M. L. COSSITT.

PHOTOGRAPHIC PRINTING MACHINE.

APPLICATION FILED JULY 21, 1921.

1,421,413.

Patented July 4, 1922.

2 SHEETS—SHEET 1.

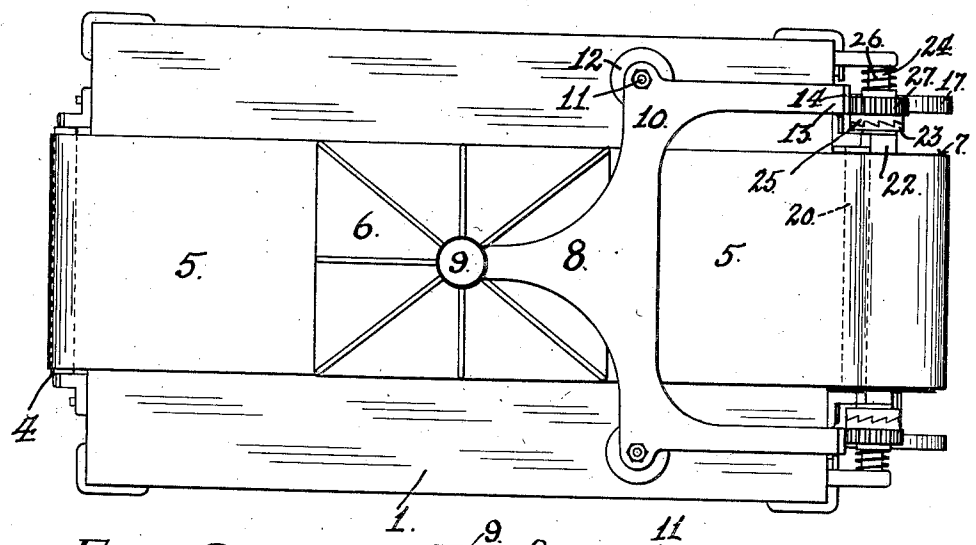


Fig 2.

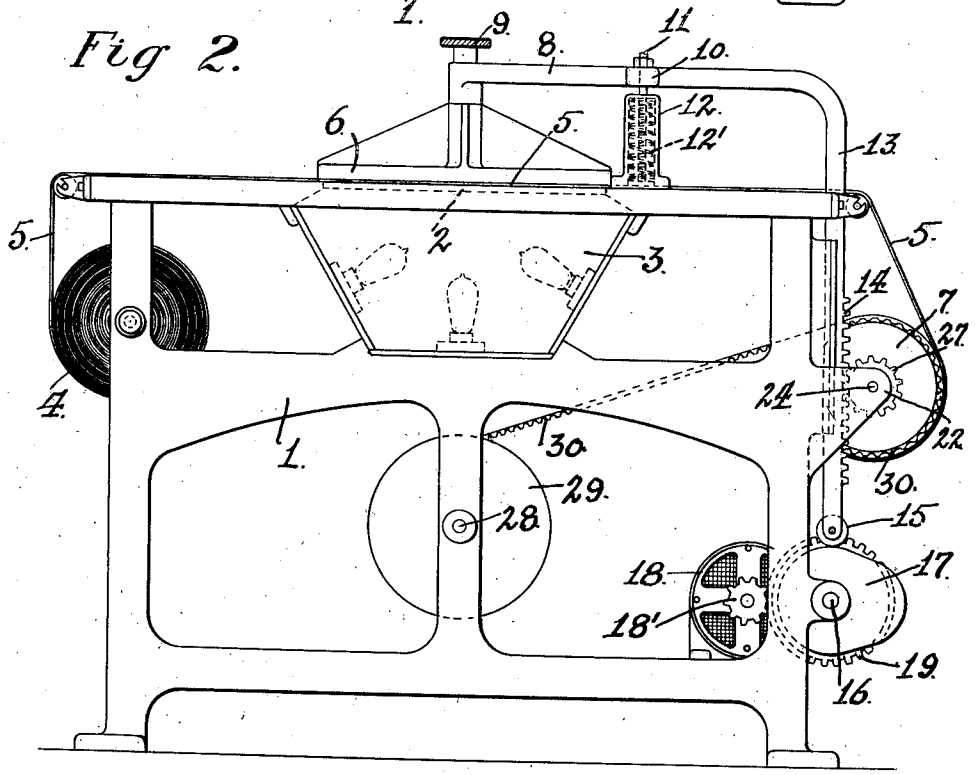


Fig 1.

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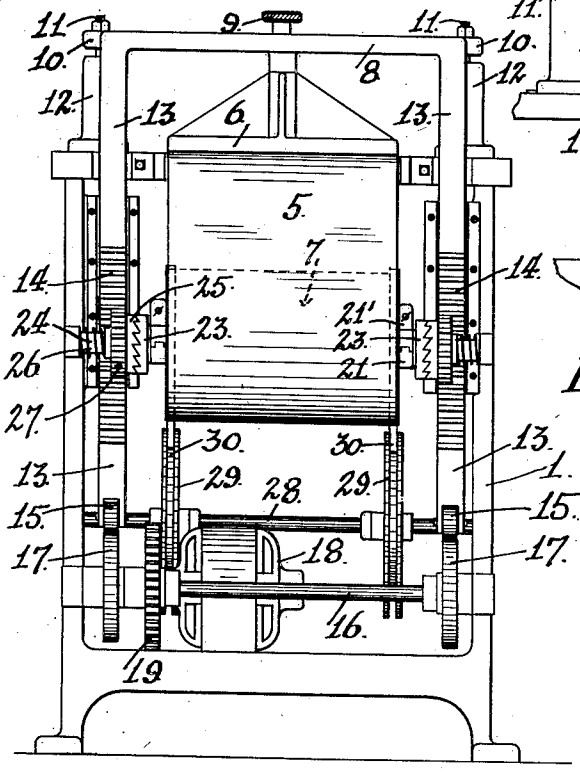


Fig 3.

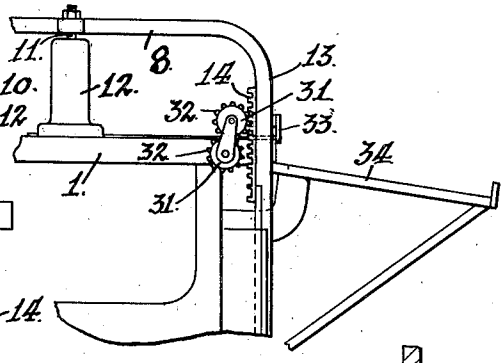


Fig 7.

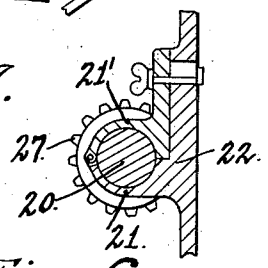


Fig 6.

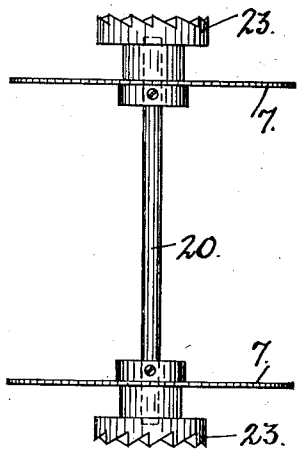


Fig 5.

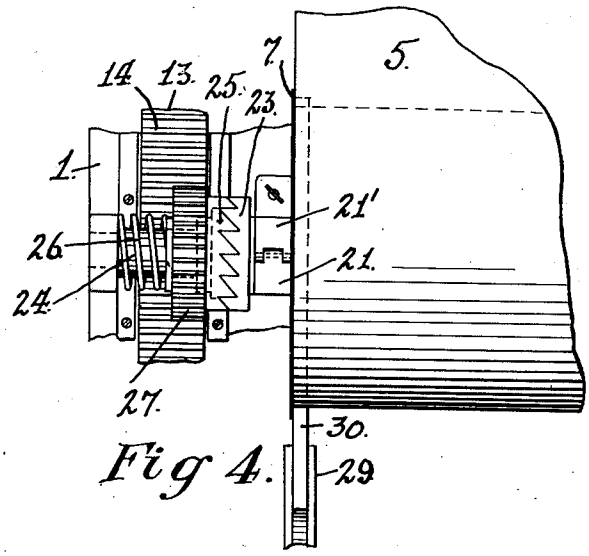


Fig 4.

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UNITED STATES PATENT OFFICE.

MALCOLM L. COSSITT, OF ALAMEDA, CALIFORNIA, ASSIGNOR TO MANIFOLD IMPRESSIONS CORPORATION, OF CARSON CITY, NEVADA, A CORPORATION OF NEVADA.

PHOTOGRAPHIC-PRINTING MACHINE.

1,421,413. Specification of Letters Patent. Patented July 4, 1922.

Application filed July 21, 1921. Serial No. 486,644.

To all whom it may concern:

Be it known that I, MALCOLM L. COSSITT, a citizen of the United States, residing at Alameda, in the county of Alameda and State of California, have invented certain new and useful Improvements in Photographic-Printing Machines, of which the following is a specification.

My invention relates to that class of photographic printing machines in which the sensitized paper is advanced over and pressed in contact with a negative lying in the exposure opening of a light box.

The object of my invention is to provide a simple and effective machine of this class, and particularly, in the full development of the device, to provide for such a disposition of the exposed paper, as will enable a roll thereof to be bodily immersed in the developing bath, whereby time and labor are saved.

To these ends my invention consists in the novel photographic printing machine which I shall now fully describe by reference to the accompanying drawings, in which—

Fig. 1 is a side elevation of my machine.

Fig. 2 is a top plan of the same.

Fig. 3 is an end elevation from the foot end of the machine.

Fig. 4 is a detail view, enlarged, showing the hanging and driving of the receiving reel.

Fig. 5 is an elevation of the receiving reel.

Fig. 6 is a detail sectional view of the hanging of said reel.

Fig. 7 is a view showing a modification in the means for advancing the paper.

1 is a table in the top of which is the usual exposure opening in which is placed the negative, indicated by 2 in Fig. 1. Below the exposure opening is the light box 3. 4 is a reel mounted at one end of the table, which carries the roll of sensitized paper 5, which is drawn forward over the table top and over the negative 2 lying in the exposure opening.

6 is the contact pad adapted to effect the proper pressure of the paper upon the negative.

7 is a reel at the other end of the table, upon which the the paper, after being exposed, is wound.

8 is a bracket, overlying the table, and carrying the contact pad, which is fitted thereto by a set-screw 9. The bracket 8 has side arms 10 carrying pins 11 which slidably fit in guides 12 on the table top. The pins 11 are fitted with springs 12′ within the guides 12, said springs being arranged to pull the pins and bracket down, Fig. 1. The bracket has also a pair of legs 13 passing vertically down beyond and guided by the end of the table, said legs being provided with racks 14. On the foot of each leg is a roller 15—Fig. 3.

Mounted on the table is a shaft 16 which carries the cams 17, one for each rack-leg roller 15, as seen in Fig. 3. The shaft 16 is driven by a motor 18 through the intervention of a pinion 18′ and gear 19. Thus the bracket 8 has imparted to it by means of the cams 17 and the springs 12′ a vertically reciprocative movement in order to carry the pad 6 into and out of contact with the sensitized paper. The paper-receiving reel 7 is carried by its shaft 20 in bearings 21 of the table extensions 22. See Figs. 4, 5 and 6. Swinging latch members 21′ of the bearings 21, provide for the ready insertion and removal of the reel, Figs. 4 and 6. Each end of the reel shaft 20 carries a ratchet-clutch member 23. On the table-legs are mounted fixed journal pins 24, upon which are rotatably and slidably mounted the complemental ratchet-clutch members 25, which engage the ratchet-clutch members 23 in one direction and slip them in the other direction. Springs 26 control the ratchet-clutch members 25, and each of said members carries a pinion 27 which engages with the rack legs 13 of the bracket 8.

It will thus be seen that as the rack legs 13 move down, in order to carry the contact pad 6 down upon the paper, said legs, though turning the pinions 27 will not effect the rotation of the receiving reel 7, because the clutch members 23 and 25 will slip in this direction; wherefore, the reel 7 will be at rest. But when the rack legs move up, thus relieving the paper of the pressure of the contact pad, the clutch members, engaging in this direction, will effect the rotation of the reel to wind the paper upon it.

Carried upon a shaft 28 rotatably mounted on the table 1, is a pair of reels 29—Fig. 3. Upon each of these reels is carried a strip 30 of material having a transversely corrugated face, as seen in Fig. 1. These strips extend to and are wound up on the reel 7 with the sensitized and exposed paper, lying between the folds of the paper at each

end of the wound roll, and serving to space or separate said folds.

The operation of the machine is as follows:—By means of the cams 17, the contour of which is properly predetermined, the contact pad 6 is elevated by the rising rack-legs 13 and bracket 8, and at the same time the freed sensitized paper 5 is drawn forward by the partial rotation of the reel 7 moving under the engagement of said rack legs 13 with the pinions 27 of the clutch members 23, 25. The corrugated separator strips 30 are also at this time wound up on the reel 7 between the folds of the paper roll. This forward movement of the paper carries a section of its length over and upon the negative lying in the exposure opening of the light box. Then when the cams 17 permit, the descent of the bracket 8, under the action of springs 12' will carry the contact pad 6 down upon and press and hold the paper upon the negative; and, as in this movement, the clutch members slip, no motion is given the reel 7, thus permitting the paper to remain at rest. On the upward movement of the rack legs, the contact pad is again raised and the paper is wound on the reel together with the separator strips 30. At the completion of the work, the reel 7 carrying the roll of exposed paper and the edge separator strips, is removed from its bearings, and the development of the paper may be effected by immersing the roll bodily in the developer, which on account of the separation of the folds of the roll reaches freely and evenly the sensitized surface. In case, however, it be desired to simply cut off each exposed section of the paper as it reaches the end of the table, instead of reeling it up into a roll, a slight modification at the delivery end of the machine renders this easily accomplished. This I show in Figure 7. In this modification, the rotating member for advancing the paper which in the case heretofore described assumed the form of a reel, here is a pair of feed rolls 31 connected by gears 32 one of the rolls being operated, as before, by the rack legs 13. Between the rack legs is carried a knife 33 which as the rack legs descend cuts off the section of paper previously drawn forward and allows it to pass down upon a receiving table 34.

It will be understood that the printing lamps in the light box 3 will be automatically turned on and off to suit the necessary exposures. This being a feature common in the art, I have not deemed it necessary to show as it will readily be understood.

I claim:—

1. A photographic printing machine comprising a table having an exposure opening, means associated with the table for carrying a roll of sensitized paper, means for drawing the paper from the roll over the exposure opening, a light box associated with said opening; a reciprocative contact pad adapted to press the paper upon a negative lying in the exposure opening and to withdraw therefrom; a driving means; and connections operated by said driving means for alternately simultaneously withdrawing the contact pad and advancing the paper, and simultaneously arresting the paper and returning the pad, said connections comprising a reciprocative bracket carrying the contact pad, rack members associated with said bracket, pinions engaged by the rack members, cams operating on said rack members to lift the bracket; springs to return said bracket, and clutch members for intermittently transmitting motion to the paper drawing means.

2. A photographic printing machine comprising a table having an exposure opening; means associated with the table for carrying a roll of sensitized paper; a reel associated with the table for drawing forward the paper over the exposure opening and winding the exposed paper into a roll; other rolls associated with the table; separator strips carried by said other reels and adapted to wind up on the paper drawing reel between the folds of the paper at each side thereof; a reciprocative contact pad adapted to press the paper upon a negative lying in the exposure opening and to withdraw therefrom; a driving means; and connections operated by said driving means for alternately simultaneously withdrawing the contact pad and rotating the paper advancing reel and simultaneously arresting said reel and returning the pad.

In testimony whereof I have signed my name to this specification.

MALCOLM L. COSSITT.