No. 618,459. Patented Jan. 31, 1899.

H. D. HAIGHT & L. L. COSSITT.

MAGAZINE CAMERA.

(Application filed Feb. 14, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig -1-

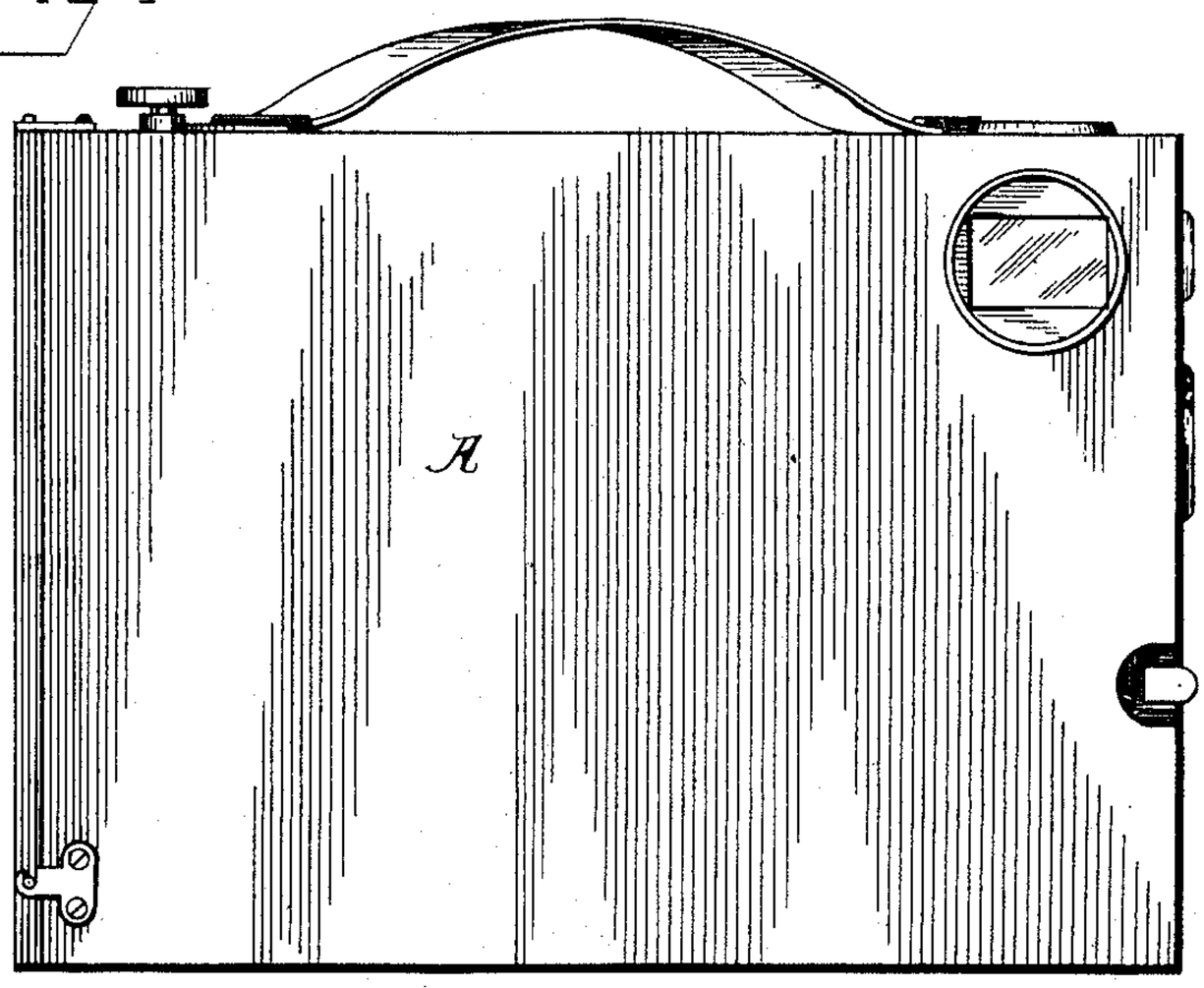

Fig -2-

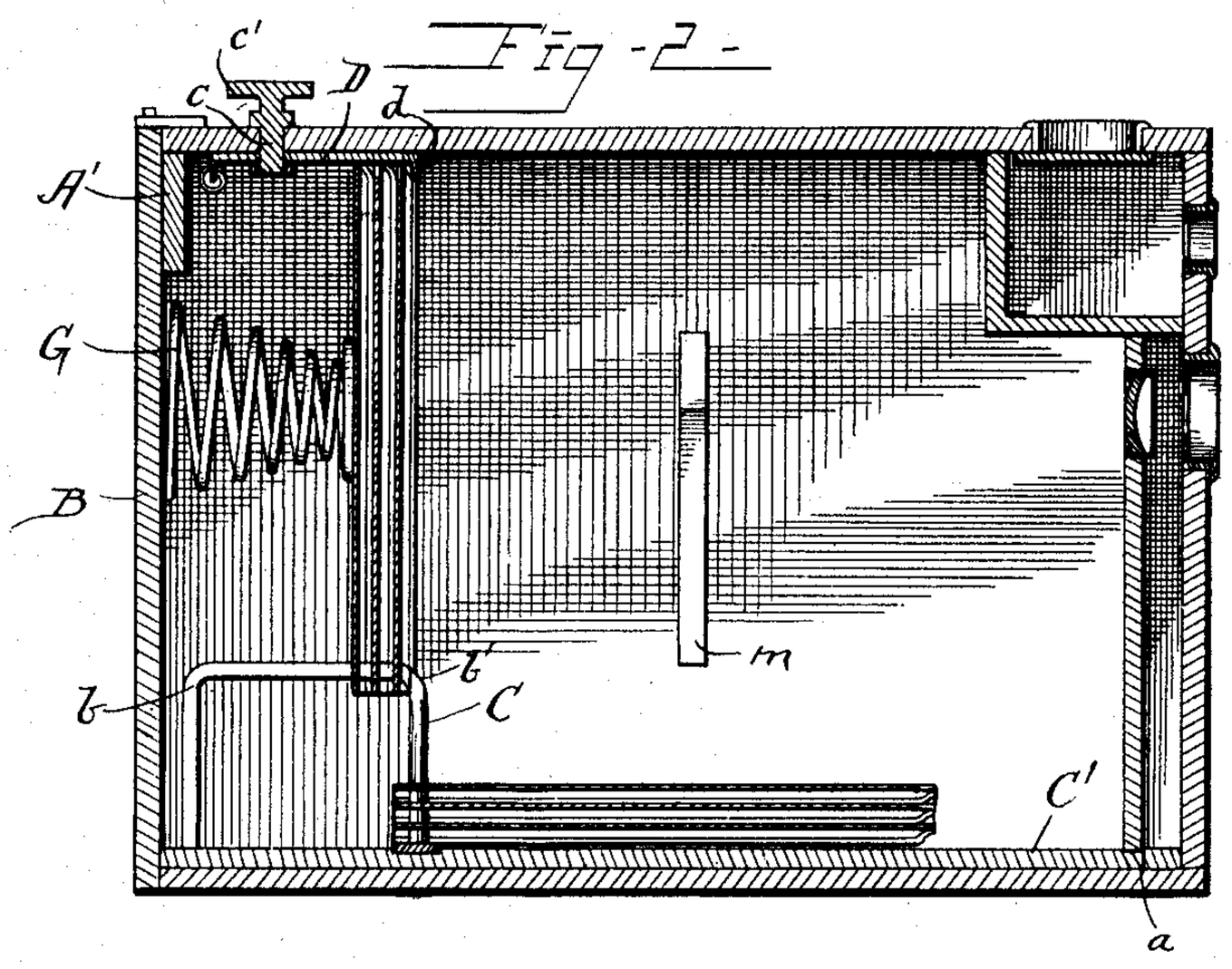

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Fig. 3.

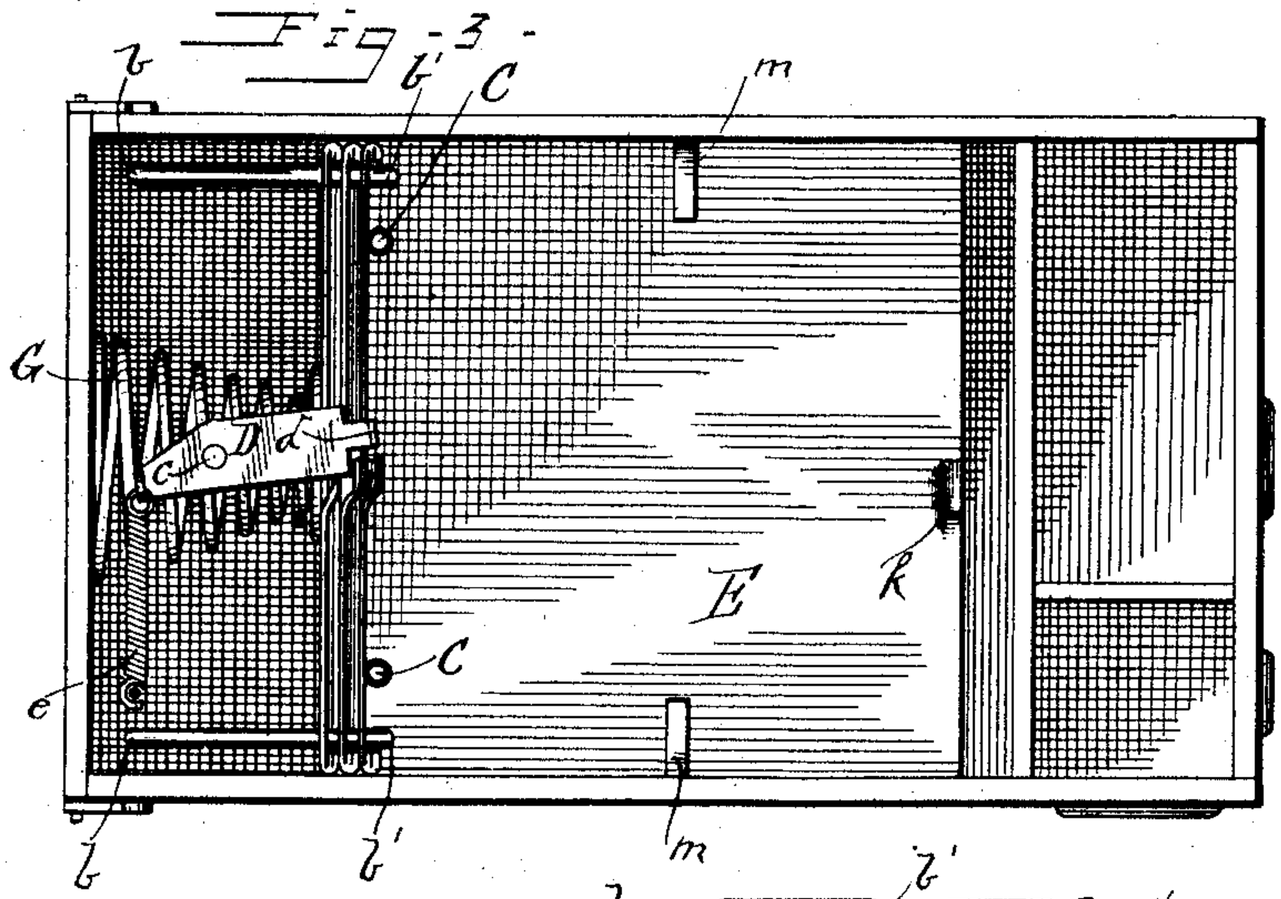


Fig. 6.

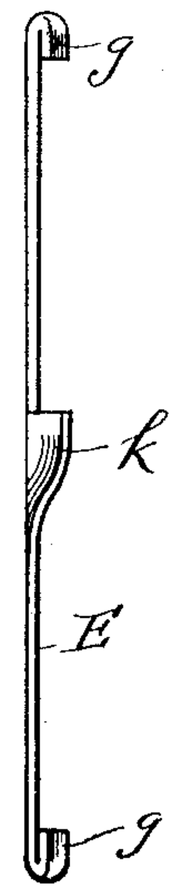


Fig. 4.

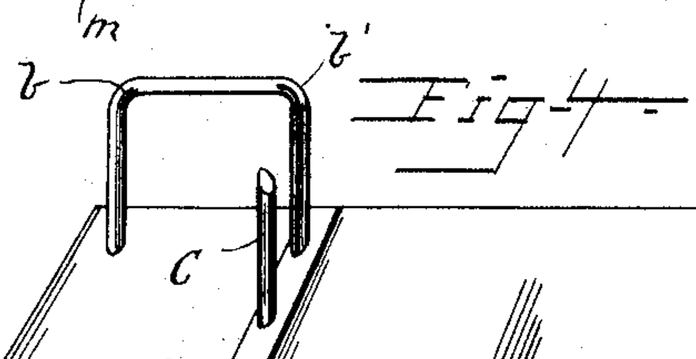
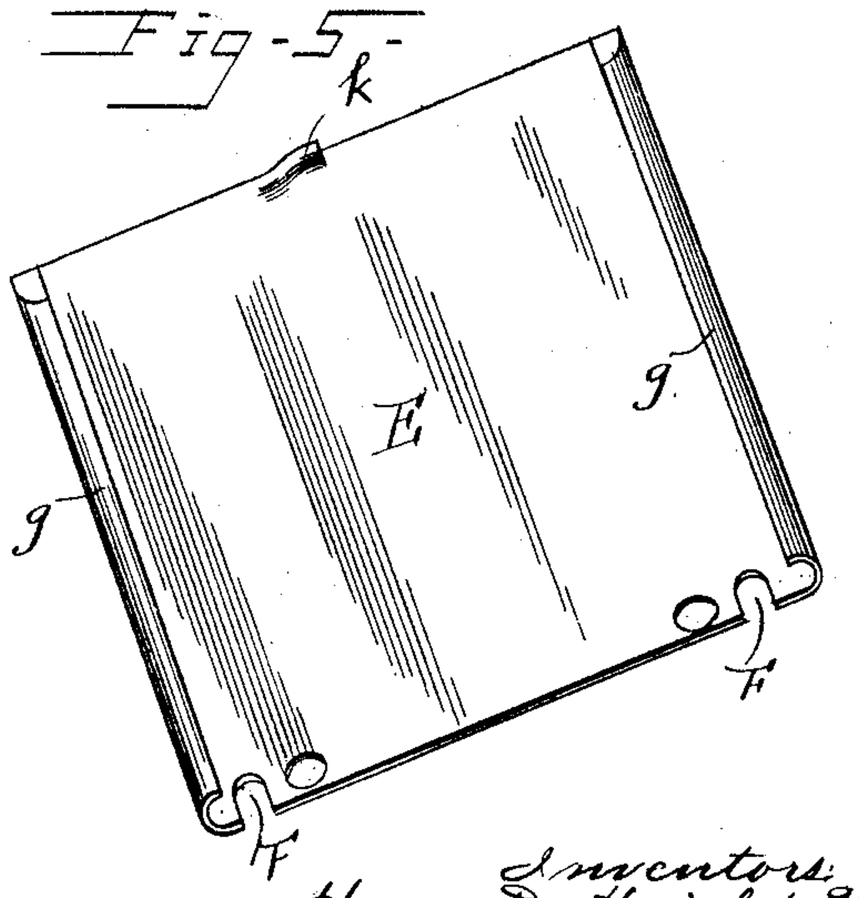
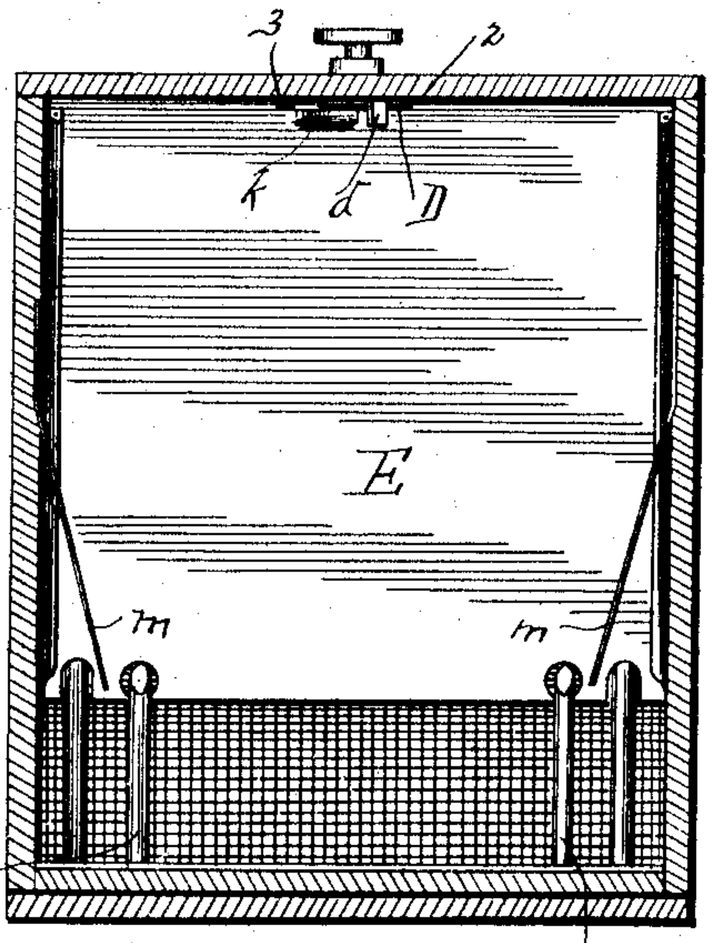


Fig. 7.

Fig. 5.





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UNITED STATES PATENT OFFICE.

HARRY D. HAIGHT AND LINCOLN L. COSSITT, OF CHICAGO, ILLINOIS.

MAGAZINE-CAMERA.

SPECIFICATION forming part of Letters Patent No. 618,459, dated January 31, 1899.

Application filed February 14, 1898. Serial No. 670,220. (No model.)

To all whom it may concern:

Be it known that we, HARRY D. HAIGHT and LINCOLN L. COSSITT, citizens of the United States, and residents of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Magazine-Cameras, of which the following is a full, clear, and exact description, reference being had to the drawings and to the letters and numerals of reference marked thereon.

Our invention relates to magazine-cameras in which a number of sensitive plates are stored and exposed, as desired, one after the other.

The objects of our invention are to greatly simplify and cheapen the construction of such a camera, to permit a comparatively large number of plates to be compactly stored therein, and to enable said plates to be exposed *seriatim* and then quickly removed from their exposed position and the succeeding plate thereby automatically brought into focus. This we accomplish by mechanism, hereinafter fully described, and particularly pointed out in the claims, which is easily manipulated by and is under the absolute control of the operator, which permits the plates to be withdrawn with safety and ease when it is desired to develop the same, and which it is almost impossible to get out of order.

In the drawings, Figure 1 is a side elevation of our invention. Fig. 2 is a longitudinal vertical central section therethrough. Fig. 3 is a plan view of the camera, showing top thereof removed, so as to expose to view the mechanism housed within the same. Fig. 4 is a perspective view of the removable tray separated or withdrawn from the camera. Fig. 5 is a perspective view of the plate-holder used in conjunction with the camera. Fig. 6 is a top edge view of the same; and Fig. 7 is a transverse vertical section of the camera, taken on line 7 7, Fig. 1.

In the drawings, A represents a rectangular-shaped box of any suitable dimensions, in which the length exceeds the width and height. The front end of this box is provided with the usual lens and with any suitable shutter therefor. The rear end of the box is entirely open, with the exception of a short drop-wall A′, which partially closes the upper portion of the same, and this rear end is closed by a suitable cover B, which is secured in position in any suitable manner. Placed in this box is a tray consisting of a rectangular-shaped board C′, which is of such dimensions that it fits snugly within and covers the floor of said box and has its forward edge entering a horizontal groove *a* at the foot of the front wall next the floor of the same. Near the rear edge of this tray it is provided with two corresponding rails *b b*, each consisting of an inverted-U-shaped wire frame, the ends of which are secured in the tray and the horizontal stretch of which extends in a plane parallel to the side edges of said tray near which said rails are located, substantially as shown.

Placed between the forward ends of rails *b*, preferably quite near and in the same transverse plane as the adjacent vertical portion of the same, are two corresponding vertical posts C C. These posts are preferably about the same height as the rails *b* and have their upper ends *b′* beveled, so as to point them in the manner shown.

Journaled in a suitable bearing in the top of the box A, midway between its sides and within about an inch of the rear end thereof, is a short spindle *c′*, which can be turned by a milled knob or wheel *c′*, secured to its upper extended end and which has a pawl D so secured to its lower end, which terminates just below its bearings, that said pawl is almost, if not actually, in touch with the ceiling of the box.

The longer forward arm of pawl D has a finger *d* projecting downward from its forward extremity, and its oscillatory movement is limited by two pins 2 and 3, one of which is so located that when said pawl bears against it the pawl will be in a slightly-oblique position to the longitudinal plane coming centrally between the sides of the box. This is the normal position of the pawl, and it is kept in this oblique position by a coil contraction-spring *e*, which is arranged transversely near the rear of the box and has one end secured to the extremity of the rearwardly-extending shorter arm of pawl D and the other end to the ceiling of the box.

E represents the specially-designed plate-holder used in conjunction with our camera. This plate-holder is preferably made of thin

sheet metal of a rectangular shape and has its vertical edges folded back over itself to form guideways *g g* for the edges of the sensitive plates to be held therein. In the lower horizontal edges of this plate-holder, near each vertical side and at a distance apart corresponding to that of the rails *b*, are two corresponding recesses or indentations F F, and at a corresponding space from these recesses F and separated a distance equal to that between posts C are two openings E E. These plate-holders are placed edgewise upon rails *b b* in such manner that the rails enter the recesses F, and when charging the camera the first plate-holder inserted is pushed forward on the rails until its upper edge is intercepted by the downwardly-projecting finger *d* and its lower edges by the upper ends of posts C C. After the first plate-holder is exposed it is released by simply turning pawl D and falls face downward upon the tray in front of the rails in such manner that the posts C C project through openings E E. In order to release the forwardmost plate on rails *b b*, we make a vertical slit in the upper edge of the plate-holder about its center of length and then punch the metal on one side of it forward to form an offset *k*. When the pawl is oscillated, its finger *d* moves from its position in front of the plate-holder and passes between the edges of the slit and back of offset *k*, thereby tipping the plate-holder, whose lower edges bear against posts C, forward and causing it to fall, as hereinbefore explained. When the pawl, through the medium of spring *e*, is restored to its original position, the plate-holders, remaining unexposed on rails, are automatically pushed forward until the forwardmost one is intercepted by finger *d* of the pawl and the top of posts C by a spiral spring G, secured to the inner vertical surface of cover B, which is of such dimensions that it constantly presses on the last plate inserted in the camera until the same is exposed. The plates as they fall forward from the focal point on rails *b b* fall face downward, one on top of the other, in which position they are held from lateral or longitudinal displacement by the posts C.

In order to prevent the plate-holders falling off posts C when through carelessness or accident the camera is inverted, we secure to each side wall of the interior of the camera at a point opposite each other a flat spring *m* in such manner that the lower free portions of the springs bend inward at a slight angle, so that the plate-holders will be free to fall forward by crowding said springs sidewise, but prevented from involuntarily getting off said posts while in the camera.

All slight changes in the construction or arrangement of the mechanism of our improved camera which we do not change the principle of construction and manner of operation thereof we consider as coming within the spirit of our invention.

What we claim as new is—

1. In a camera, the combination with a series of automatically forwardly movable plate-holders placed edgewise, one back of the other, and each provided with an offset in the upper edge thereof, as described, of suitable box and an oscillatory pawl pivoted therein above said holders, having a single downwardly-projecting finger therefrom which is adapted to engage the upper edge of the forwardmost plate-holder so that the same will fall face downward in front of the focal point of said camera, as set forth.

2. In a camera, the combination with suitable longitudinally-arranged parallel rails, posts between the forward ends of said rails, and a series of automatically forwardly movable plate-holders placed edgewise, one back of the other, on said rails and each having openings in their lower portions next their lower edges, in longitudinal alinement with said posts, of an oscillatory pawl adapted to engage the upper edges of the forwardmost plate-holder and cause the same to fall face downward so that said post will enter the opening in the plate-holder made to receive it, as set forth.

3. In a camera, the combination with a plate-holder having an offset in its upper edge, as specified, and having an opening therein near its lower edge, of suitably-arranged parallel rails, upon which said plate is placed edgewise; a post placed between and in the same transverse plane as the forward ends of said rails, a box and an automatically-returnable oscillatory pawl pivoted therein above said plate, which is adapted to engage the said offset in the upper edge of the plate-holder, as and for the purpose set forth.

4. In a camera, the combination with a tray, suitable longitudinally-arranged parallel rails thereon, one or more posts on said tray located between the forward ends of the rails, and a series of automatically forwardly movable plate-holders placed edgewise, one back of the other on said rails, and each having openings in their lower edges in longitudinal alinement with said posts, of an automatically-returnable oscillatory pawl adapted to engage the upper edges of the forwardmost plate-holder, as and for the purpose set forth.

5. In a camera, the combination with a plate-holder having an offset in its upper edge, as specified, having indentations in its lower edge, and having one or more openings near said lower edge between said indentations, of suitably-arranged parallel rails, upon which said plate-holder is placed so that said rails enter said indentations, one or more vertical posts placed between and in the same transverse plane as the forward end of said rails, and an automatically-returnable oscillatory pawl pivoted above said plate-holder and adapted to engage said offset in the upper edge of said plate-holder, as and for the purpose set forth.

6. In a camera, the combination with a plate-holder having an offset in its upper edge, as specified, and having indentations in its lower

edge, and having openings therein near its lower edge between said indentations, of a suitable removable tray, parallel rails arranged longitudinally near the rear end of said tray upon which said plate is placed edgewise, one or more arising from said tray between and in the same transverse plane as the forward end of said rails, a suitable box and an oscillatory pawl pivoted above said plate-holder in the top of said box and adapted to engage the offset in the upper edge of said plate-holder, as and for the purpose set forth.

7. In a camera, a plate-holder having its side edges bent back over itself to form guideways, and having an offset in its upper edge, as and for the purpose set forth.

8. In a camera, a plate-holder having its side edges bent back over itself to form guideways: having an offset in its upper edge, substantially as specified, and having a post-opening near its lower edge, as set forth.

9. In a camera, a plate-holder having its side edges bent back over itself to form guideways: having an offset in its upper edge: having indentations in its lower edge, and having post-openings therein, near its lower edge, as set forth.

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