No. 708,493. Patented Sept. 2, 1902.

G. N. PIFER.

MAGAZINE PLATE FEEDING APPARATUS.

(Application filed Mar. 11, 1902.)

(No Model.) 2 Sheets—Sheet I.

Fig. I.

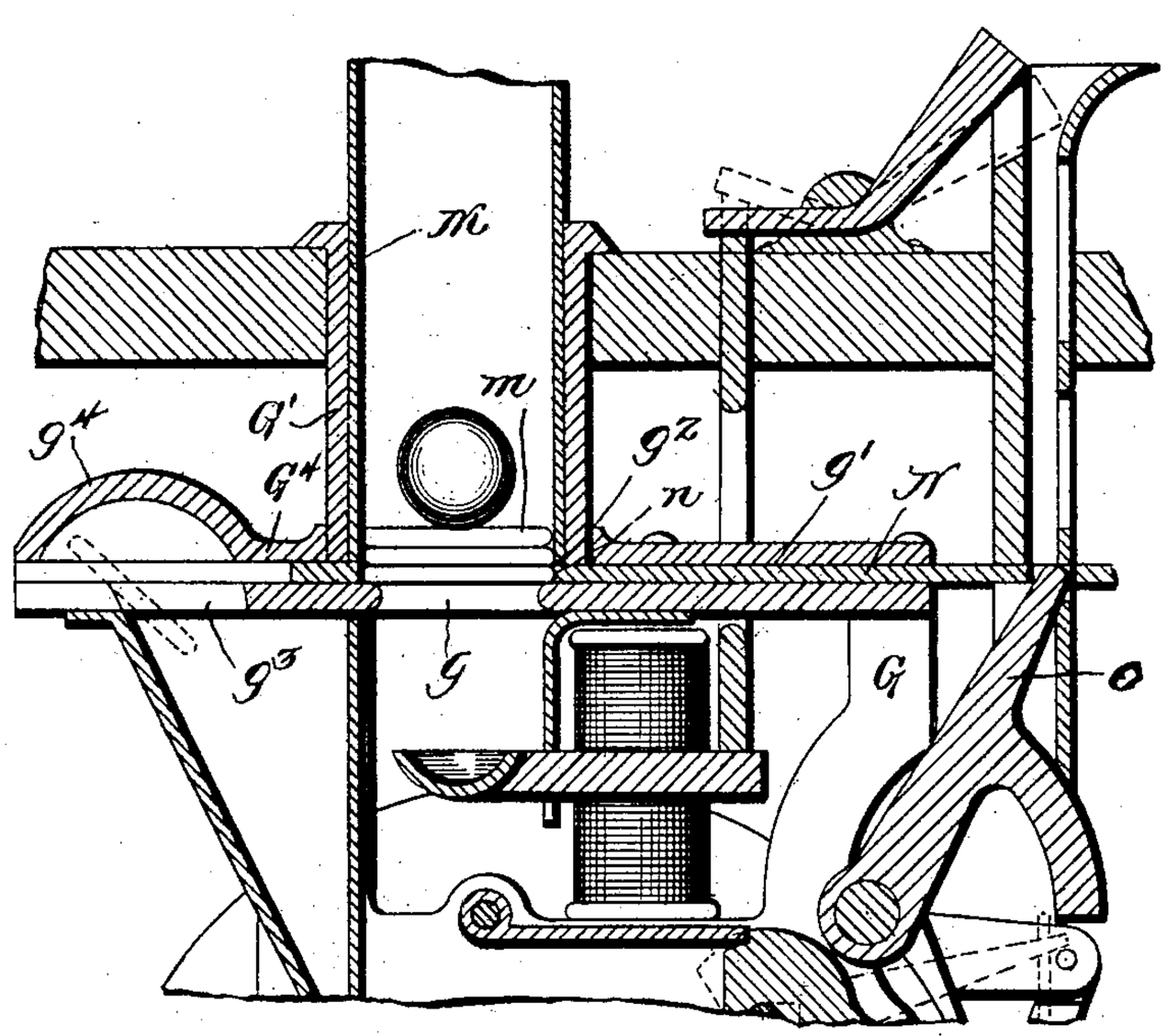

Fig. II.

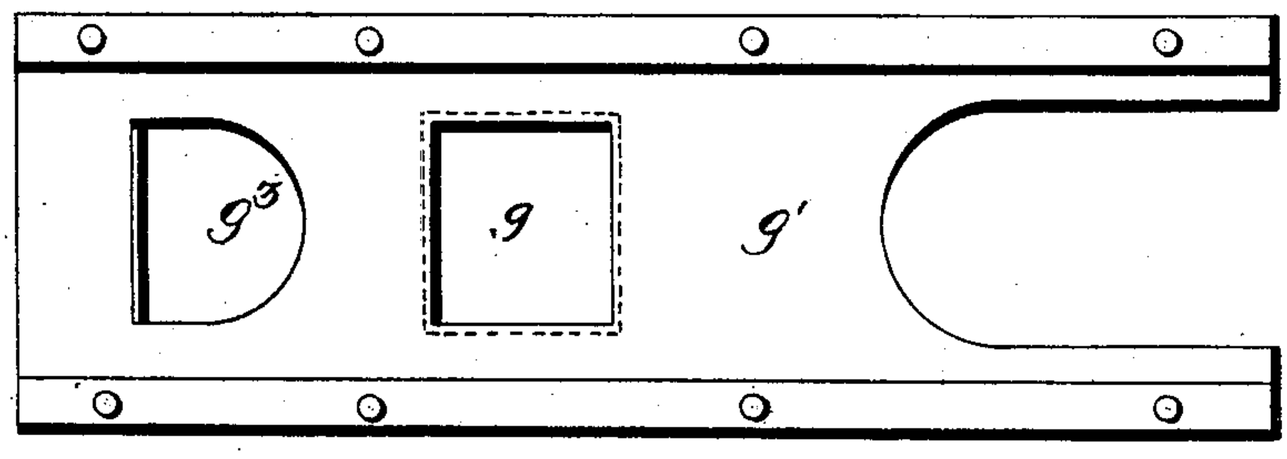

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Fig. VI.

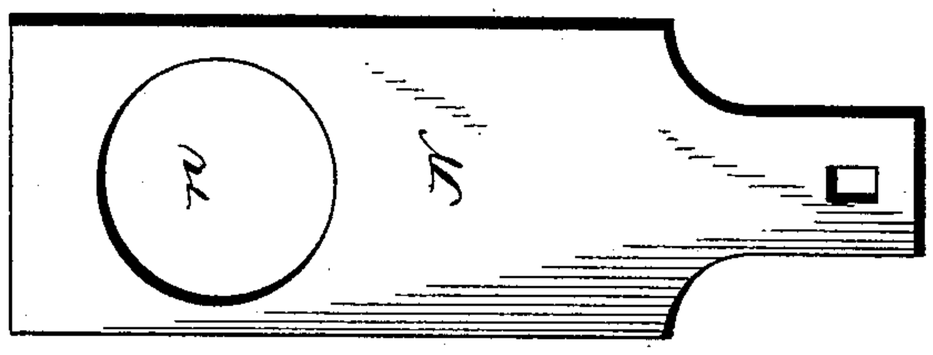


Fig. IV.

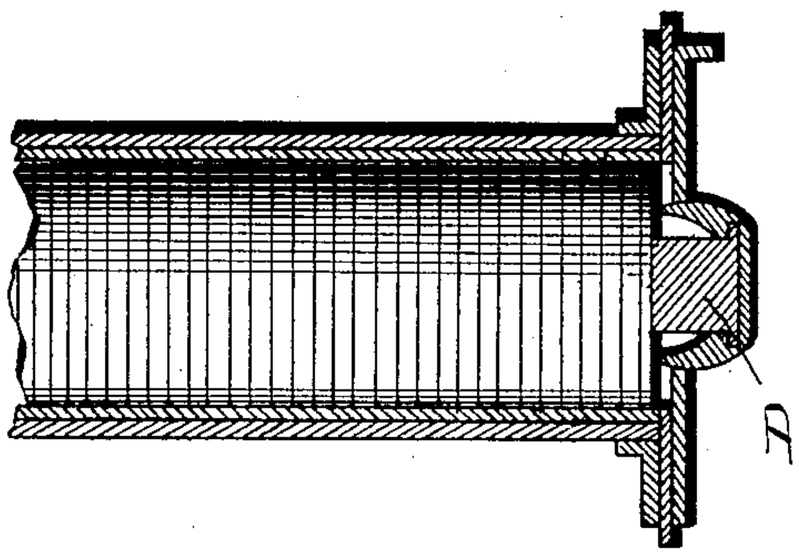


Fig. III.

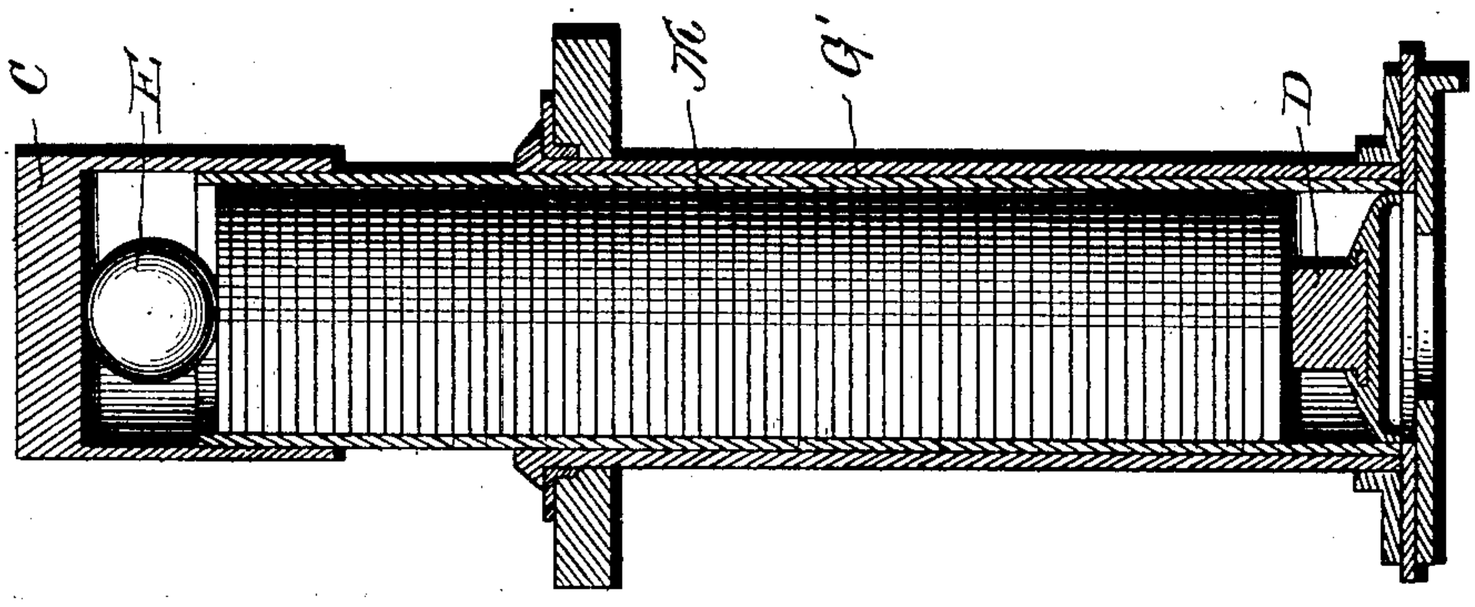
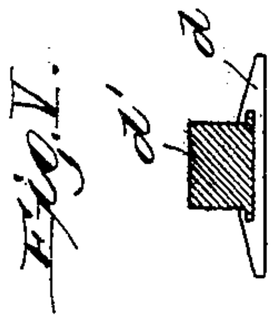


Fig. V.



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UNITED STATES PATENT OFFICE.

GEORGE N. PIFER, OF CLEVELAND, OHIO, ASSIGNOR TO THE AMERICAN AUTOMATIC PHOTOGRAPH COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

MAGAZINE PLATE-FEEDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 708,493, dated September 2, 1902.

Original application filed December 13, 1901, Serial No. 85,730. Divided and this application filed March 11, 1902. Serial No. 97,736. (No model.)

To all whom it may concern:

Be it known that I, GEORGE N. PIFER, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Magazine Plate-Feeding Apparatus, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to means for feeding plates for automatically-operated photographic apparatus from a magazine to a focal plane in a camera employed in such apparatus, its object being to effect such function in a simple manner and by simply operated and constructed means.

Said invention consists of the means hereinafter described, and specifically set forth in the claims, the described construction being that shown and described in my application, Serial No. 85,730, filed December 13, 1901.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of the various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents a sectional view of a portion of the automatic photographic apparatus embodying my invention, the construction illustrated being that shown and described in my above-named application for Letters Patent. Fig. II represents a plan view of the slideway in which the slide for feeding the plates from the magazine to the plate-chute operates. Fig. III represents a vertical cross-sectional view of the magazine employed in my above-named invention, showing also a sectional view of the magazine-seat in which it is secured and the portions of the photographic apparatus adjacent to its bottom, such view also showing a column of plates located in the magazine, together with the light-tight removable closure located in its lower end. Fig. IV represents a similar section of the lower end of the magazine and adjacent parts, illustrating the position of the said light-tight closure during the act of its removal from the magazine. Fig. V represents a cross-sectional view of such light-tight closure. Fig. VI represents a plan view of the slide employed in the above apparatus operating in the slideway illustrated in Fig. II.

A magazine M, consisting of a tubular receptacle or magazine M, of cylindrical form, is located and removably secured in a magazine-seat G′, in which the magazine M is telescoped. Immediately below the end of said seat is a square aperture g, of less diameter than the plates m in the magazine. Transversely of the bottom of said seat is a slideway g', which forms a lateral opening g^2, through which the plates may be removed successively, as will hereinafter be described. In said slideway is a slide N, having an opening n, adapted to receive a plate. In the rear end of said slideway is formed a semicircular opening g^3, having its curved side on that side farthest toward and its straight side farthest away from the magazine, as shown in Fig. II. The front end of said slide is engaged by a lever O, which is oscillated by an operating-handle and a motor, the method of such oscillation being fully described in my above-named application. For the purpose of understanding the operation of the slide it is merely necessary to know that the slide is reciprocated so as to bring the plate-receiving opening therein alternately below the magazine and above the semicircular opening g^3, respectively. Such opening g^3 communicates with a chute G^2, which leads downward to the focal plane at which the plate is arrested for exposure. The plates are placed in the magazine with their sensitized faces up, so that such surface of the lowermost plate is not exposed when it is necessary for the purpose of repairs or adjustment to open the front of the inclosing casing of the mechanism.

It is necessary in the operation of the automatic apparatus embodying this invention to transport the plates from the magazine and cause them to fall into the chute G^2 with their sensitized faces toward the front in or-

der to bring them into the desired focal plane for receiving the rays of light passing through the lens of the camera. Such desired result is effected by the peculiar form and location of the opening g^3. As before stated, this opening is semicircular in form, such statement, however, describing it but generally. Its actual form, however, is such that its horizontal cross-section is of the form of a semicircle plus an additional area of a width not less than the diameter of the semicircle—that is, in other words, the form of such section is that of a rectangle of a width slightly greater than the diameter of a plate plus a semicircle having a diameter equal to such rectangle width and having its center upon one of the longituginal sides of such rectangle. Hence when a plate moves over this opening it remains in the slideway until the centers of the semicircle and the plate fall in the same verticals, at which point the center of gravity of the plate, falling without the base of the supporting portion of the slideway at such point, causes it to fall forward and drop into the chute with its sensitized surface toward the front, as required. A covering G^4 is provided for excluding the light from the slideway and is provided with a concave portion g^4 over the opening g^3, which permits the plate to oscillate in the desired direction while dropping through such opening g^3, as shown in dotted lines in Fig. I.

As described in my application, Serial No. 79,994, filed October 25, 1901, the magazine M is provided at each end with a light-tight closure for excluding the light from the column of sensitized plates within the receptacle. The upper closure C consists of a cup-shaped cap snugly fitting and slidable upon the outside of the upper end of the receptacle. When the magazine is first placed in the machine, the lower end thereof is closed by a plug D, consisting of a rubber disk d, having a centrally-located and inwardly-projecting non-flexible teat d', preferably made of wood or hard rubber and secured thereto, as illustrated in Fig. V. The diameter of the rubber disk is somewhat in excess of that of the interior of the tube, the flexibility of the peripheral portion making it possible, however, to readily remove or insert the plug in such interior, such removal being effected by moving a column of plates downward by hand, as will hereinafter appear. The frictional contact of the plug with the interior of the receptacle is such, however, as to permit it to support the weight of the plates without being removed from the receptacle. The diameter of the teat is, as shown, made considerably less than that of the interior of the receptacle in order that the plug may, as will hereinafter be described, be forced through the square opening g, formed in the slideway g' below the magazine when seated in its seat. Intermediately of the top of the column and adjacent the inner bottom surface of the cap C and contacting such bottom and the top of the column is placed a detached separator E, having a diameter considerably greater in length than the distance of the top of the column measured from the uppermost plate to the top of the tube, such separator maintaining such distance before the magazine is placed in the apparatus. After the magazine, loaded with plates and closed at both ends, as above described, is placed in the magazine-seat the cap C is pressed downwardly, thus moving the column of plates in a downward direction and ejecting the plug D from the bottom of the receptacle through the plate-receiving aperture in the slide and through the square aperture g, from whence it drops from the mechanism into the interior of the casing of the machine. This action permits the lowermost plate to drop into the plate-receiving aperture in the slide, and hence into position to be moved laterally, as previously described.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any one of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention—

1. In magazine plate-feeding apparatus for automatic photographic apparatus, the combination with a plate-slideway, of a slide operating in said way, the latter being provided with a semicircular opening through which a plate may be caused to drop.

2. In magazine plate-feeding apparatus for automatic photographic apparatus, the combination of a plate-magazine, a plate-slideway provided with a semicircular opening, a slide operating in said way intermediately of said magazine and semicircular opening, the curved side of said opening being on the side farthest toward and the straight edge being on the side farthest away from said magazine.

3. In magazine plate-feeding apparatus for automatic photographic apparatus, the combination of a plate-magazine, a plate-feeding slide having a plate-receiving aperture formed therein, and a support for such slide, such support provided with an aperture below such magazine, such plate-feeding opening located intermediately of such magazine and aperture in such support, the latter being of such a form as to prevent the passage of a plate therethrough.

4. In magazine plate-feeding apparatus for automatic photographic apparatus, the combination of a magazine-seat, a tubular plate-magazine secured in said seat, a slideway located beneath and transversely of said magazine and provided with an aperture beneath the magazine of dimensions such as to prevent plates from the latter from passing therethrough, and a slide operating in such way and provided with an opening for receiving

a plate from the magazine, such opening being located so as to permit it to establish communication between said magazine and said slideway-opening.

5. In a magazine plate-feeding apparatus for automatic photographic apparatus, the combination with a plate-magazine provided with a movable closure at its bottom, of a support provided with a seat for such magazine, such support formed with an aperture below said seat, whereby said closure may be removed from the magazine through such aperture.

Signed by me this 8th day of March, A. D. 1902.

GEORGE N. PIFER.

Attest:
FRANK D. BLACKISTONE,
A. E. MERKEL.