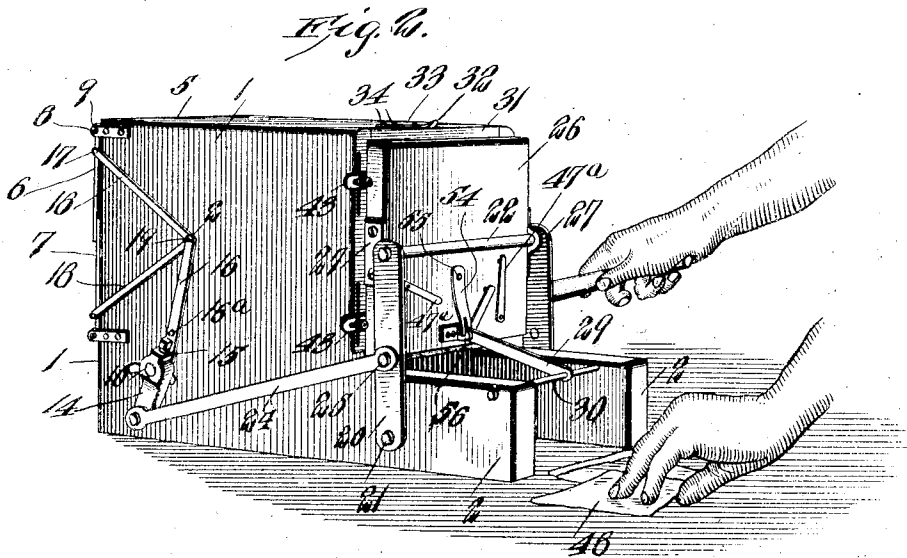
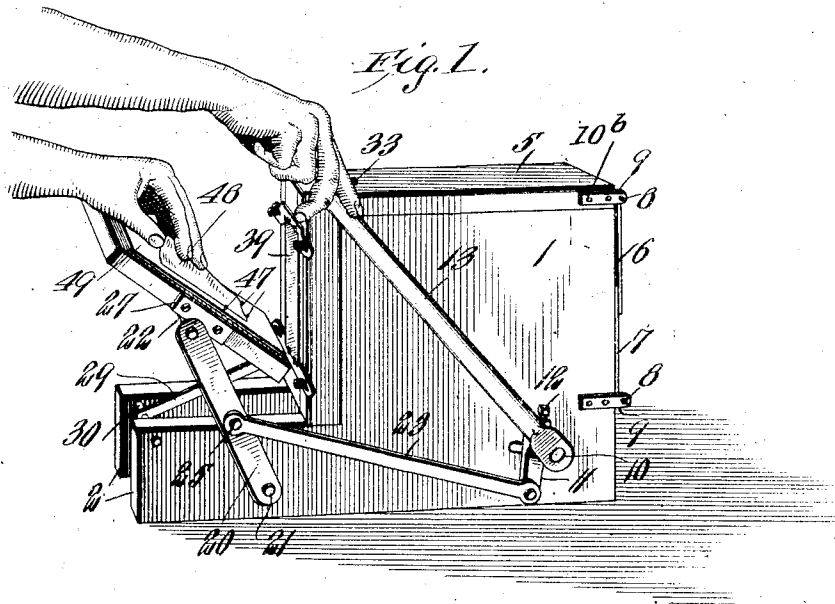


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 PHOTOGRAPH PRINTING MACHINE.
 APPLICATION FILED APR. 17, 1909.

1,039,874.

Patented Oct. 1, 1912.

3 SHEETS—SHEET 1.



WITNESSES
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C. A. Trainor

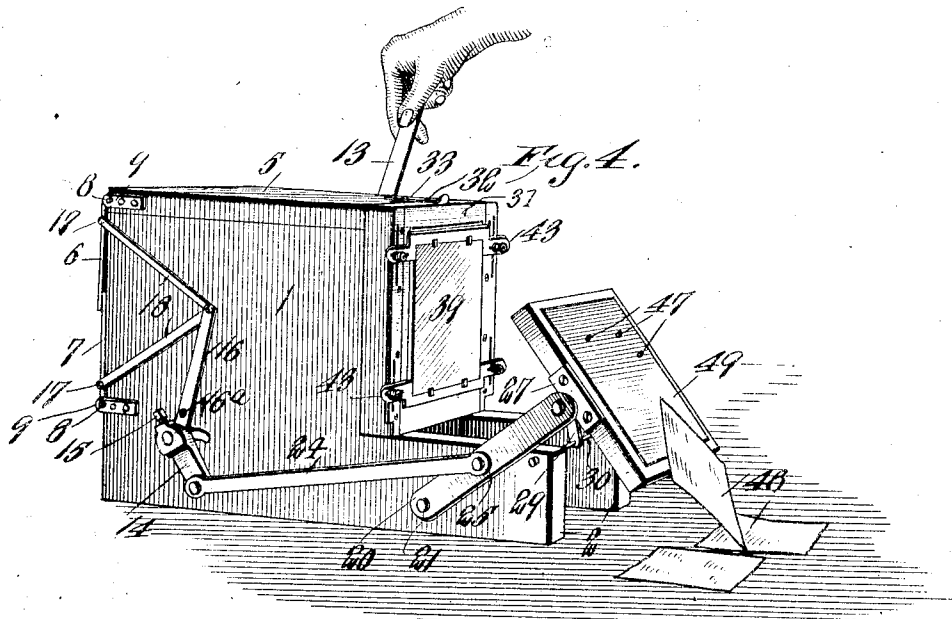
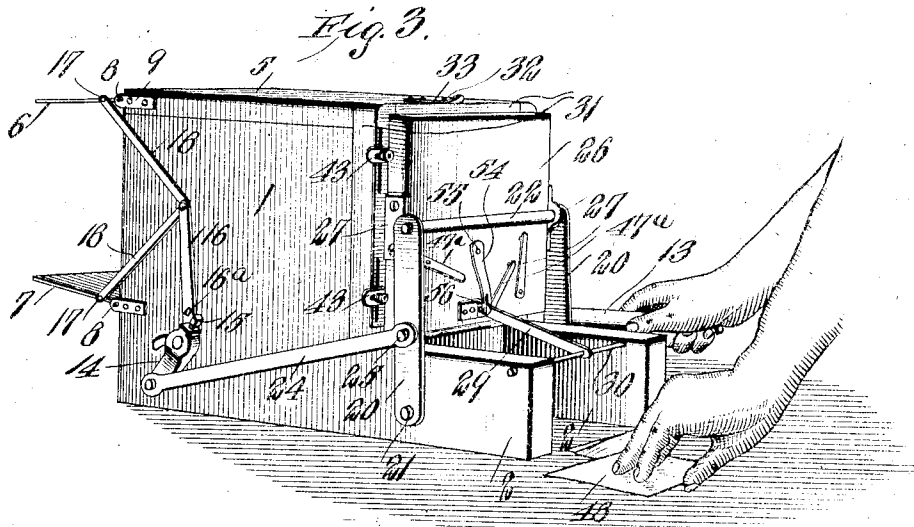
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3 SHEETS-SHEET 2.



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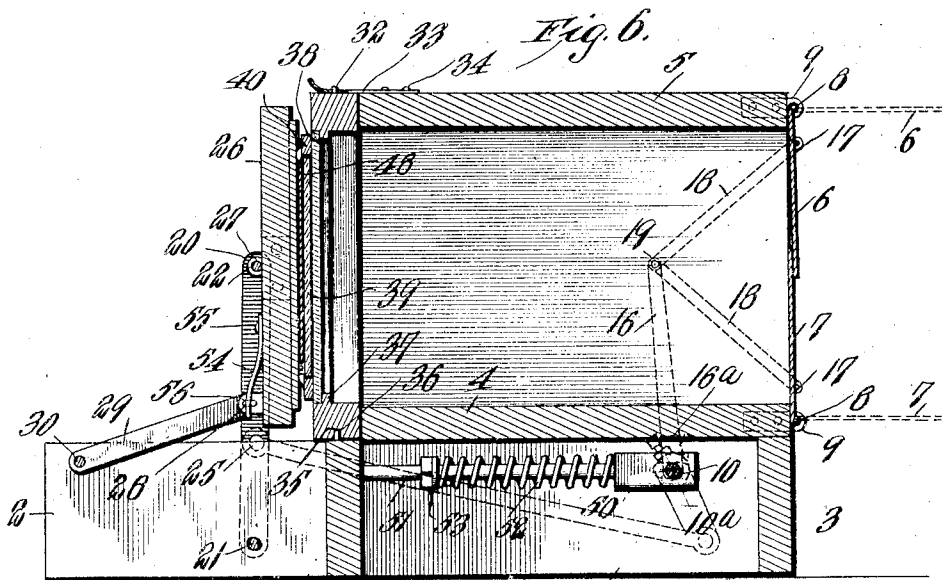
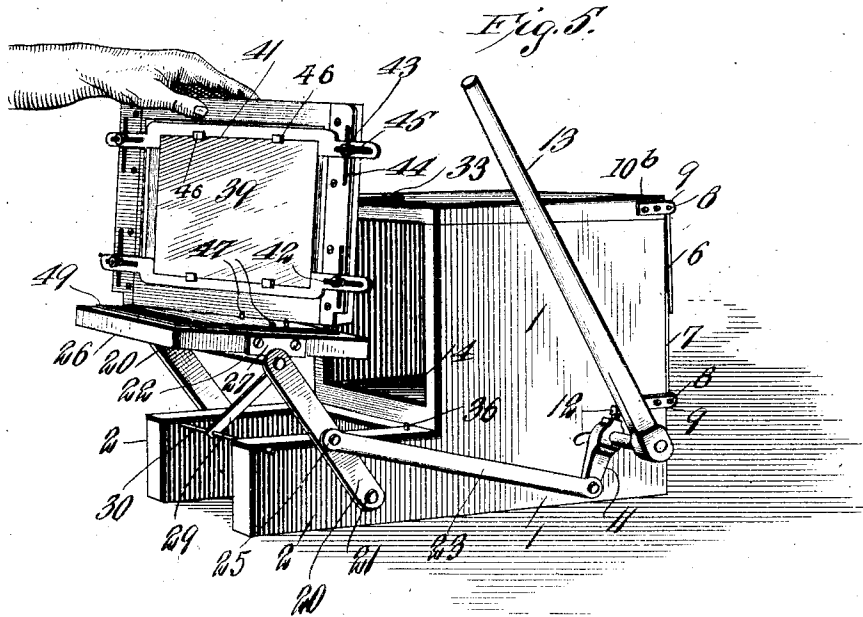
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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PHOTOGRAPH-PRINTING MACHINE.

1,039,874.

Specification of Letters Patent.

Patented Oct. 1, 1912.

Application filed April 17, 1909. Serial No. 490,557.

To all whom it may concern:

Be it known that we, ALFRED S. WITTER and OMER A. GORDON, citizens of the United States, and residents of Waterville, in the county of Douglas and State of Washington, have invented certain new and useful Improvements in Photograph-Printing Machines, of which the following is a specification.

Our invention is an improvement in photograph printing machines, and consists in certain novel constructions and combinations of parts hereinafter described and claimed.

Referring to the drawings forming a part hereof—Figure 1 is a perspective view of the improvement with a sheet to be printed on the platen; Fig. 2 is a similar view, showing the paper contacted with the negative; Fig. 3 is a similar view showing the shutter opened; Fig. 4 is a similar view showing the shutter closed, and the frame removed from the platen; Fig. 5 is a similar view showing the device in position for removing the negative, and Fig. 6 is a central longitudinal section.

The embodiment of the invention shown in the drawings, consists of a casing, composed of side plates 1, which are extended forwardly near their bottom as at 2, and are connected at their bottom by vertical cross bars 3, of a width equal to the extensions 2. A horizontal plate 4 extends between the side plates, resting at its rear end on the adjacent cross bar, and stopping at its front at the adjacent cross bar as shown in Fig. 6. A second horizontal plate 5 rests upon the free upper edges of the side plates, thus forming a casing open at both ends, and a base for supporting the same, the base extending forwardly beyond the casing. A pair of shutters 6, 7, are provided for closing the rear end of the casing, each shutter being provided on one side with a bead in which is secured a reinforcing rod whose ends are extended as at 8, for engaging bearings in bearing plates, 9 secured to the respective sides of the casing, as at 10^b. The shutter 6 is hinged to the upper edge of the rear end opening, and the shutter 7 is hinged at the lower edge, the shutters overlapping when closed as shown in Fig. 6.

A shaft 10 is journaled in longitudinal

slots 10^a in the side plates below the plate 4, and the ends of the shaft are extended outside of the casing, and one is provided with a crank arm 11, secured in place by a set screw 12, and with a lever 13, outside of the crank arm and rigid with the shaft. The opposite end is also provided with a crank arm 14, secured in place by a set screw 15, and a lever 16 pivoted to the casing as at 16^a, has one of its ends journaled on the shaft inside the crank arm, the lever extending in the opposite direction from the crank arm. Each shutter is provided with a lateral pin 17, and a link 18 having one end journaled on a pin 18^a which connects each lever with the other end of the lever 16 as shown at 19 in Fig. 2.

It will be evident from the description that when the shaft 10 is moved laterally by the lever 13, the shutters will be opened or closed depending upon the direction of movement of the lever. When the shaft is moved forward from the position shown in Fig. 2 the shutters will be opened, and when it is moved to the rear they will be closed. An arm 20 is pivoted to the outer face of each extension as at 21, and the upper ends of the arms are connected by a rod 22. A link 23 connects one of the arms with the crank arm 11, and a similar link 24 connects the other arm with the crank arm 14, the links being pivoted to the respective arms as at 25. A platen 26 is provided at each end with a bearing 27, which is journaled on the rod 22, and a bracket 28 is secured to the outer face of the platen near the lower edge, the bracket having parallel spaced lateral lugs between which is pivoted one end of a link 29, the other end being journaled on a rod 30 extending between the extensions 2.

It will be evident from the description that when the shaft 10 is oscillated to open the shutters, the platen will be swung from the inclined position shown in Fig. 1 to the vertical position shown in Fig. 2, the platen being constrained to take such positions by the link mechanism just described. A printing frame 31 substantially rectangular in form is arranged at the front end of the casing, the internal cross-section of the frame, corresponding to that of the casing. The lower end of the frame rests upon the upper faces of the extensions 2 and the front

cross bar 3, and the upper edge of the frame is provided with a pin 32, for engaging a catch 33 secured to the casing as at 34.

The lower edge of the frame is provided with openings 35, which receive pins 36 on the extensions, and the pins and the catch lock the frame in position against the end of the casing. The inner surface of the frame is provided with an annular rib 37 against which rests the edges of a transparent plate 38, of glass or other suitable material. The negative 39 is superimposed on the plate 38, and is arranged between upper and lower bars 40, which are recessed longitudinally at their centers as at 41 for receiving the edge of the negative, and are provided at their ends with longitudinal slots 42. The slots are engaged by threaded stems 43, which are provided with heads (not shown) slidable in undercut slots 44 in the frame, and arranged at right angles to the slots 42. The bars are retained in place by nuts 45, and it will be evident, that by loosening the nuts the bars may be adjusted toward and from each other and transversely of the casing, to provide for negatives of different sizes. The bars are provided with spaced lugs 46 on their adjacent edges, which engage the outer face of the negative to retain it in contact with the glass. The platen 26 is provided with a plurality of pins 47 on the face adjacent the negative, which are arranged in angular relation, and act as stops for supporting the printing paper 48 in proper position in front of the negative. That part of the platen upon which the print rests is provided with a layer of felt, as shown at 49 in Fig. 4. A plate 50 is journaled on the shaft 10 in the center of same within the casing. The plate 50 is slidable on the end of a rod 51 whose other end is secured in the front cross bar 3 and a coiled spring 52 encircles the rod between the plate and a nut 53 threaded into the rod. After lever 13 has been moved to close the platen, a further movement of the same will tend to move the shaft forwardly in the slotted bearings in the side plates, thus compressing the spring and providing for a yielding compression of the paper against the negative in the frame and at the same time causing the shutters to open, by the movement through lever 16 which is journaled on the shaft and fulcrumed at 16^a.

The lugs on the bracket 23 are slotted as shown in Fig. 6, in order to permit the bottom of the platen to yield outwardly, when a thick negative is in place and a spring 54 engages the end of the link to normally retain the pivot pin at the outer end of the slot, one end of the spring being connected to the platen, as at 55, and the other being slotted as at 56 for receiving the lugs therebetween.

In operation, the parts being in the position shown in Fig. 1 with the frame removed, one of the bars 40 is loosened, a negative inserted, and the bar again secured in position. The lower edge of the frame is engaged with the pins, and the upper edge is pushed against the end of the casing, thus engaging the catch with the pin. A sheet of printing paper is laid on the platen, with its edges against the gage pins, and the lever 13 is moved downward. This movement oscillates the shaft 10, and the platen is moved against the end of the casing. As soon as the platen engages the end of the casing, the shaft moves forward in the slots and the lever 16 is swung to open the shutters. After an exposure of proper time, the movement of the lever is reversed, which closes the shutters and moves the platen to horizontal position. It will be understood that the light enters the rear end of the casing the said end being turned toward the light.

It will be evident from the description that the machine is simple and cheap in construction, and being free from complicated parts is not liable to easily get out of order. It is also portable being small and compact.

The gage pins 47 extend through openings in the platen, and are secured at their outer ends, in any suitable manner to the free ends of plate springs 47^a, whose other end is secured to the rear face of the platen. This construction permits the pins to yield inwardly level with the face of the platen, when the print is formed in contact with the negative.

It will be observed that after the print has been exposed, and the platen is moved away from the negative by the handle 13, the platen may be turned past the position shown in Fig. 1, and into the position shown in Fig. 4, and the print will slip off the platen, being thus automatically discharged from the machine. It will be evident that the machine may be used with either natural or artificial light, and that it is very speedy in its operation.

We claim—

1. A device of the class described comprising a base, a casing having open ends supported on the base, shutters hinged to one end of the casing and normally closing the same, a frame at the other end of the casing, a transparent plate within the frame, means for detachably securing the frame in place, means in connection with the frame for supporting a negative in contact with the plate, swinging arms pivoted to the base on each side of the casing, a platen journaled between the arms, a link connecting the lower end of the platen with the base, a shaft journaled transversely of the base, and movable longitudinally thereof, crank arms on the shaft, links connecting the

crank arms with the swinging arms, a lever pivoted to the casing and having one end journaled on the shaft, a connection between the shutters and the other end of the lever, and a lever rigid with the shaft for oscillating the same.

2. A device of the class described comprising a base, a casing having open ends supported on the base, shutters hinged to one end of the casing and normally closing the same, a frame at the other end of the casing, a transparent plate within the frame, means for detachably securing the frame in place, means in connection with the frame for supporting a negative in contact with the plate, swinging arms pivoted to the base on each side of the casing, a platen journaled transversely of the arms, a shaft journaled transversely of the base and movable longitudinally, connections between the shaft and the platen, whereby when the shaft is oscillated in one direction the platen will be moved against the frame, a connection between the shaft and the shutters for opening and closing the same when the shaft is moved laterally, and means for moving the shaft.

3. A device of the class described, comprising a casing having open ends, shutters hinged to one of the ends for closing the same, means at the other end for supporting a negative transversely of the casing, a platen, means for mounting the platen to swing from a substantially horizontal position in front of the casing to a vertical position against the negative supporting means, means for swinging the platen, means for opening and closing the shutters, and a connection between the platen swinging means and the shutter operating means for opening the shutters after the platen has been moved into vertical position and for closing the shutters prior to the commencement of movement of the platen away from vertical position.

4. In a device of the class described, a casing, a shaft journaled in the casing for oscillatory and reciprocative motions, means for actuating said shaft, a platen mounted for movements to and away from said casing, means whereby the oscillatory motion of the shaft effects said movements of the platen, a shutter in the casing, and means whereby the shutter is opened and closed by the reciprocative motions of the shaft.

5. A device of the class described, comprising a casing, a frame for securing a negative in printing position at one end of the casing, a pair of swinging arms pivotally mounted on said casing, a platen pivotally secured between said arms, a shaft journaled transversely of the casing for oscillatory and reciprocative movements, a crank secured to said shaft, a pitman link between said crank and said arms, a shutter, a lever

pivoted to said casing and connected at one end to said shaft, a link connecting said lever and shutter to actuate the latter through the reciprocative movements of said shaft, and a lever to actuate said shaft.

6. A device of the class described, comprising a casing, a negative supporting frame at one end of the casing, a platen, swinging arms pivoted to said casing and supporting said platen, a shaft journaled transversely of the casing for oscillatory and reciprocative movements, a crank secured to the shaft, a pitman link connecting said crank with said arms, a lever for actuating said shaft, a shutter in said casing and connections between the shutter and the shaft whereby the shutter is operated by the reciprocative movements of the shaft.

7. A device of the class described, comprising a casing, a negative supporting frame at one end of the casing, a platen, swinging arms pivoted to said casing and supporting said platen, a shaft journaled transversely of the casing for oscillatory and reciprocative movements, a crank secured to the shaft, a pitman link connecting said crank with said arms, a lever for actuating said shaft, a shutter in said casing, connections between the shutter and the shaft whereby the shutter is operated by the reciprocative movements of the shaft, and means whereby said reciprocative motion of the shaft is operative only when the platen is in closed relation with said frame.

8. A device of the class described, comprising a casing, a negative supporting frame at one end of the casing, a platen, swinging arms pivoted to said casing and pivotally supporting said platen, a link connection between the lower edge of the platen and the casing, a shaft journaled transversely of the casing for oscillatory and reciprocative movements, a crank secured to the shaft, a pitman link connecting said crank with said arms, a lever for actuating said shaft, a shutter in said casing, connections between the shutter and the shaft whereby the shutter is operated by the reciprocative motion of the shaft, and means whereby said reciprocative motion of the shaft is made operative only when the platen is in closed relation with said frame.

9. A device of the class described, comprising a casing, a negative supporting frame at one end of the casing, a platen, swinging arms pivoted to the casing and supporting said platen, a shaft capable of oscillating and reciprocative movements, connections between said shaft and arms whereby the oscillatory movements of the shaft impart swinging movements to the arms and cause the platen to alternately contact with and recede from said frame, a shutter within the casing, and connections between the shutter and the shaft actuating

the shutter through the reciprocative movements of the shaft.

10. A device of the class described, comprising a casing, a negative supporting frame at one end of the casing, a platen, swinging arms pivoted to the casing and supporting said platen, a shaft capable of oscillating and reciprocative movements, connections between the shaft and arms whereby the oscillating movements of the shaft impart swinging movements to the arms and cause the platen to alternately contact with and recede from said frame, a shutter within the casing, connections between the shutter and the shaft for actuating the shutter through the reciprocative movements of the shaft, and spring pressed devices connected with said shaft whereby the reciprocative motion of the shaft is inoperative until the platen is in contact with the frame.

11. A device of the class described comprising a casing, a negative supporting frame at one end of the casing, a platen, swinging arms pivoted to the casing and supporting said platen, link connections between the lower edge of the platen and the casing, a shaft capable of oscillating and reciprocative movements, connections between the shaft and arms whereby the oscillating movements of the shaft impart swinging movements to the arms and cause the platen to alternately contact with and recede from said frame, a shutter within the casing, and connections between the shutter and the shaft for actuating the shutter through the reciprocative movements of the shaft.

12. A device of the class described, comprising a casing, a negative supporting frame at one end of the casing, a platen, swinging arms pivoted to the casing and pivotally supporting said platen, link connections between the lower edge of the

platen and the casing, a shaft capable of oscillating and reciprocative movements, connections between the shaft and arms whereby the oscillating movements of the shaft impart swinging movements to the arms and cause the platen to alternately contact with and recede from said frame, a shutter within the casing, connections between the shutter and the shaft for actuating the shutter through the reciprocative movements of the shaft, and spring pressed devices connected with said shaft whereby the reciprocative motion of the shaft is inoperative until the platen is in contact with the frame.

13. In a device of the class described, a casing, a shaft journaled in the casing for oscillatory and reciprocative movements, a platen controlled in its movements to and away from the casing by the oscillatory movements of the shaft, a shutter, and connections between said shutter and shaft whereby said shutter is opened and closed by the reciprocative movements of the shaft.

14. In a device of the class described, a casing, a shaft journaled in the casing for oscillatory and reciprocative movements, a platen controlled in its movements to and away from the casing by the oscillatory movements of the shaft, a shutter, connections between the said shutter and shaft whereby said shutter is opened and closed by the reciprocative movements of the shaft, and a spring tending to maintain said shutter in closed condition.

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