MACHINE

Original Filed Dec. 10, 1926 6 Sheets-Sheet 2

FIG - 2 -

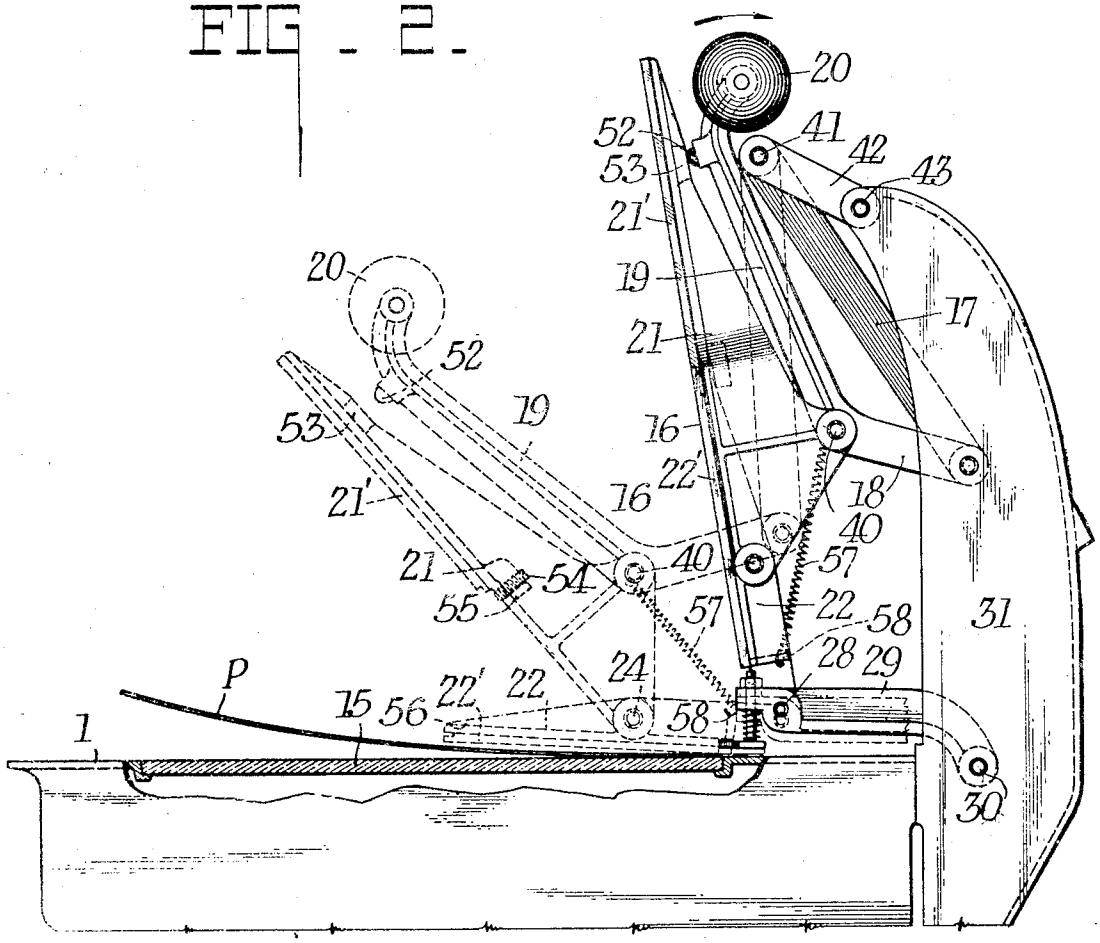
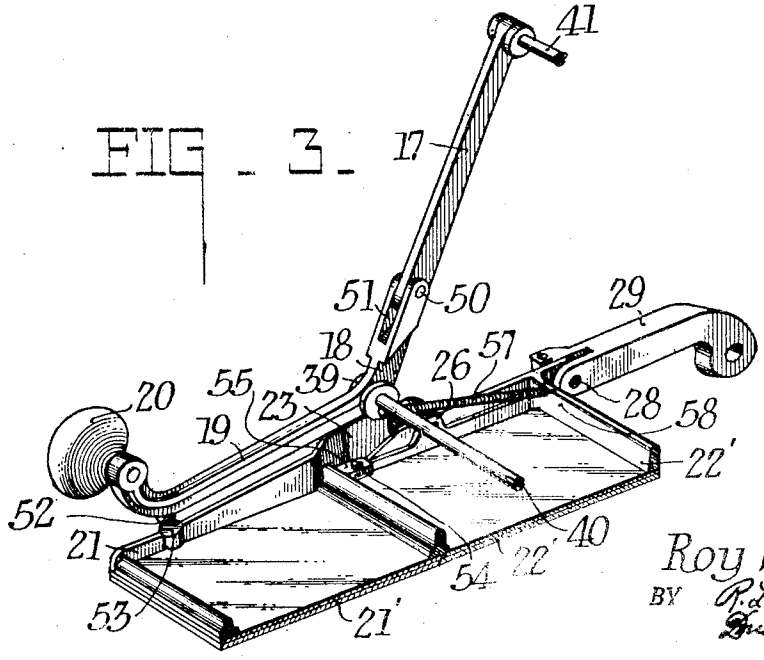


FIG - 3 -



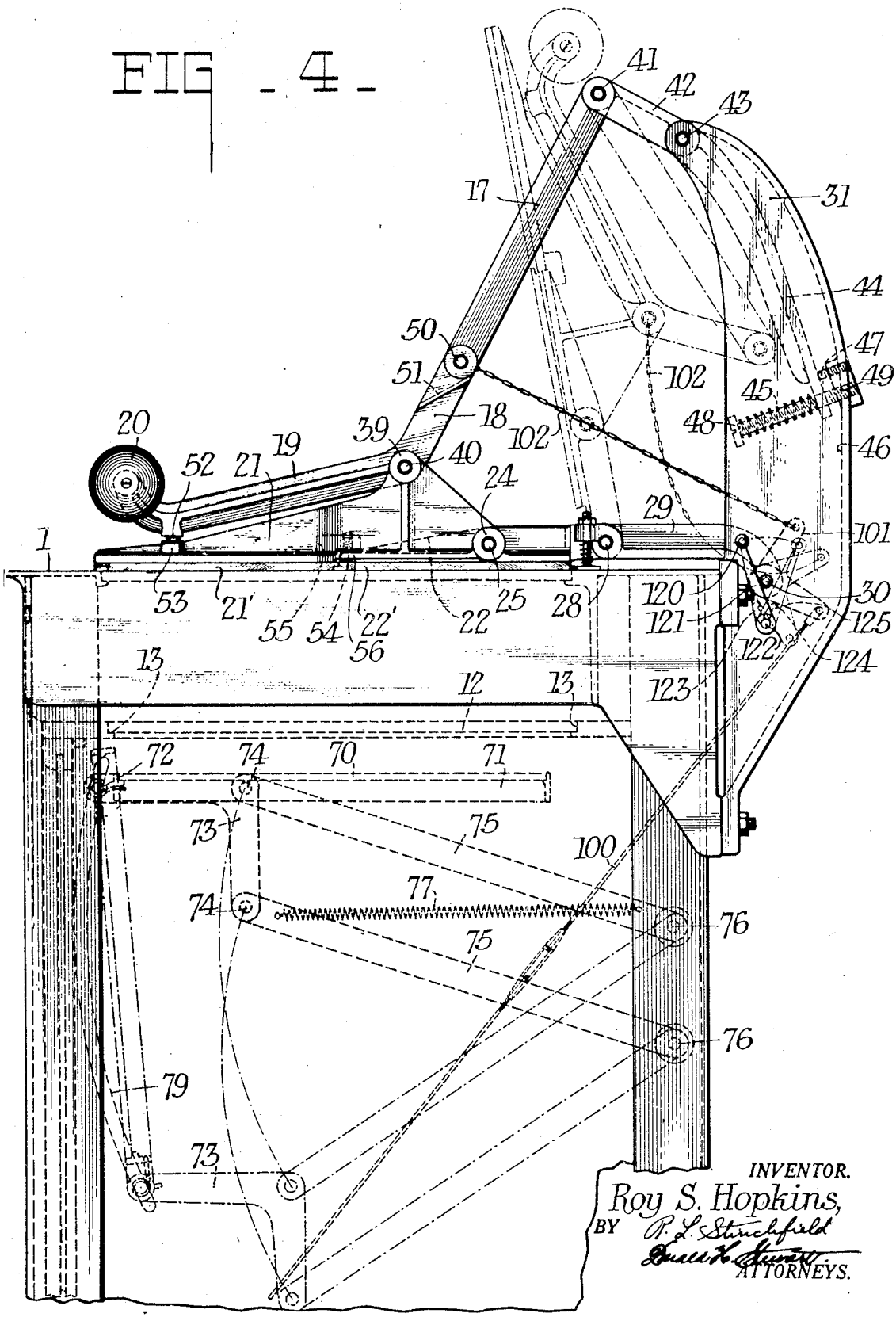
INVENTOR,
Roy S. Hopkins,
BY P. L. Stumpfield
Brell & Hurant
ATTORNEYS.

Nov. 10, 1931. R. S. HOPKINS 1,831,248

PHOTOGRAPHIC PRINTING MACHINE

Original Filed Dec. 10, 1926 6 Sheets-Sheet 3

FIG. 4.



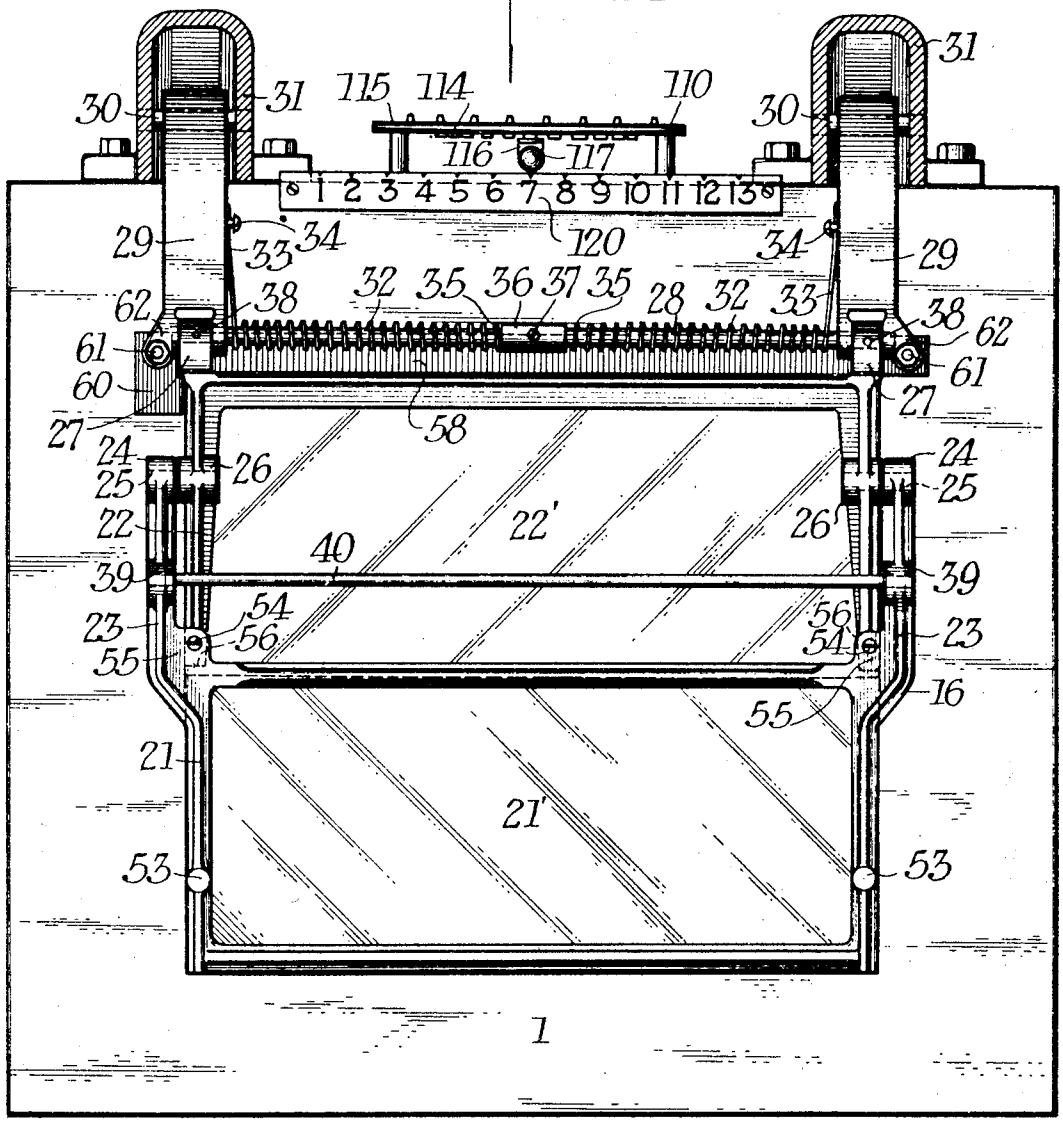
INVENTOR.
Roy S. Hopkins,
BY P. L. Stinchfield
Bruce K. Stevens
ATTORNEYS.

Nov. 10, 1931. R. S. HOPKINS 1,831,248

PHOTOGRAPHIC PRINTING MACHINE

Original Filed Dec. 10, 1926 6 Sheets-Sheet 4

FIG. 5.



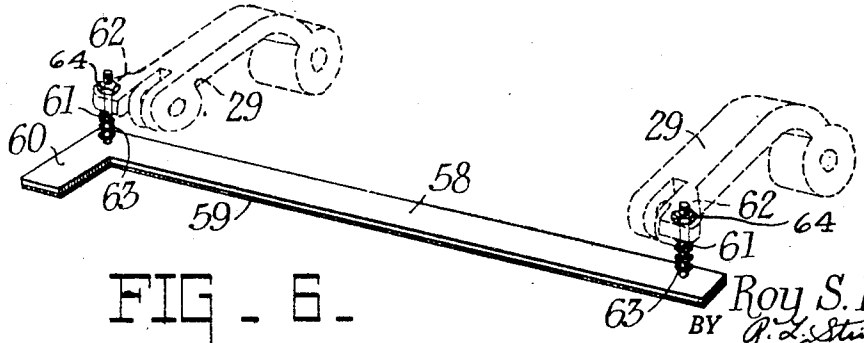


FIG. 6.

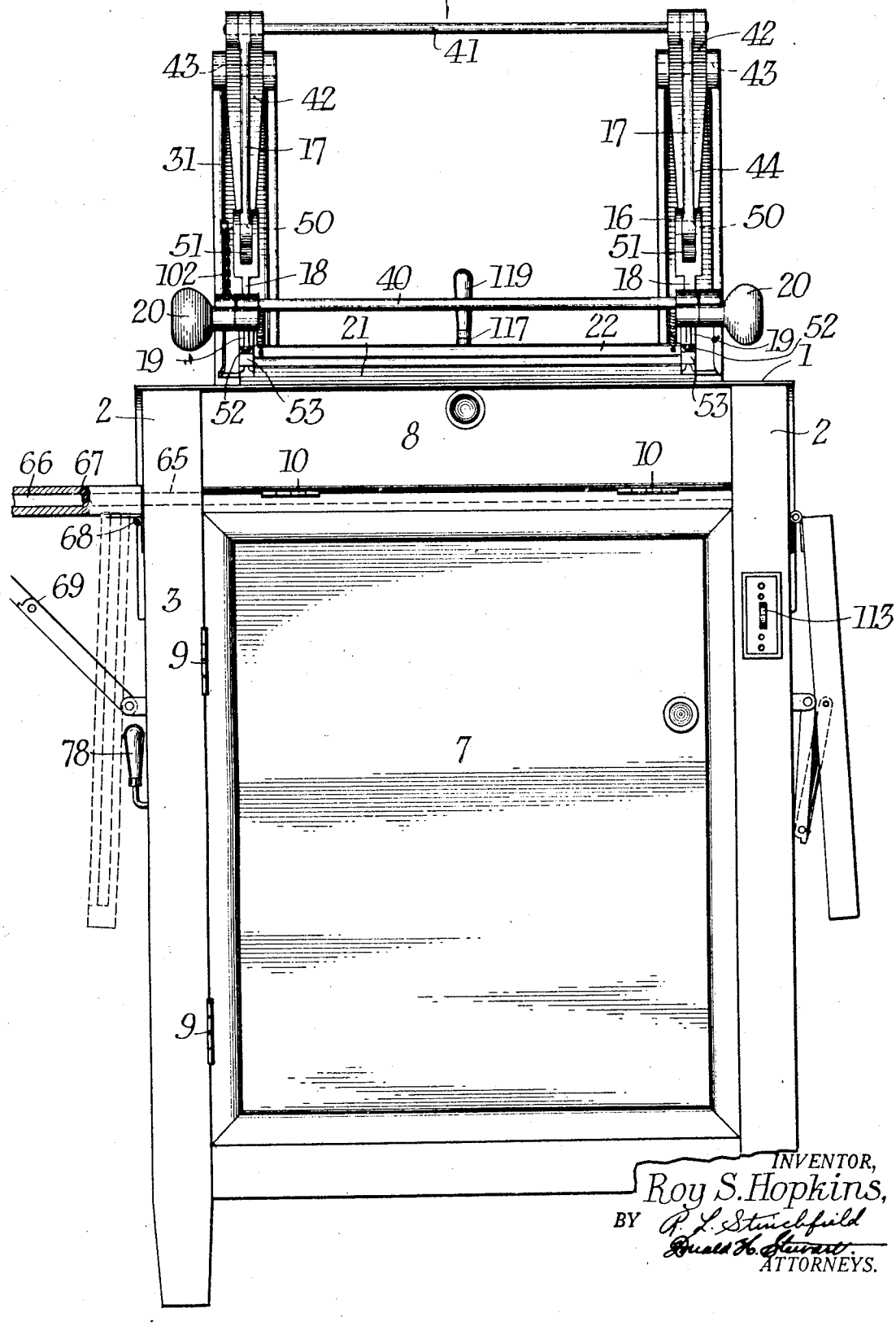
INVENTOR,
Roy S. Hopkins,
BY P. L. Stinchfield
Duell & Stinchfield
ATTORNEYS.

Nov. 10, 1931. R. S. HOPKINS 1,831,248

PHOTOGRAPHIC PRINTING MACHINE

Original Filed Dec. 10, 1926 6 Sheets-Sheet 5

FIG. 7.



Nov. 10, 1931. R. S. HOPKINS 1,831,248

PHOTOGRAPHIC PRINTING MACHINE

Original Filed Dec. 10, 1926 6 Sheets-Sheet 6

FIG - 8 -

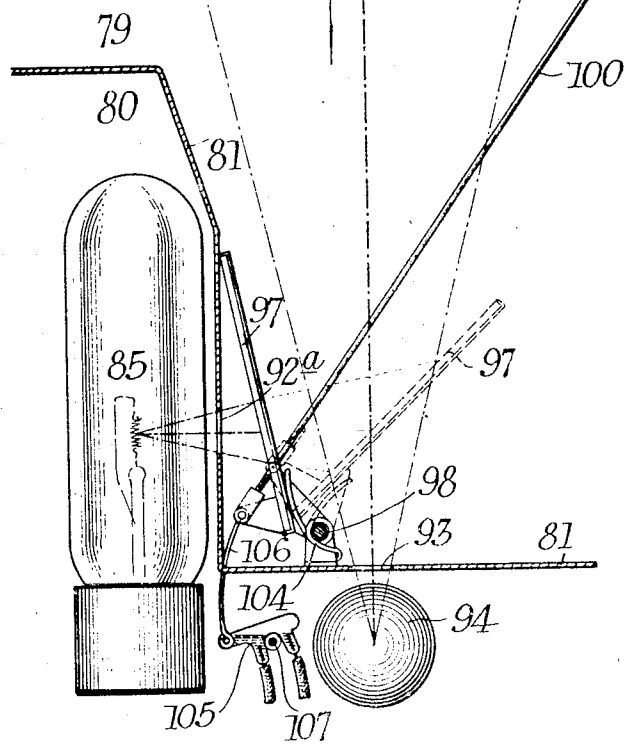
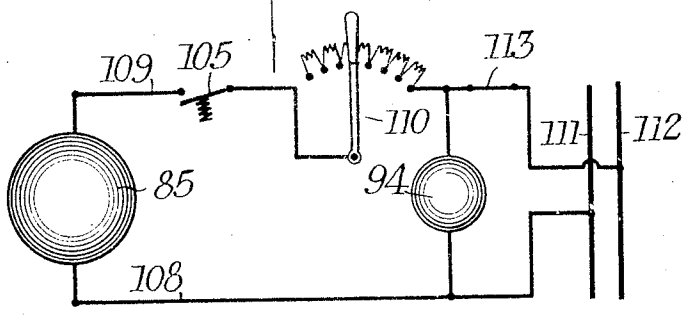


FIG - 9 -



INVENTOR,
Roy S. Hopkins,
BY R. L. Stinchfield
Duncan K. Stewart
ATTORNEYS.

Patented Nov. 10, 1931 1,831,248

UNITED STATES PATENT OFFICE

ROY S. HOPKINS, OF ROCHESTER, NEW YORK, ASSIGNOR TO EASTMAN KODAK COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK

PHOTOGRAPHIC PRINTING MACHINE

Application filed December 10, 1926, Serial No. 153,882. Renewed May 2, 1931.

This invention relates to photography and more particularly to photographic printing machines. One object is to provide a machine in which a platen is operated by a toggle. Another object is to provide a suitable resilient toggle mount. Another object is to provide a two part platen, one section being adjustable relative to the other. Another object is to provide a platen in which good contact may be obtained with but little effort. Another object is to provide a suitable translucent platen, the translucent sections of which are carried by interengaging frames. Another object is to provide suitable means for varying the pressure required to operate the platen. Another object is to provide a clamp cooperating with the toggle and adapted to clamp a negative, mask or the like. Still another object is to provide a toggle for moving a two part platen through a pivotal connection therewith, said mechanism having additional contacts for moving one part of the platen relative to the other, and still other objects will appear from the following specification, the novel features being particularly pointed out in the claims at the end thereof.

Coming now to the drawings wherein like reference characters denote like parts throughout:

Fig. 1 is a part section and part side elevation of a printing machine constructed in accordance with and embodying a preferred form of my invention; parts being omitted for clearness;

Fig. 2 is an enlarged fragmentary detail partly in section of the platen, platen operating mechanism, and clamping device;

Fig. 3 is a perspective showing a portion of the platen and platen operating mechanism;

Fig. 4 is an enlarged side elevation of a portion of the printing machine shown in Fig. 1;

Fig. 5 is a plan view of the printing machine shown in Fig. 1, portions of the platen operating mechanism being omitted for the sake of clearness;

Fig. 6 is a perspective view of the clamp and paper guide;

Fig. 7 is a front plan view of the printer shown in Fig. 1;

Fig. 8 is an enlarged fragmentary showing of the mirror, mirror moving mechanism and lamps; and

Fig. 9 is a wiring diagram.

As shown in Fig. 1 my printer may consist of a top 1 supported by legs 2 and provided with a housing 3 formed by the back 4, sides 5, bottom 6, and the front doors 7 and 8. Door 7 is hinged at 9 to the leg 2 and door 8 is hinged at 10 to the front member 11 of a frame 12 which is spaced beneath the top of the printer, and which carries a slideway 13 for a screen 14.

The top of the printer is provided with a printing panel 15 which is preferably of sheet glass over the top of which is movably mounted a platen 16. This platen may be moved by a toggle consisting of links 17 and 18, the latter link being extended at 19 to form a bell crank lever and having a handle 20 by which the platen may be moved.

The construction of the platen and platen moving mechanism is best shown in Figs. 2 to 5 inclusive. From Fig. 5 it will appear that the platen 16 consists of two frames 21 and 22, the former having four sides and the latter three sides. Frame 21 is provided with offset arms 23 which carry bearings 24 through which shafts 25 pass. These shafts are movable in bearings 26 of the frame 22, and thus form a hinge connecting the two platen sections. Each frame 21 and 22 is covered with light transmitting pyroxylin covers 21′ and 22′ through which the printing operation may be viewed if desired. Any other light transmitting material may be used, but I find that orange or red sheet pyroxylin is satisfactory, and in the form shown in Fig. 3 I have used two sheets to obtain the desired thickness.

The rear platen frame 22 is provided with bearings 27 through which a shaft 28 passes, this shaft being carried by links 29 which are hinged at 30 to the brackets 31.

It should be noted that shaft 30 lies beneath the level of the table top 1, because with the platen sections arranged at an intermediate level between the toggle 16 and the pivot 30, there is no tendency for platen section 22 to "ride up" and make poor contact when sec-

tion 21 is pressed down by a two point contact with the toggle as will be hereinafter fully described. In other words, the toggle thrust is forward (toward an operator) as well as downward, and as pivot 30 is located beneath the faces of the platen such forward force draws the platen downward.

Coil springs 32 encircle shaft 28, one end 33 of the springs being held beneath screws 34 on brackets 29 and the other end 35 being affixed to a sleeve 36 which may be turned and fastened on shaft 28 by means of a set screw 37. In this way the tension on springs 32 may be adjusted so that they will counterbalance the weight of the platen which is attached to shaft 28 by means of pins 38 passing through bearings 27.

The offset side arms 23 of frame 21 are provided with bearings 39 through which the shaft 40 passes. At best shown in Fig. 4, shaft 40 pivotally connects link 18 of the toggle to the outer platen section. Link 17 of the toggle is pivoted at 41 to a lever 42 carried by a shaft 43 supported in a bracket 31. This lever is extended at 44 and is pressed by the spring 45 toward the back 46 of the bracket. A set screw 47 limits the movement of the lever members and is supported on a stud 48 fitting into a trapped hole 49 in the bracket. Screw 47 may be turned to adjust the tension on spring 45.

The resilient support of toggle links 17 and 18 provides the force necessary to latch the platen in a closed position in the following manner: The toggle links 17 and 18 are pivoted together at 50 and link 18 is provided with a bifurcated end 51 which permits the links to fold. When the handle 20 is moved to lower the platen and the toggle approaches a straight line, spring 45 is placed under tension so that pivot 50 slightly passes a dead center. The force of spring 45 will retain the toggle links in this position as the movement of these links cannot pass further than the position shown in Fig. 4 because pad 52 on arm 19 strikes pad 53 which forms a part of the platen section frame. Pad 52 is preferably of some shock absorbing material such as rubber or leather.

It should be noted that the two platen section frames are hinged together by the stub shafts 24. If, because of manufacturing variations, the faces 21′ and 22′ of the two platens do not align up properly these may be adjusted relative to each other by means of set screws 54 passing through lugs 55 contacting with ends 56 of frame member 22. (Figs. 4 and 5.)

As best shown in Fig. 3, a spring 57 connects the lower part of toggle link 18 with the rear part 58 of platen section 22. This spring assists in moving the rear platen section into contact with the printing panel in advance of the front panel section, as shown in Fig. 2. The position of the pivotal pins 40, 41, and 50 is such that when the parts are in an inoperative position, as shown in full lines Fig. 2, the platen sections are in substantial alignment and the pads 52 and 53 are in contact. This is useful because as the handle is pulled to lower the platen the initial starting movement is through pads 52 and 53.

Still more important, however, is that the two point contact between the toggle and platen, that is, pivot 40 and pads 52, 53, during the start of the downward movement section 21 of the platen is made to move through a path about pivot 28 similar to the path through which toggle arm extension 19 passes. During this movement, section 22 turns on pivots 24 so as to reach the printing panel first. After section 22 turns on pivots 24, the two point contact between the toggle and platen section 21 is also broken, and this contact is not again made until the platen is lowered almost to the panel.

As the handle is moved downwardly, the parts assume the position shown in broken lines as the paper is clamped on the printing panel, and when the platen is fully lowered the pads 52, 53 are again in contact, as above described. Thus there is a means in addition to the connection between the toggle and platen at 40 for starting the downward platen movement and for pressing the platen against the printing panel 15.

In order to hold a negative or mask in position on the platen, and in order to form a guide for placing paper, there is an L-shaped clamping member 58. Referring to Figs. 5 and 6, this clamping member is preferably faced with soft material such as felt or rubber 59 and arm 60 may be made relatively short. Two bolts 61 are carried by the ends of the masking member, these bolts passing through apertures in the lugs 62 which are preferably integral with links 29. Coil springs 63 encircle the bolts and nuts 64 are for adjusting the distance of the clamping member from the links 29.

The clamping member 58, as shown in Figs. 2 and 5, normally remains in contact with the top 1 of the printing machine. The platen normally turns about shaft 28 so that a clamp 58 will remain in contact with the table when the platen reaches its normal open position. In order to move the clamp for inserting or removing the negative, mask, or the like the handle as shown in Fig. 2, should be moved further back than its normal open position. This causes links 29 to turn upon shaft 30, thus raising the clamping member. By releasing handle 20 the clamp will be moved back against the table and the platen will remain in its normal open position, as shown in dotted and dashed lines, Fig. 2. Links 29 have the additional function of permitting the platen sections to adjust themselves for various different thicknesses of negatives, masks and different papers.

As shown in Figures 1 and 7 a slidable screen 14 is mounted in a frame 12 beneath the printing panel 15. This screen is preferably a sheet of clear glass upon which any desired vignetting material may be placed. It is made to slide through a slot 65 into a slot 66 in shelf 67 which may be turned by hinge 68 by moving the brace 69, and so fold it down out of the way when not in use.

As shown in Fig. 4, a second vignetting screen 70, preferably of ground glass, is carried by a frame 71, which is affixed to a shaft 72 supported by a pair of bell crank levers 73. These levers are pivoted at 74 to a pair of parallel links 75 which in turn are pivoted at 76 to the printing machine. A spring 77 is used to counterbalance the screen so that it may remain in any set position. A handle 78 (Fig. 7) extends out through an arcuate slot 79 in the side of the printer and permits the screen to be moved up and down by the parallel links 75 and also to be swung from an operative position to that shown in dot and dash lines, Fig. 4.

A separate application, Serial Number 153,881, filed December 10, 1926, covers the vignetting apparatus described in the two paragraphs above.

The lighting system employs a point light source such as is described in my copending application Serial No. 129,230, filed August 14, 1926 for photographic printer. In the present printer the housing 3 is divided into two compartments 79 and 80, see Fig. 1. Compartment 80 is separated from 79 by means of a wall 81 which has a door 82 mounted to slide in slot 83 by means of a handle 84. This gives access to the printing lamp 85 which is preferably of a high powered concentrated filament type, such as a 500 or 1000 w. Mazda. The lamp 85 is mounted on a base 86 which may be adjustable in two directions for properly focusing the lamp, and which may be fastened in a desired position by a wing nut 87. I prefer to use a reflector 88 which is preferably movable on arm 89 hinged to a bracket 90 and pressed by spring 91 into position shown in full lines.

The partition 81 is provided with a pair of windows 92 and 93, the former for passing a restricted light beam from lamp 85, and the latter for passing an unrestricted light beam 94 which is mounted upon a suitable bracket 95. Lamp 94 is the pilot lamp and is preferably orange or some other non-actinic color, although, if desired, a low powered uncolored lamp may be used.

Lamps 85 and 94 are optically spaced the same distance from the printing panel 15, thus the light rays passing through the windows 92 and 93 from each of the lamps to the platen are of the same length and through the greater part of the distance traverse the same course. On top of the partition 81 there is a bracket 96 adapted to support a reflector which is preferably a mirror 97. This mirror is hinged at 98 to the partition and is provided with an arm 99 by which it may be oscillated upon its hinge through the rod 100 connected to bell crank lever 101 pivoted at 30 to the bracket 31. The bell crank lever is also connected by means of a chain 102 to the joint 51 of the toggle.

As shown in Fig. 8, the mirror is normally closed by means of a spring 104 encircling the hinge 98. When the platen, however, is lowered by means of a handle 20, Fig. 1, a chain 102 turns the bell crank lever 101 about its pivot thereby pulling up the rod 100 and moving the reflector 97 to the position shown in dashed lines, Fig. 8, in which the light rays from the printing lamp 85 are bent and reflected toward the printing panel. It will be noted in Fig. 8 a reflector behind lamp 85 has been omitted, and window 92a is smaller than window 92. This, of course, reduces the light, but is satisfactory. I prefer to include the reflector.

I prefer to provide a switch, such as shown at 105 in Figs. 8 and 9 which will make and break the circuit going to lamp 85, since this materially extends the life of the printing lamp. Each time the arm 100 is moved to its dashed line position, Fig. 8, shaft 98 moves a lever 106 which swings a mercury switch 105 about a pivot 107 to make the circuit. Obviously any desired type of switch may be employed.

As shown in Fig. 9 the wiring of my machine is simple. Printing lamp 85 is connected by wires 108 and 109, the latter passing through switch 105 and the rheostat 110 to the main wires 111 and 112, lamp 94 may be connected to burn continuously, when switch 113 which controls the circuit is closed as shown.

As shown in Figs. 1 and 5, I provide a rheostat 110 which may be mounted between the brackets 31 and which may comprise a series of resistance points 114 mounted on a plate 115, there being a spring contact 116 controlled by handle 117 pivoted at 118 to a suitable shaft and controlled by a handle 119. I find it convenient to provide a scale 120 so that any lamp setting may be repeated at will.

If, for any reason, the operator desires to turn on the printing lamp 85 while the platen 16 is raised, a handle 119 of lever 121 (Fig. 4) may be moved from full to dashed line position. This causes shaft 122 to turn and with it the arm 123. This arm carries a cam 124 which moves bell crank lever 101 to a position in which the rays of lamp 85 are reflected to the panel 15. By returning the handle to its initial position, the bell crank lever 101, rod 100 and mirror 97 return to their normal position.

The operation of my printing machine is as follows:

A negative may be clamped between the printing panel by moving the handle 20 rearwardly to the position shown in Fig. 2, thus raising the clamp 58. If part of the negative prints too readily, vignetting material may be laid upon the screen 14 or the screen 70 according to the results desired, as fully described in my copending application Serial No. 153,881, filed Sept. 10, 1926. The operator looking down upon the platen may observe the effect of the vignetting material by means of the light rays coming from the pilot lamp 94. Since the pilot and printing lamps are optically spaced similarly with respect to the platen the operator may accurately change the extent and result of the vignette. The platen may be then lowered by handle 20 and section 22 will contact with the paper P in advance of section 21, and thus hold it in a desired position. As the toggle pivot 51 passes a dead center (which is after the platen is fully lowered) it pulls chain 102 and, through the mechanism above described, mirror 97 to the position shown in Fig. 1 and makes the circuit of lamp 85. The light rays from the printing lamp will then be reflected by mirror 97 through the same path as the light rays going from the pilot lamp 94. The rheostat 110 may be used to vary the intensity of the printing lamp so that an exposure of a useful duration for the particular work may be employed.

For instance, if it is desirable to "hold back" a portion of the negative during the printing operation, the door 8 may be open and the operator's hand or a card may be moved in the path of the light rays passing to the printing panel. During this operation an operator may look through the platen 16 since the platen faces 21′ and 22′ are transparent. The color of these platen faces is such that the printing light will not blind the operator.

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

1. In a photographic printing machine, the combination with a printing panel, of a two part platen having panel contacting faces mounted to move thereover, a hinge connection between the two platen sections, one platen section overlapping the other, and means on one platen section adapted to co-operate with the other platen section for adjusting the two contacting faces whereby they may be made to lie substantially in the same plane.

2. In a photographic printing machine, the combination with a printing panel, of a two part platen having panel contacting faces mounted to move thereover, a hinge connection between the two platen sections, one platen section overlapping the other, and means on an overhanging portion of the platen for adjusting the relative position to the panel contacting faces of the two platen sections.

3. In a photographic printing machine, the combination with a printing panel, of a two part platen having panel contacting faces mounted to move thereover, a hinge connection between the two platen sections, one platen section overlapping the other, and a set screw carried by a portion of the overhanging platen section adapted to impinge upon the other platen section whereby the relative position of one panel contacting face may be altered with respect to the other.

4. In a photographic printing machine, the combination with a printing panel, of a two part platen mounted to move thereover, said platen including two frames of substantially similar proportions, arms on one frame extending to each side of and being pivotally attached to the other frame, portions of one frame overhanging portions of the other frame, and means extending between the overhanging frame and the frame lying beneath the overhanging frame for adjusting one frame relative to the other.

5. In a photographic printing machine, the combination with a printing panel of a two part platen mounted to move thereover, said platen including two frames of substantially similar proportions, arms on one frame extending to each side of and being pivotally attached to the other frame, portions of one frame overhanging portions of the other frame, and set screws passing through the overhanging frame adapted to impinge upon the other frame whereby the relation between the two frames may be adjusted.

6. In a photographic printing machine, the combination with a printing panel of a two part platen hinged to move thereover, said two part platen including a pair of frames, one frame including a rectangular frame member having four edges, the other frame member having three edges, both frames supporting transparent panel contacting faces, the fourth edge member of one frame contacting with the transparent face of the other platen member forming a fourth side to the frame therefor when the platen is in an operative position upon the printing panel.

7. In a photographic printing machine, the combination with a printing panel of a two part platen hinged to move thereover, said two part platen including a pair of frames, one frame including a rectangular frame member having four edges, the other frame member having three edges, both frames supporting transparent panel contacting faces, the fourth edge member of one frame contacting with the transparent face of the other platen member forming a fourth side to the frame, a hinge connecting one platen section to the other, and means carried by one frame and adapted to co-operate with the other platen frame for adjust-

ing the frames relative to each other, whereby the fourth side member of one frame may be adjusted to contact with the unsupported edge of the transparent face of the platen section supported by the three sided frame member.

8. In a photographic printing machine, the combination with a panel, of a platen movably mounted to move to and from the panel, a toggle for moving the platen, a pivotal connection between the platen and one end of the toggle and a mount for the other end of the toggle including a pivoted lever and a support, and a spring pressing a portion of the lever toward the support.

9. In a photographic printing machine, the combination with a panel, of a platen movably mounted to move to and from the panel, a toggle for moving the platen, and a mount for the toggle including a pivoted lever and a support, a stud carried by the support, and a spring encircling the stud and adapted to press a portion of the lever toward the support.

10. In a photographic printing machine, the combination with a panel, of a platen movably mounted to move to and from the panel, a toggle for moving the platen, and a mount for the toggle including a pivoted lever and a support, a threaded stud carried by the support, and a spring encircling the stud and adapted to press a portion of the lever toward the support, the spring tension being adjustable by turning the threaded stud.

11. In a photographic printing machine, the combination with a panel, of a platen movably mounted to move to and from the panel, a toggle for moving the platen, a pivotal connection between one end of the toggle and the platen, and a mount for the other end of the toggle including a pivoted lever and a support, means for resiliently pressing a portion of the lever toward the support, and means for limiting the movement of the lever towards the support.

12. In a photographic printing machine, the combination with a panel, of a platen movably mounted to move to and from the panel, a toggle for moving the platen, connections between the platen and one end of the toggle, and a mount for the other end of the toggle including a pivoted lever and a support, and means for permitting limited movement of the lever about its pivot.

13. In a photographic printing machine, the combination with a panel, of a platen movably mounted to move to and from the panel, a toggle for moving the platen, and a mount for the toggle including a pivoted lever and a support having a pair of tapped holes therein, a pair of threaded studs carried in the tapped holes, one stud serving as a stop limiting the movement of the lever toward the support, and a spring carried by the other stud adapted to press the lever toward the stop.

14. In a photographic printing machine, the combination with a panel, of a platen movably mounted to move to and from the panel, a toggle for moving the platen, and a mount for the toggle including a pivoted lever having an opening therein, a support, and a stud carried thereby extending through the opening in the lever, and a spring encircling the stud, adapted to move the lever with respect to the support.

15. In a photographic printing machine, the combination with a panel, of a platen movably mounted to move to and from the panel, a toggle for moving the platen, and a mount for the toggle including a pivoted lever having an opening therein, a support, and a stud carried thereby extending through the opening in the lever, a spring co-operating with the stud to create a spring tension tending to move the lever with respect to the support, and means for limiting such movement.

16. In a photographic printing machine, the combination with a printing panel, of a platen movable to cover and uncover the panel, a toggle having one end pivotally attached to the platen, a support, and a resilient connection between the support and the other end of the toggle.

17. In a photographic printing machine, the combination with a printing panel, of a platen movable to cover and uncover the panel, a toggle having one end pivotally attached to the platen, a support, and a resilient connection between the support and the other end of the toggle including a resiliently mounted toggle carrying lever.

18. In a photographic printing machine, the combination with a printing panel, of a platen movable to cover and uncover the panel, a toggle pivotally attached to the platen, a support, a resilient toggle carrier mounted on the support, a pivotal connection between the support and the resilient toggle carrier.

19. In a photographic printing machine, the combination with a printing panel, of a platen movable to cover and uncover the panel, a toggle pivotally attached to the platen, a support, and means for permitting limited movement of the toggle with respect to the support comprising a resiliently mounted member pivoted to the toggle and to the support.

20. In a photographic printing machine, the combination with a printing panel, of a platen movably mounted with respect thereto, a pivotal support for the platen, including a link, a pivotal support for the link, and a clamp mounted on the link and adapted to be operated thereby.

21. In a photographic printing machine, the combination with a printing panel, of

a platen movably mounted with respect thereto, a pivotal support for the platen including a link, a pivotal support for the link, and a clamp carried by the link, a resilient member associated with the link and clamp tending to separate the parts.

22. In a photographic printing machine, the combination with a printing panel, of a platen movably mounted with respect thereto, a pivotal support for the platen, including a link, a pivotal support for the link, and a clamp carried by the link, a resilient member associated with the link and clamp tending to separate the parts, and means for limiting the possible movement of the clamp from the link under the impulse of the resilient member.

23. In a photographic printing machine, the combination with a printing panel, of a platen movably mounted with respect thereto, a pivotal support for the platen including a link, a pivotal support for the link, means for moving the platen about its pivotal support to and from the platen without moving said link, said means being also capable of further movement when the platen is moved from the panel to move the link.

24. In a photographic printing machine, the combination with a printing panel, of a platen movably mounted with respect thereto, a pivotal support for the platen including a link, a pivotal support for the link, means for moving the platen about its pivotal support to and from the panel without moving said link, said means being also capable of further movement when the platen is moved from the panel to move the link, a clamp carried by the link, said clamp being normally in an operative position in which sheet material may be held against the printing panel, but being moved from clamping position by moving the link.

25. In a photographic printing machine, the combination with a printing panel, of a platen movably mounted with respect thereto, a pivotal support for the platen including a link, a pivotal support for the link, means for moving the platen about its pivotal support to and from the panel without moving said link, said means being also capable of further movement when the platen is moved from the panel to move the link, a clamp carried by the link, means for resiliently moving the clamp from the link and means for limiting such movement, said clamp being rendered inoperative by moving said link.

26. In a photographic printing machine, the combination with a printing panel, of a platen movably mounted with respect thereto, a pivotal support for the platen including a link, a pivotal support for the link, means for moving the platen about its pivotal support to and from the panel without moving said link, said means being also capable of further movement when the platen is moved from the panel to move the link, a clamp slidably connected to said link, a spring tending to move the clamp in one direction, and means for moving the clamp in the other direction including the link.

27. In a photographic printing machine, the combination with a printing panel, of a platen movably mounted with respect thereto, a hinged support for the platen comprising a link pivotally attached to the printing machine and to the platen, and a clamping member supported by said link and normally contacting with the printing machine.

28. In a photographic printing machine, the combination with a printing panel, of a platen mounted to move thereover, a hinged support for the platen including a link pivotally attached to the platen and to the printing machine frame, and means including a spring tending to turn the platen about the pivot by which it is connected to the link, whereby the platen may be raised without raising the link.

29. In a photographic printing machine, the combination of a printing panel, of a platen mounted to move thereover, a hinged support for the platen including a link upon which the platen is pivotally mounted, a support upon which the link is pivotally mounted, and a spring encircling the pivotal connection between the platen and link one end of said spring being anchored to the link, and the other end of the spring being anchored to the platen, said spring increasing in tension when the platen is swung about its pivot toward the printing panel, and decreasing in tension when the platen is raised from the printing panel.

30. In a photographic printing machine, the combination of a printing panel, of a platen mounted to move thereover, said platen including a pair of relatively movable members each having a paper contacting face, a toggle pivoted to the platen, a support on which the other end of the toggle is mounted, an extension on one toggle arm, an operating handle carried thereby, said extension on the toggle arm having contact with a platen section when the platen is pressed against the panel.

31. In a photographic printing machine, the combination of a printing panel, of a platen mounted to move thereover, said platen including a pair of relatively movable members each having a paper contacting face, a toggle pivoted to the platen, a support on which the other end of the toggle is mounted, an extension on one toggle arm, an operating handle carried thereby, said extension on the toggle arm having a platen contacting member, a contact pad on a platen section, the member and pad being brought into engagement by lowering the platen upon the printing panel.

32. In a photographic printing machine, the combination of a printing panel, of a platen mounted to move thereover, said platen including a pair of relatively movable members each having a paper contacting face, a toggle pivoted to the platen, a support on which the other end of the toggle is mounted an extension on one toggle arm, an operating handle carried thereby, said extension on the toggle arm including a pad positioned so that said pad will engage a platen section when said platen is in engagement with the panel, and when said platen is fully raised from said printing panel.

33. In a photographic printing machine, the combination of a printing panel, of a platen mounted to move thereover, said platen including a pair of relatively movable members each having a paper contacting face, a toggle pivoted to the platen, a support on which the other end of the toggle is mounted, an extension on one toggle arm, an operating handle carried thereby, said extension on the toggle arm having a platen contacting member, a contact pad on a platen section, the member and pad being brought into engagement by moving the toggle to a position in which the platen is either open or closed, said pad and the member being adapted to separate during movement of the platen between these two positions.

34. In a photographic printing machine, the combination with a printing panel, of a platen movably mounted thereover, a toggle pivoted to and adapted to move the platen, a support to which the toggle is pivotally attached and means supplementary to the pivotal connection between the toggle and platen for assisting in parts of the downward movement thereof.

35. In a photographic printing machine, the combination with a printing panel, of a two part platen movable thereover, and a toggle pivotally connected to the platen for moving the same, a support to which the toggle is pivotally attached, a link pivoted to the platen, and a pivotal support for said link located below the level of the platen, whereby pressure applied to the platen through the toggle tends to cause a downward movement of the platen about its pivotal support.

36. In a photographic printer, the combination with a printing panel, of a platen movably mounted thereover, a support, and a toggle connected to the support and pivotally connected to the platen, means for attaching the platen to the support including a link, said link being pivotally mounted beneath the level of the printing panel to the support and being pivotally attached to the platen, said toggle being adapted to exert a downward and outward force from the support upon the platen, said force causing the pivoted end of the platen to be drawn downwardly against the panel.

37. In a photographic printer, the combination with a printing panel, of a platen movable thereover, a support, and a toggle connected to the support and pivotally connected to the platen, a pivotal support for the platen including a link, hinged to the platen and pivoted to the support beneath the level of the panel, a spring tending to turn the platen about the hinge, the toggle being adapted to exert a downward and outward thrust from the support upon the platen, whereby the platen is firmly pressed upon the panel.

38. In a printing machine, the combination with a panel, of a platen movable thereover, a support, a toggle pivotally connected to the support and pivotally connected to the platen, a link, connections between the link and the platen including a pivot, said link being pivotally attached to the support, said last mentioned pivot being located beneath the level of the printing panel, whereby the platen is supported between the two pivotal connections therewith, said toggle being adapted to press the platen downwardly and outwardly from the support into contact with the panel.

Signed at Rochester, New York, this 6th day of December, 1926.

ROY S. HOPKINS.