

G. W. FERGUSON.
 AUTOMATIC PHOTOGRAPHIC PRINTING MACHINE.
 APPLICATION FILED JULY 19, 1907.

957,665.

Patented May 10, 1910.

Fig. 1.

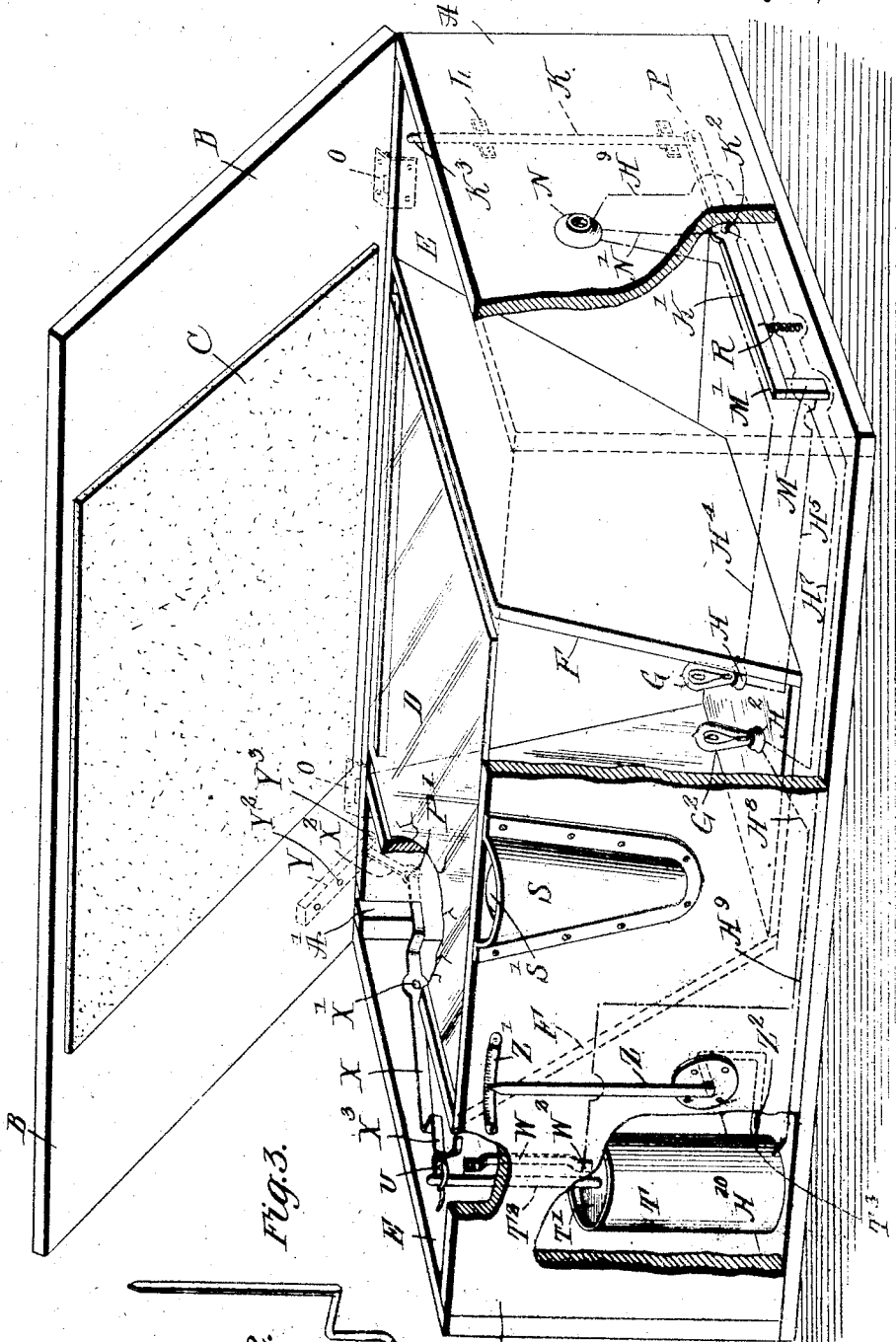


Fig. 3.

Fig. 2.

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AUTOMATIC PHOTOGRAPHIC-PRINTING MACHINE.

957,665.

Specification of Letters Patent. Patented May 10, 1910.

Application filed July 19, 1907. Serial No. 384,627.

To all whom it may concern:

Be it known that I, GEORGE W. FERGUSON, a citizen of the United States, a resident of the city of Springfield, Greene county, and State of Missouri, have invented certain new and useful Improvements in Automatic Photographic-Printing Machines for Printing Photographs from Negatives by the Use of Artificial Light Instead of Sunlight; and I do hereby declare the following to be a full, clear, and exact description of my improvement.

The object of my invention is to provide convenient means for rapidly printing photographs from negatives by giving each photograph of the number required the same time limit of exposure, by means of an automatic arrangement, which makes each photograph exactly the same. By this method photographs may be printed whenever desired without the aid of sunlight as in the old method.

With these objects and others of minor importance and with this general mode of construction in view and particularly pointed out in the claims, the following specification will develop in detail the manner of construction, and will point out how these objects are fully accomplished, when taken in connection with the accompanying drawings forming part of the specification in which—

Figure 1, shows a perspective view of the machine complete. Fig. 2 shows a plan view of the lever. Fig. 3 shows view of the regulating rod.

As shown in the drawing, A represents the rectangular box of convenient size with a lid, B. A¹ represents opening in box A through which lever X operates. On lid B is secured a pad of felt C.

D represents the negative.

E represents the plate of glass securely fitted in the top of box A.

F represents the reflector of polished metal, which is securely fastened to box A.

G is the red incandescent light held in the socket H. Socket H, is fastened to the reflector bottom.

H¹ is an electric wire connecting red light G and the socket N.

H² is an electric wire connecting the red light G and the bar M.

N is a socket to receive an electric light extension. The lid B operates on hinges O.

L is the band which holds the rod K in place. The lever K¹ is fastened to the side of box A by means of the stud K³ on which it rocks, and to the rod K by the pin P.

N¹ is the wire which connects the stud K² with the socket N. When the lid B closes down on the box A, lid B comes in contact with the rod K at K³ and presses it down. In so doing the lever K¹ breaks the contact at the point M¹, and the red light G goes out.

R is the spring screwed to the bottom of box A, and to the lever K¹ to bring same in contact with bar M, causing the red light G to burn when the lid B is raised. A curved plate of metal S is fastened to box A to cover the opening S¹, which serves as a ventilator and a sight hole.

T is an air cylinder with a plunger T¹ fitted inside.

T² is a rod fastened to the plunger T¹, and the plate of copper U. A strip of copper W is secured to box A by means of small screws W². The lever X is secured to box A by pivot screw X¹ and is connected with the plunger rod T² at one end, and to the link X² at the other end, by the pin P¹. A metal plate Y has one end cut out to receive the link X² and is secured to lid B by screws Y². Link X² and strip Y are held together by the pin Y³.

Z is the regulating rod fitted at the top with a timing arrangement. Z¹ timed and divided into seconds up to one minute, to regulate the time of exposure.

T³ is a small opening in the air cylinder.

By moving the regulating rod Z to the right or left the valve end of the regulating rod Z opens or closes the opening T³, allowing the plunger T¹ to sink slow or fast as the air escapes through the opening T³ by the needle valve regulating rod Z².

G² is the white light in the socket H². The electric wire H¹ connects the socket H² with the stud K². The electric wire H² connects the socket H² with the copper strip W at W². The electric wire H³ connects socket N with the air cylinder H¹⁰.

To operate, the box A is placed on a table with the extension wire from chandelier or wall light connected with the socket N. As the lid B is opened the red light G is lighted, the current flowing from one terminal of the socket N through N¹, K¹, M¹, M, H¹, G, H¹ back to the other terminal of the socket N. The negative D is placed over the glass E and the sensitized paper over the negative D. The lid B is then closed down over the paper, making sure that the felt pad C covers the sensitized paper and negative D. When the lid B closes down, the rod K has been forced down by lid B coming in contact with its upper end K², pressing the lever K¹ down and breaking the contact at M¹, and the red light G goes out. At the same time that the lid B is closed the link X² which is attached to the conducting strip Y outside of the box and which is also fastened to the end of the lever X that extends through the opening A¹, is drawn upwardly thereby actuating the lever X which drops down and rests on the cylinder T. This releases the plunger T¹ as the air escapes through the air passage T², which is regulated by the regulating lever to the required number of seconds. The plunger T¹ and rod T² and copper strip slowly descend, bringing the copper strip U in contact with the copper strip W, which causes the white light to illuminate the current flowing from one of the terminals of the socket N through H¹, H², T², U, W, W², H², lamp G², H², K², N¹, N, until the plunger T¹ rests on the bottom of the outer air cylinder T, and the copper strip U has again passed the copper strip W, as shown by dotted line U², and the light goes out. On raising the lid B the red light again comes on, the lever X raises the plunger T¹ to its starting position, and in so doing draws in more air through the air passage T². All that is required of the operator is to open and close the lid B, and take out the printed paper to put in new. By watching through the sight hole S¹ the operator can tell just when the required number of seconds have passed, as the white light goes out. One or more lights may be used.

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

1. In a photographic printing device, a casing, sources of actinic and non-actinic light within said casing, a hinged cover for said casing, automatic means for energizing said actinic source for a definite period, arranged to be operated by said cover, and means for energizing the source of non-actinic light when the cover is raised.

2. In a photographic printing device, a casing, sources of actinic and non-actinic

light within said casing, a hinged cover for said casing, a sliding contact for energizing said sources of actinic light for a definite period, means operated by said cover for actuating said sliding contact, and means operated by said cover for energizing the source of non-actinic light.

3. In a photographic printing device, a casing, sources of actinic and non-actinic light within said casing, a hinged cover for said casing, a stationary contact secured to said casing, a movable contact adapted for sliding engagement with said stationary contact, means for regulating the movement of said movable contact, the engagement of said movable contact with said stationary contact completing the circuit through the actinic light, and means for energizing the source of non-actinic light when the cover is raised.

4. In a photographic printing device, a slotted casing, incandescent lamps arranged within said casing, one of said lamps being actinic, and the other of said lamps being non-actinic, means for supporting the negative in proximity to said lamps, a hinged cover for said casing provided with resilient pads, a cylinder within said casing, a plunger within said cylinder, a stationary contact secured to said casing, a movable contact carried by said plunger arranged to engage said stationary contact for completing the circuit through the actinic lamp, a lever for operating said plunger pivotally connected to said cover, means for regulating the time of engagement of the contacts, and means for completing the circuit through the non-actinic lamp, when the cover is raised.

5. In a photographic printing device, a slotted casing, incandescent lamps arranged within said casing, one of said lamps being adapted to give out actinic rays and the other of said lamps being adapted to give out non-actinic rays, means for supporting the negative in proximity to said lamps, a hinged cover for said casing provided with resilient pads, a pivoted forked lever carried within said casing and adapted to project through said slot, pivotal connections between said cover and said lever, a cylinder provided with an opening, a plunger adapted to be engaged by said forked lever, a contact carried by said plunger, a stationary contact secured to said casing and arranged to be engaged by the first named contact for energizing said actinic lamp, and a gage for regulating the size of the opening in said cylinder.

6. In a photographic printing device, a casing provided with an opening, sources of actinic and non-actinic light within said casing, a hinged cover for said casing, means

for supporting a negative in proximity to
said actinic light, means operated by the
closing of the cover for completing the cir-
cuit through said actinic light, means for
5 regulating the duration of energization of
the actinic light, a curved metallic plate sur-
rounding the opening in said casing, said
opening serving as a peep-hole for indicat-
ing deenergization of the actinic light, and

means for completing the circuit through 10
the non-actinic light by the raising of the
cover.

In testimony whereof I affix my signature,
in presence of two witnesses.

GEORGE W. FERGUSON.

Witnesses:

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MAY C. HAAS.