W. J. HARRIS.

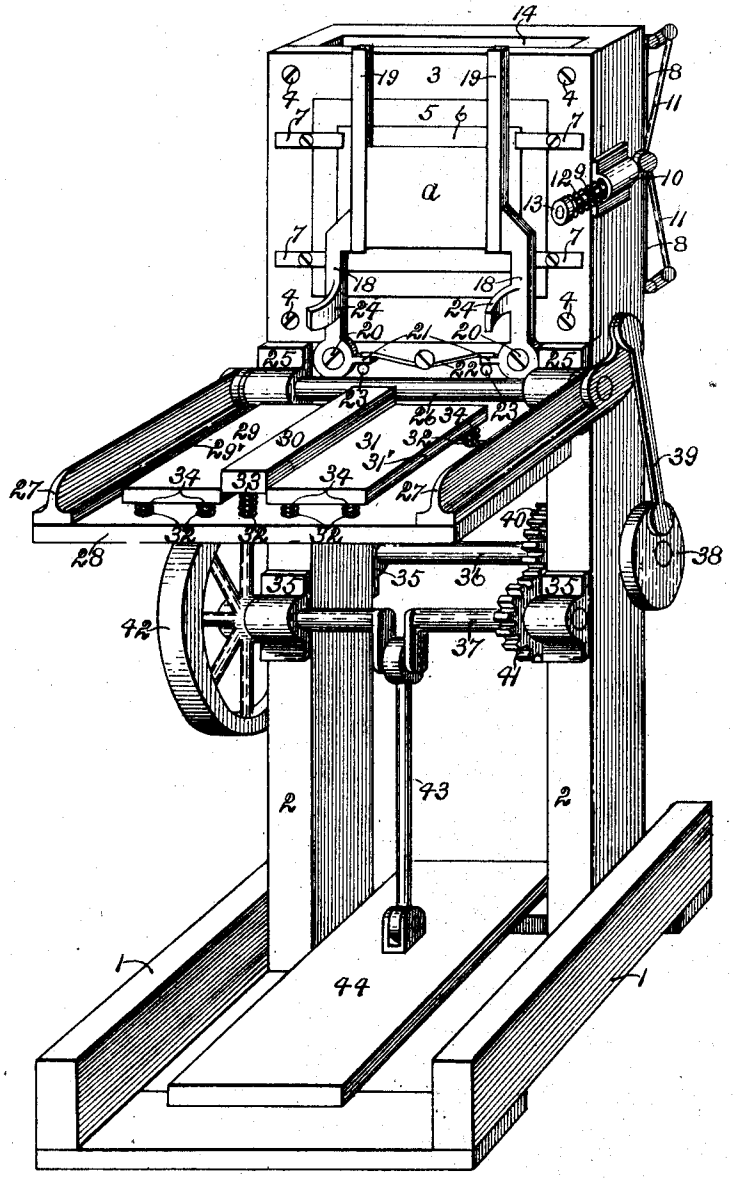
PHOTOGRAPHIC PRINTING MACHINE.

APPLICATION FILED JAN. 28, 1910.

981,558. Patented Jan. 10, 1911.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

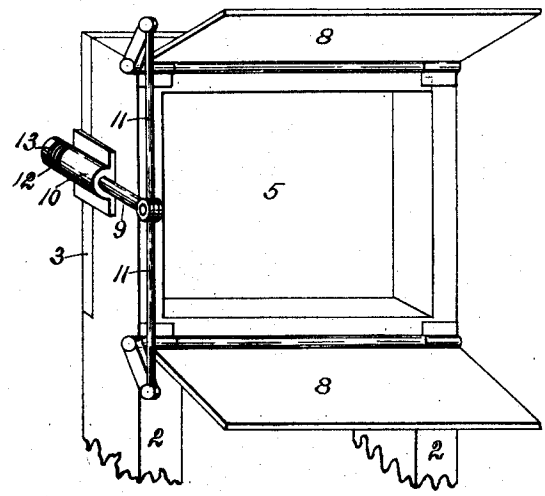
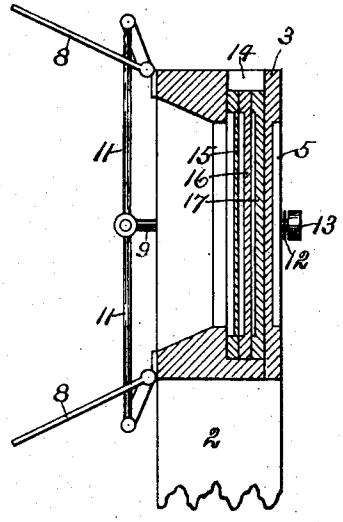


Fig. 3.



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PHOTOGRAPHIC-PRINTING MACHINE.

981,558. Specification of Letters Patent. Patented Jan. 10, 1911.

Application filed January 23, 1910. Serial No. 540,681.

To all whom it may concern:

Be it known that I, WILLIAM J. HARRIS, citizen of the United States, and resident of the city of Pittston, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Photographic-Printing Machines, of which the following is a specification.

This invention relates to photographic printing machines, and particularly to that class of said machines adapted to make successive prints from a negative in large quantities, as for instance post cards.

The object of the invention is to provide a machine of this character which is simple in construction and rapid in operation.

The invention consists of the arrangement of parts and details of construction, as illustrated in the accompanying drawings, described in the specifications and defined in the claims.

In the drawings, in which similar characters of reference denote similar parts throughout the several views, Figure 1 is a perspective view of a machine made in accordance with this invention; Fig. 2 is a perspective view of the front of the printing box showing the mechanism for exposing the negative to the light; and, Fig. 3 is a central vertical cross-sectional view of the printing box.

Referring to the drawings in detail, the numeral 1 indicates the base of the machine to which are rigidly secured two vertical posts 2. Between these posts adjacent their upper ends is built a printing box, the ends of the same being formed by the posts. A frame 3 is removably secured, by means of the screws 4, to one side of the printing box, and in this frame is fixed a glass plate 5 against which a photographic negative 6 may be secured by means of the clamps 7. On the opposite side of the box two shutters 8 are hingedly attached in such a manner that their free ends will meet when they are closed. A plunger 9 arranged to slide in a guide 10 is located on one of the posts 2 and connected to toggle-links 11 which open the shutters, as shown in Figs. 2 and 3, when the plunger is moved toward the front of the machine, while a spring 12, coiled around the plunger and bearing against a collar 13 on the same, serves to return it to its normal position, as shown in Fig. 1, and close the shutters.

The interior of the printing box is shown in Fig. 3, and it will be noted that an opening 14 is provided in the top of the same through which frames 15, 16, and 17, having set therein glass plates of different thicknesses, or other transparent material, may be interposed between the glass plate 5 and the shutters for the purpose of toning the light to which the negative is exposed when the shutters are opened.

The numerals 18 denote arms, which carry channel pieces 19, swingingly attached to the frame of the machine by the studs 20. These arms have lugs 21 against which a whip-spring 22 bears to normally hold the lugs against the stop-pins 23, and cause the channel-pieces to stand vertically parallel to each other in proximity to the glass plate 5. The arms 18 are also provided with outwardly curved fingers 24, the purpose of which will presently appear.

Fixed to the vertical posts 2 are bearings 25, having journaled therein a rock-shaft 26 on which are secured arms 27. To these arms is bolted a cross-piece 28 which supports a platen pad that is made in three sections 29, 30, and 31. These sections of the pad are kept in position on the cross-piece by means of the studs 32 which slidably pass through holes in the said cross-piece. Compression-springs 33 and 34 are interposed between each of the sections and the cross-piece, and nuts (not shown) are provided on the ends of the studs, which extend through the cross-piece, for the purpose of regulating the distance from the cross-piece that each section of the pad may be moved by the said springs; and these nuts are so adjusted that the face of the section 30 is normally in advance of that of the other two sections, the purpose of which will be hereinafter explained.

Bearings 35, similar to those provided for the rock-shaft 26, are fixed to the posts 2 to receive the two shafts 36 and 37, the former having a crank-disk 38 fixed thereon, that, by means of the connecting arm 39, causes the platen to move toward, contact with, and recede from the negative as the shaft rotates; the rotation of the said shaft being accomplished through the medium of a gear-wheel 40 on said shaft that meshes with a gear-wheel 41, of smaller diameter, that is fixed on the crank-shaft 37. This latter shaft is provided with a fly-wheel 42, and is

arranged to be actuated by the connecting-arm 43 from the treadle 44.

The machine as described is intended to be used in a darkened room which has a window in front of the printing box, and is operated as follows: Assuming that the machine is in motion and that the parts are in the position shown in Fig. 1, a sensitized blank is dropped between the channel pieces 19 so that its ends are guided by the channels in the same, and as these channels are closed at their lower ends, the blank designated by the character *a* will be located before the negative, as shown in Fig. 1. As the platen moves toward the negative the section 30 of the platen pad will first strike the blank and hold it firmly against the negative as the springs 33 compress. Further movement of the platen in the same direction will bring the edges 29′ and 31′, of the sections 29 and 31 of the pad, in contact with the outwardly curved fingers 24 and cause the arms 18 to move apart, thereby releasing the channel-pieces 19 from engagement with the blank and permitting the sections of the pad 29 and 31 to come in contact with, and cover the portions of the blank and negative not already covered by the section 30. Simultaneously with this covering of the blank and negative by the three sections of the platen pad, the cross-piece 28 contacts with the plunger 12, and as the springs 34 compress, the shutters are opened and the printing of the blank is effected. As the platen recedes from the negative, the printed blank will drop between the channel-pieces 19 and the glass plate 5, into a developing tank conveniently placed to receive it.

Having thus described my invention and the manner of its operation, I claim as new and desire to secure by Letters Patent:

1. A photographic printing machine comprising a printing box having photographic negative holding means on one side and shutters on the opposite side thereof, a frame supporting said printing box, arms swingingly attached to the frame and adapted to hold a sensitized blank in proximity to the negative, a platen capable of covering the blank and negative and arranged to move toward and from the same, means for causing the platen to move the arms swingingly apart, and means for exposing the negative to the light while it is covered by the platen.

2. A photographic printing machine comprising a frame, a printing box supported by said frame, shutters on one side of said box and a glass plate on the opposite side, means for opening and closing said shutters, clamps for securing a photographic negative against the glass plate, arms pivotally attached to the frame and laterally movable with respect to the negative, said arms supporting channel-pieces for holding a sensitized blank in proximity to the negative, a rock shaft, a platen having a yielding pad carried by said rock shaft, a crank shaft arranged to actuate said rock shaft by means of a connecting arm, a gear wheel fixed on said crank shaft, a secondary crank shaft, a gear wheel fixed on the same and meshing with the first mentioned gear wheel, a fly wheel secured on, and a treadle operatively connected to, said secondary crank shaft.

3. A photographic printing machine comprising a printing box having a glass plate removably attached to one side thereof, and means for securing a photographic negative against said glass plate; a platen arranged to move toward and from said negative, mechanism for moving said platen, including a fly-wheel for governing its motion; means for interposing a sensitized blank between the platen and negative; shutters hingedly attached to one side of the printing box, and a plunger adapted to open and close said shutters through the medium of toggle links, said plunger being arranged to be moved in one direction by a spring and in the opposite direction by the platen.

Signed at St. Augustine in the county of St. Johns and State of Florida this 21st day of January A. D. 1910.

WILLIAM J. HARRIS.

Witnesses:
HARRY A. KENDLE,
JOHN B. FLOYD.