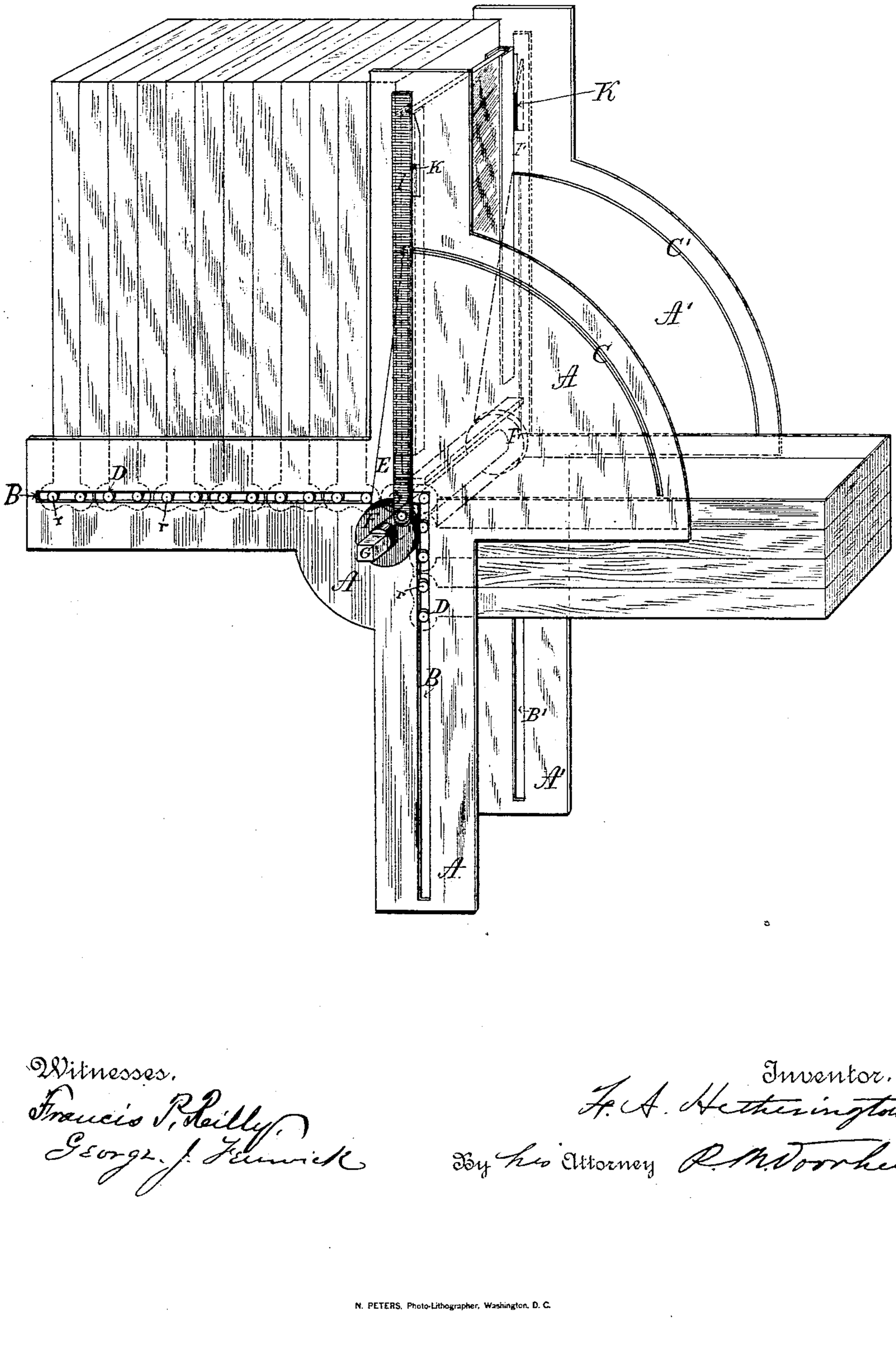
(No Model.) 2 Sheets—Sheet 1.

F. A. HETHERINGTON.

MAGAZINE PLATE HOLDER FOR PHOTOGRAPHIC PLATES.

No. 396,656. Patented Jan. 22, 1889.

Fig. 1.



Witnesses.
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By his Attorney R. H. Dorrance

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.)

2 Sheets—Sheet 2.

F. A. HETHERINGTON.

MAGAZINE PLATE HOLDER FOR PHOTOGRAPHIC PLATES.

No. 396,656. Patented Jan. 22, 1889.

Fig. 2.

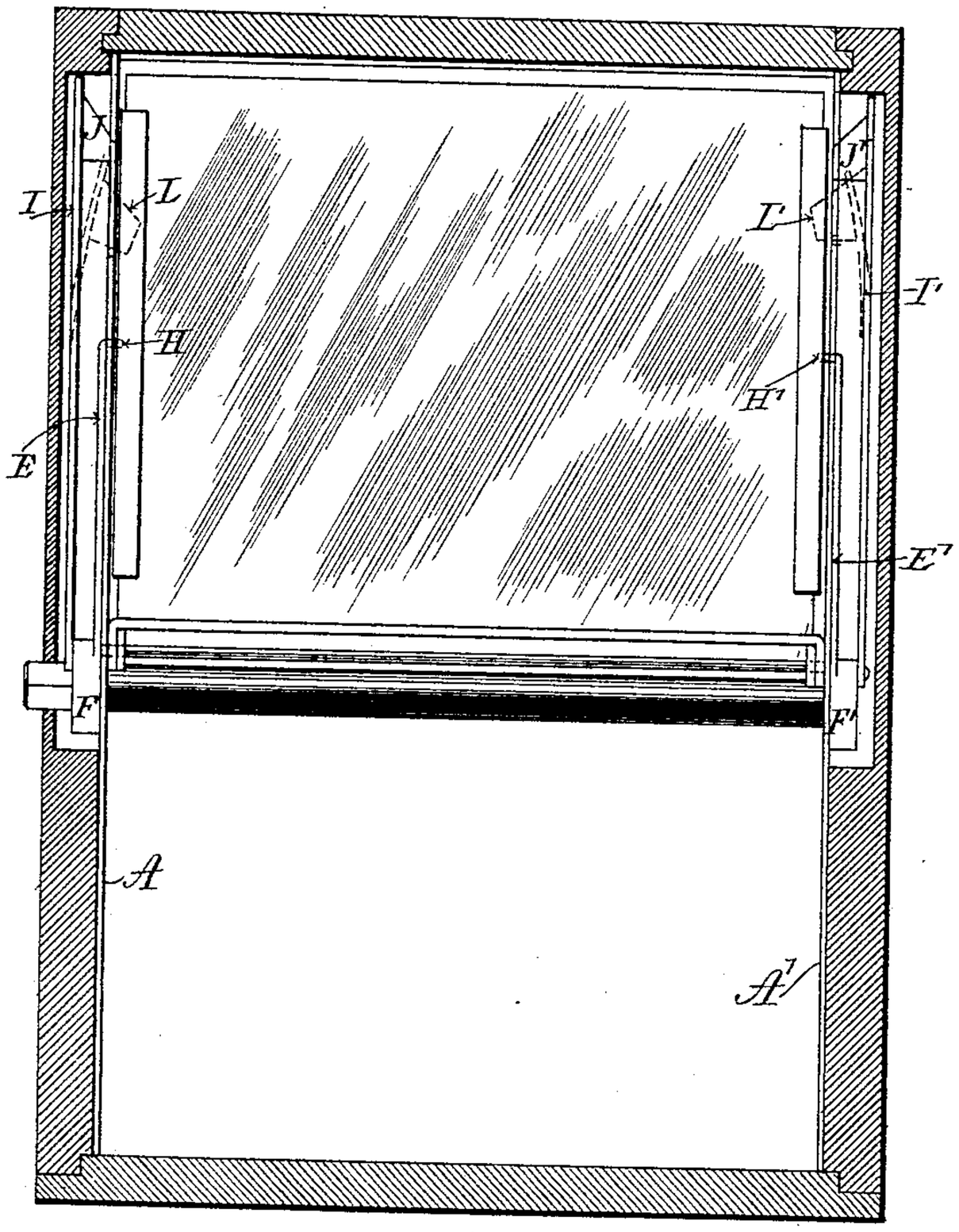
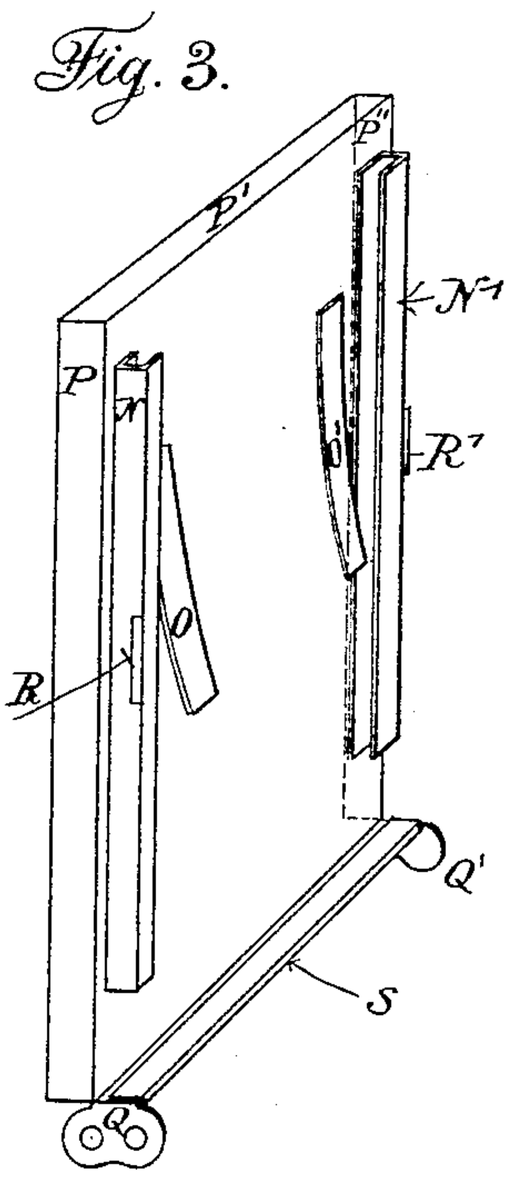


Fig. 3.



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UNITED STATES PATENT OFFICE.

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MAGAZINE PLATE-HOLDER FOR PHOTOGRAPHIC PLATES.

SPECIFICATION forming part of Letters Patent No. 396,656, dated January 22, 1889.

Application filed June 4, 1888. Serial No. 275,958. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK A. HETHERINGTON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Magazine Plate-Holders for Photographic Plates, which invention is fully set forth and illustrated in the following specification and accompanying drawings.

This invention relates more especially to holders for that class of portable cameras commonly known as "detective-cameras," although it may also be applied to other classes. Its object is to provide suitable means for carrying any number of sensitive plates in such manner that they will be ready for instant use without the usual manipulations of drawing a slide or changing plate-holders, and also to economize the amount of space occupied by the plates and their holders, thereby reducing the size of the camera to the smallest limit. These objects are attained by means of the devices shown in the accompanying drawings, in which—

Figure 1 is a perspective drawing of the device, showing it as detached from the camera-box. Fig. 2 is an end view from the front, showing a section of a camera-box. Fig. 3 is a perspective view of a single leaf of the magazine or combination holder.

Similar letters indicate similar parts in the several figures.

The plates A A′ are of thin metal and form the two sides between which the leaves M of the plate-holder operate. Said plates are let into the inner sides of the wooden camera-box, so as to be flush with their surfaces, and are provided with slots, as shown at B B′, Fig. 1, and also with a curved slot, as C C′, Fig. 1. The slots B B′ form guides for the projecting ends of the rods *r*, which form the hinge-pivots of the several leaves of the holder, as shown at D, Fig. 1.

E and E′ are thin flat arms or levers, having their outer ends bent sidewise at right angles to their bodies, forming hooks which project through the curved slots C C′ in the side plates, as shown at H H′, Fig. 2. The lower ends of said levers are joined to the hubs F F′, which are securely fixed to the shaft G, one end of which is squared to suit an ordinary clock-key, and projects somewhat beyond the face of the hub. These levers throw down a plate upon which an exposure has been made, so that another and fresh plate may come into position. To accomplish this, the hooked ends of the levers engage with slight projections or cleats R R′, Fig. 3, on the sides of each leaf M of the holder, so that when the key is given a quarter-turn the levers go down, carrying with them one leaf until it rests at right angles with its former plane. By reversing the action of the key the levers turn back and engage with another leaf, and so on. The hooked ends of the levers are so formed that in the reverse action they will spring over the cleats on the next leaf and get into position for bringing it down in its turn.

In the case of detective-cameras, where it is impracticable to focus upon a ground glass for each view, the focus is set once for all by means of a ground glass used temporarily when the camera is constructed. The focus-points for various distances being once established, they are indexed or marked upon some part of the camera or its mechanism. It is therefore important that the sensitive plate when ready for an exposure shall be in the exact plane that was occupied by the ground glass when the focus was set. This end is accomplished as follows:

Referring to Figs. 1 and 2, I and I′ are thin flat metal spring-rods, the lower ends of which are pivoted by crank-pins to the hubs F F′. To the other ends of these rods are riveted tongues J and J′, the upper edges of which are cut inclined, as shown. In the side plates, A and A′, and directly in line with these tongues, are cut slots, as shown at K K′, Fig. 1. When the shaft G is turned by means of the key, the spring-rods I and I′ are drawn downward, and by their action and a permanent set which is given to these rods their upper ends spring inward at the same time, thereby pushing the tongues J J′ through the slots K K′, and when the downward stroke is complete the tongues project inside of the side plates far enough to form a stop for the advancing leaf of the

holder, so that it will always stop at this fixed point, as shown at L L′, Fig. 2. When the shaft is again rotated backward, the spring-arms I I′ rise, and the inclined edges of the tongues J J′ coming in sliding contact with the upper end of the slots K K′, said tongues bend back or straighten said arms, and are thus withdrawn from the slots K K′, leaving the way clear for another leaf to pass.

Fig. 3 shows the form which I have preferably adopted for the leaves M of the holder. Said leaves may be constructed of thin sheet metal. M is the main body of the leaf. P P′ P″ are three of its flanges, which are turned backward. S is a flange which is turned forward, and is formed so as to contain the piece forming the links or hinges Q Q′, which are drilled to receive hinge-rods *r*, which extend from one side to the other, and which project far enough outside of the hinge to work in the slots in the side plates, as shown at D, Fig. 1.

N N′ are channel-pieces fixed to the main body M, and their office is to hold the sensitive plate in position by its edges, the plate being kept in position by the springs O O′, which keep the plate pressed firmly against the channel-pieces N N′.

It is intended that the sensitive plates contained in the plate-holder shall all be protected against "leakage" of light by the flanges P, P′, P″, and S, which are so fitted that no plate is exposed to light excepting the one ready for use.

Having thus fully described my said improvements, as of my invention I claim—

1. The combination, in a plate-holder for photographic plates, of a series of leaves linked or hinged together and having flanged edges for protecting the photographic plates, with side plates having guide-slots, as described, substantially as and for the purposes set forth.

2. In a magazine plate-holder for photographic plates, the combination of a series of leaves hinged directly together, as shown, with side plates having guide-slots arranged so that by the act of turning a leaf through an arc of ninety degrees the next following leaf shall come into position for another exposure, substantially as set forth.

3. The combination, in a magazine plate-holder for photographic plates, of a series of hinged leaves having slotted side plates, as described, with operating levers, rods, and stops, substantially as and for the purposes set forth.

F. A. HETHERINGTON.

Witnesses:
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JOHN TULLY.