(No Model.) 3 Sheets—Sheet 1.

A. L'EPLATTENIER.

MAGAZINE CAMERA.

No. 472,442. Patented Apr. 5, 1892.

Fig. 1.

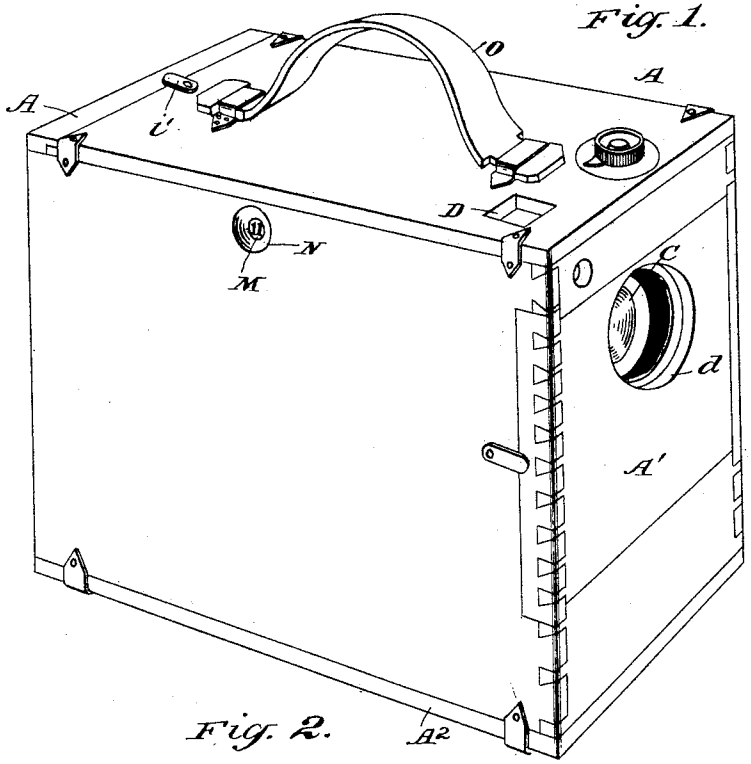
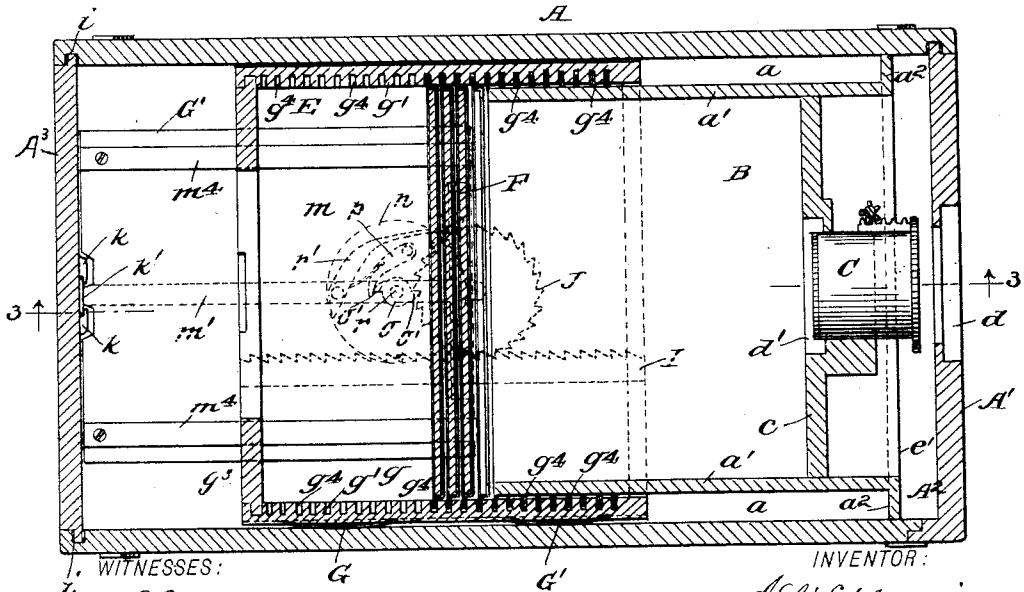


Fig. 2.



WITNESSES:
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INVENTOR:
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BY Munn & Co
ATTORNEYS

(No Model.) 3 Sheets—Sheet 2.

A. L'EPLATTENIER.

MAGAZINE CAMERA.

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Fig. 3.

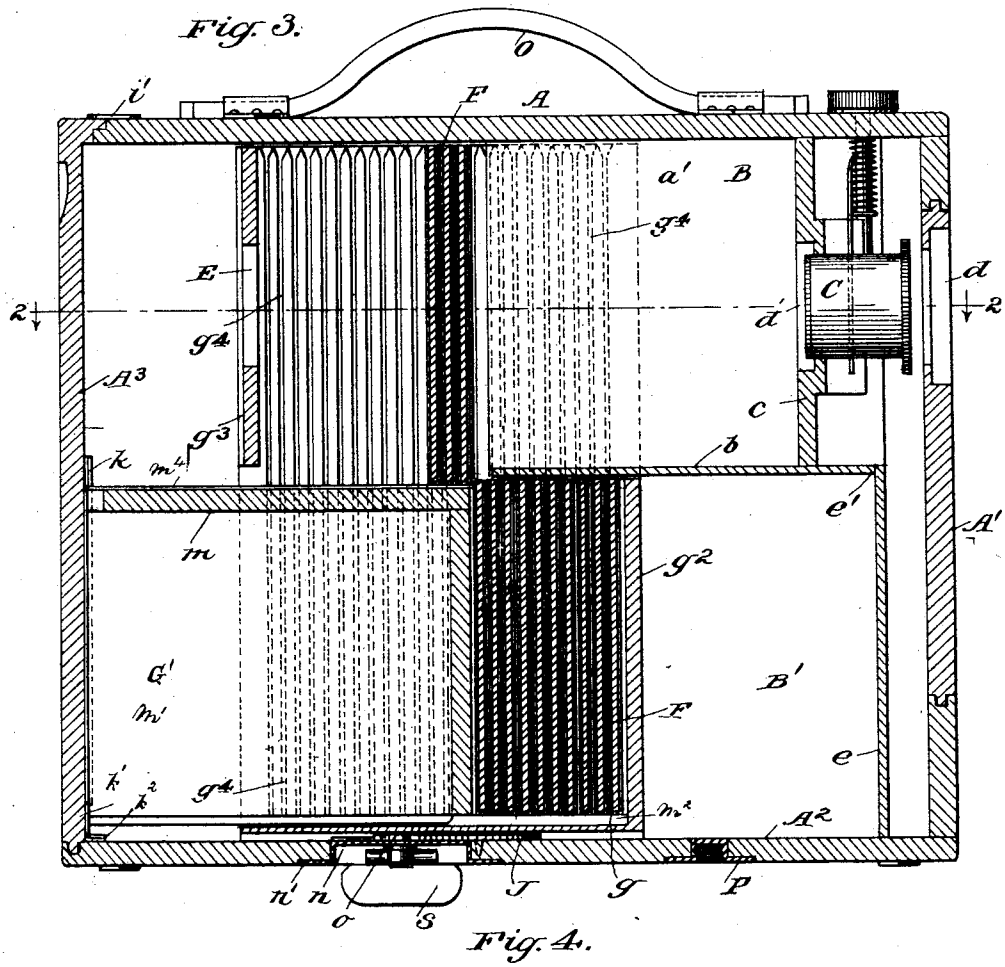


Fig. 4.

Fig. 5.

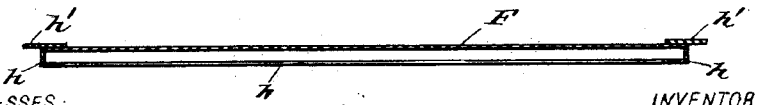
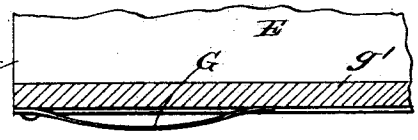


Fig. 6.



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(No Model.) 3 Sheets—Sheet 3.

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Fig. 7.

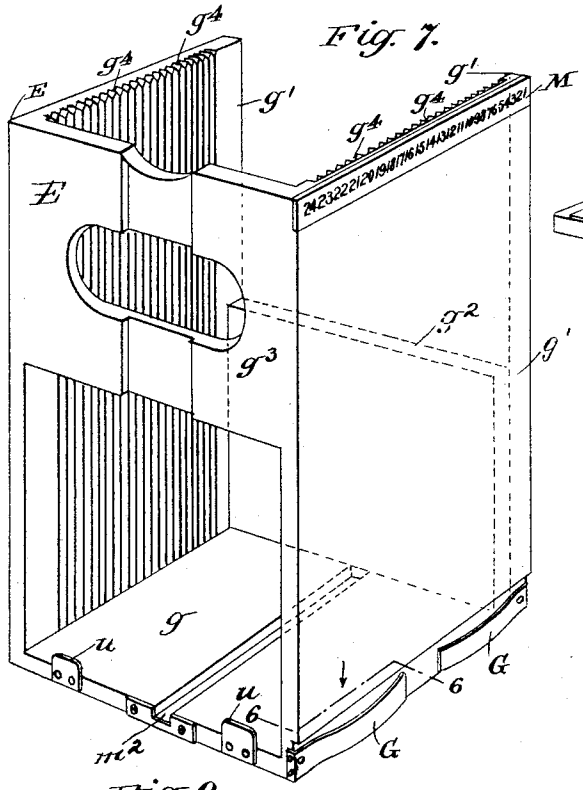


Fig. 8.

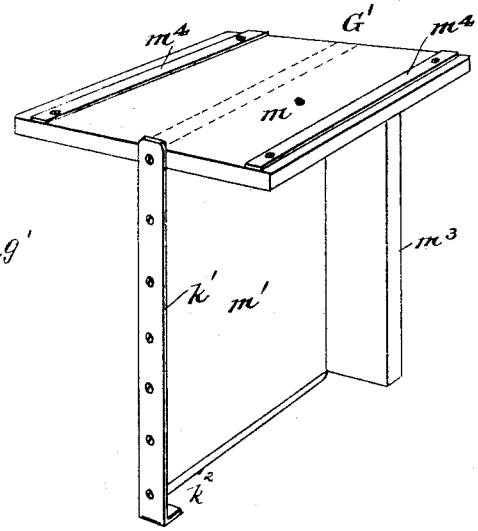


Fig. 9.

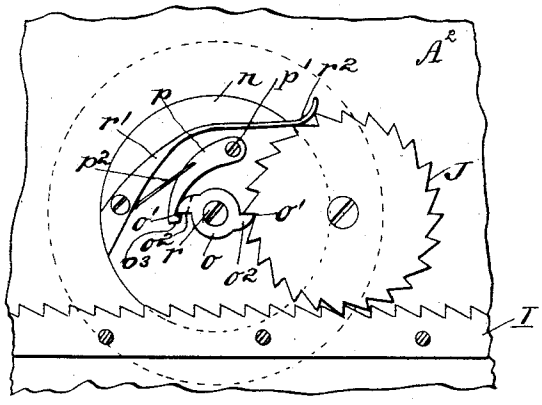


Fig. 10.

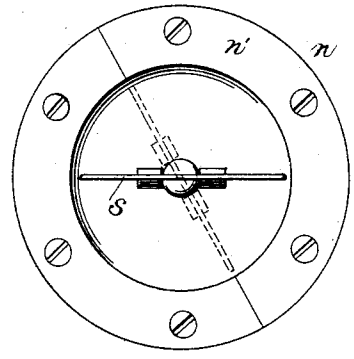
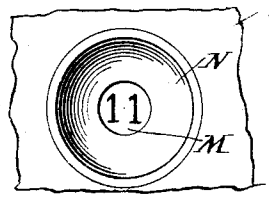


Fig. 11.



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UNITED STATES PATENT OFFICE.

ARNOLD L'EPLATTENIER, OF BROOKLYN, NEW YORK.

MAGAZINE-CAMERA.

SPECIFICATION forming part of Letters Patent No. 472,442, dated April 5, 1892.

Application filed December 29, 1890. Serial No. 376,153. (No model.)

To all whom it may concern:

Be it known that I, ARNOLD L'EPLATTENIER, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Magazine-Camera, of which the following is a full, clear, and exact description.

The objects of this invention are to provide an improved magazine-camera which will afford means to retain a series of sensitized plates or films in a safe condition, expose them one at a time, remove the photographed plate by gravity to a dark-chamber, move another plate of the series into focus registered correctly, and simultaneously indicate the serial number of the impressed plate or film.

To these ends my invention consists in the provision of a simple, compact, and inexpensive camera-box and parts within, which will retain in series securely separated a number of sensitized plates or films, and further be adapted by a rapid single movement of one part of the operating mechanism of the instrument to remove a plate or film that has been exposed before the uncapped lens and simultaneously move another plate to take its place, the exposed but unfixed negative being conveyed by gravity to a dark-box, where it is perfectly protected from light or contact with other objects.

My invention further consists in the construction and combination of parts as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a portion of this specification, in which similar letters of reference indicate corresponding parts in all the views.

Figure 1 is a perspective view of the device closed. Fig. 2 is a plan in section taken on the line 2 2 in Fig. 3. Fig. 3 is a longitudinal section on the line 3 3 in Fig. 2. Fig. 4 is a transverse section of the preferred form of the plate-holder. Fig. 5 is a cross-section of a modified form for constructing the plate-holder. Fig. 6 is a plan in section of a portion of the plate-containing drawer, showing a friction-spring enlarged and in position thereon. Fig. 7 represents the plate-containing drawer detached and in perspective, concealed parts being indicated by dotted lines. Fig. 8 is a detached view in perspective of a bracket-shelf whereon the plates in series are supported before and while exposed to receive a photographic impression. Fig. 9 is a broken enlarged plan view of the inner or top surface of the lower wall of the camera-box, showing the actuating-gear for the sliding drawer which holds the sensitized and impressed plates. Fig. 10 is a detached view of the thumb-piece used to manipulate the gear shown in the previous figure, which piece and its supporting-plate are located on the lower side of the bottom wall of the camera-box; and Fig. 11 is a broken enlarged view of a portion of the box side wall, showing the sight-hole for the plate-register and a recorded number exposed therein.

The outer casing or camera-box A is made in the usual elongated rectangular form, preferably of hard wood not liable to warp, dovetailed together to insure stability, and of a size proportioned to the dimensions of the plates to be contained in it.

Within the box A a rectangular exposure-case B is secured, which occupies the upper portion forwardly. Said case is of less dimensions, transversely considered, than the interior of the box it is placed within, and, being centered therein, affords two channels *a* of equal width, which extend to the lower wall *b* of the case, that terminates said case near the vertical center of the box A. A partition-wall *c* is erected across the forward portion of the exposure-case B, which extends throughout its transverse area, joining the sides and bottom of the same with the top wall of the box A.

Aligning apertures are formed at or near the center of the wall *c* and upper portion of the front wall of the box, or rather in a laterally-removable sliding panel A′ of the box A, as at *d d′*, which circular orifices are designed to accommodate the field-lens C, which may be of any approved form. The finder D (shown partly in Fig. 1) may also be of any preferred make. These features, which are necessary portions of the instrument as an entirety, are not part of this invention, and therefore need but a cursory mention.

The lower wall *b* of the exposure-case B is not extended to have contact with the panel A′, but terminates a short distance therefrom. A vertical diaphragm *e*, that is erected from the bottom wall A^2 of the box A across said

box, joins the front edge of the wall b, as at e' in Fig. 3, thereby cutting off all light from the opening d in the panel A′ and producing a dark box or chamber B′ below the wall b when the rear side is closed, as will appear. The side walls a' of the exposure-case B are terminated in vertical alignment with the diaphragm e by lateral wings a^2, formed thereon, which extend to join the side walls of the box A, as shown in Fig. 2, thus defining the forward extent of the channels a.

The height of the box A and width, considered internally, should be equal to the exterior height and width of the plate-containing drawer E, which must slide therein without looseness.

The drawer E constitutes one of the important features of the invention and is constructed as follows: A rectangular base-board g is provided, which is about equal in length to that of the sides a' of the exposure-case B, and in width is adapted to slide freely within the box A and nearly touch its side walls. The height of the drawer sides g' is such as will allow them to move in the box A without obstruction, closely fitting therein to avoid rattling. A front wall g^2 is erected at the forward end of the base-board g, which is of a height that will permit it to slide closely beneath the lower wall b of the exposure-case B, and, as shown in Fig. 2, the sides g' of the drawer loosely fit within the channels a, so that the upper portion of the drawer slides between the side walls of the box A, with its front wall loosely impinging upon the lower surface of the wall b, as before indicated, whereby the dark-chamber B′ is completed. At the rear end of the plate-holding drawer E a wall g^3 is extended from the top edges of the side walls g', which it joins, downwardly one-half of the distance from said edges to the inner surface of the base-board g of the drawer, leaving a space below the end wall equal to its height, the lower edge of said end wall g^3 lying in the same horizontal plane with the top edge of the front wall g^2. The opposite walls of the drawer are parallel, respectively, thus producing a rectangular structure. As shown in Figs. 2 and 7, the side walls g' of the drawer E are oppositely grooved in series, said parallel grooves g^4 extending from the upper edges to the base-board g, thus affording slideways for the reception of the plate-holders F. (Shown in position in Figs. 2 and 3 and detached in Figs. 4 and 5.) The plate-holders are shown in two forms, which are essentially alike so far as their office is concerned, the difference in the two styles represented in the detached views consisting in the minor details of construction, which in the preferred form shown in Fig. 4 is more simple, and consists in a plate of sheet metal or other material of proper size, rectangular in form, and folded on two side edges and the bottom edge to afford border-flanges, as at h, these flanges being adapted to receive a glass plate or other prepared material which is to be photographically impressed and embrace three edges of such a rectangular plate, leaving one face practically uncovered, the holder covering the other side to completely exclude light, there being integral guide-flanges h' formed on the side edges of the holder to engage the grooves of the drawer E. The holder shown in Fig. 5 has its guide-flanges h' formed from detached strips, which are soldered or otherwise secured to the back plate of the holder, so as to receive glass plates or films which have been sensitized and are ready to receive impressions.

There are friction-springs G preferably employed to give the drawer E an equal movement in the box A when it is slid therein, which springs are elastic plates suitably bent to give them a bowed projection. These are seated and secured in a rabbet-channel on the lower outer surface of one of the side walls g' aligning with the lower edge of the same, whereby the yielding action of the springs assures a regular progressive movement of the drawer and compensates for any slight imperfections of construction that might cause the drawer to move unevenly.

The entire rear end of the box A is adapted for removal by the provision of a sliding door A^3, which is furnished with tongues, as at i, on each side edge that slide freely in grooves produced in the side walls of the box on their inner surfaces near the rear vertical edge, said door being also formed to interlock with the top and bottom sides of the camera-box, as shown in Fig. 3, so as to afford a finished exterior, the door being retained in place by a turn-button i' or other means.

There are two spaced parallel vertical strips k secured upon the inner surface of the door A^3 near the transverse center, these being designed to receive and retain in removably secured connection a bracket-shelf G′, which is another important portion of the invention. Said shelf is shown in Fig. 8 to consist of a platform m, which is of a sufficient width proportional to the breadth of the drawer E to slide therein freely, and as a support for the platform it is secured upon the upper edge of a vertical rectangular piece m', which is made to slide in the longitudinal groove m^2, formed in the top face of the base-board g of the drawer E, a vertical piece m^3 being attached to the front edge of the support m' and the platform m also, whereby the bracket-shelf is essentially completed. There are two parallel strips of metal m^4 attached to the upper surface of the platform m of the bracket-shelf G, properly spaced to permit the plate-holders F to rest upon them and reduce friction when these holders are slid upon the platform, as will be further explained. The bracket-shelf G′ is removably attached to the door A^3, as before mentioned, by the tongue-plate k', which engages the rabbet edges of the strips k on the door when the latter is slid from above downwardly in contact there-

with, thus making a fixture of the shelf G′, there being a hook k^2 formed on the lower end of plate k' to prevent any upward movement of the shelf by its abutment on the lower side of the drawer E.

Upon the lower surface of the drawer E a rack I is attached, which is longitudinally extended from end to end of the drawer, as shown in Fig. 2 in dotted lines, an enlarged portion of said rack being also shown imposed loosely upon a portion of the lower wall of the box A in Fig. 9. The rack I is placed at such a distance from one side edge of the drawer E that its ratchet-toothed edge will be properly located to be engaged by the teeth of the ratchet-wheel J, which is seated upon the bottom wall of the box A near its transverse center and pivoted thereon.

In a circular aperture formed in the bottom wall A^2 of the box A a cupped and radially-flanged plate n is seated, its flange n' being embedded in the lower surface of the wall A^2 and secured to it by any suitable means, the top face of the cupped depression of the plate projecting within the aperture of the bottom wall sufficiently to lie level with the inner surface of said box-wall, as shown in Figs. 3 and 9. Upon the top face of the cup-plate n a double-toothed gear-hub o is rotatably supported centrally by the engagement therewith of a screw-thread r, which projects through a perforation in the center of the cupped plate and also through an axial perforation of the same size in the hub, the teeth o' of the latter being cut with a radial face on each, which lie in the same line with the center of the hub, as shown in Fig. 9, the other edges of the teeth having a curvature of equal degree, as shown at o^2 in said figure. At a proper point on the top face of the cup-plate n a pawl p is pivoted, as at p', to permit the concave edge of the pawl to lie in contact with the curved faces o^2 of the teeth o' and lock them from backlash, which contact is enforced by a plate-spring p^2, which tangentially projects from the convex edge of the pawl and bears against the secured portion of the detent-spring r', which has its resilient portion extended toward the teeth of the ratchet-wheel J, so that its slightly-bent end portion r^2 may lie in the space between the points of any two adjacent teeth of said wheel and by pressure of the spring retain the wheel from being moved except by the rotation of the gear-hub o, the pawl p having a toe o^3 formed on its free end, which engages either of the teeth o' and prevents a movement of the gear-hub o in the wrong direction. There is a hinged thumb-piece s provided to rotatively move the gear-hub o, the screw-stud r being attached to the piece s, which latter is located in the cupped portion of the plate n and may be folded therein or be turned at a right angle to the bottom of the cup-plate and by a rotatable movement of the same actuate the gear-hub, which will move the ratchet-wheel J and project the drawer E forwardly. The peculiar cut of the rack I and the wheel J, in connection with the parts that move these pieces, prevents a retrograde movement of the drawer until the gear-hub o is removed from meshing contact with the ratchet-wheel, which is effected by turning the thumb-piece s into the position shown by dotted lines in Fig. 10, and when the parts are so adjusted the operator, by placing his fingers on the pull-plates u, may withdraw the drawer through the opening afforded by a removal of the door A^3.

All interior portions of the box A, drawer E, and other parts of the device within are coated a dead-black color.

There is an aperture cut in the rear wall of the drawer E to permit an inspection of the interior, so as to ascertain if the plates are all dropped, and as a further means for such a purpose there is a scale-plate M secured on one side of the drawer along its upper edge, which scale is numerically graduated in regular order from "1" upwardly, the number of graduations being equal to the number of grooves g^4 in the drawer, and it is important that the graduations on the scale-plate M and spaces between the centers of the grooves g^4 should be equal, and that the distance between the teeth on the ratchet-wheel J and rack I should correspond therewith, so that a half-revolution of the thumb-piece s will move the drawer and expose one of the numbers on the scale-plate before the sight-hole N, as represented in Fig. 1.

The exterior finish of the box A may be varied to suit the taste of the manufacturer, and to adapt it for portability a leather-strap handle O is secured to the top side of the box preferably in a manner which will allow it to be flattened, and on the lower side of the box at a proper point there is a threaded socket-plate P inserted and secured for the reception of the upper end of a tripod or other support for the box when in service.

In operation, the device being charged with sensitized plates, by filling the grooves g^4 of the drawer E and raising the plate-holders so as to rest them all on the platform of the bracket-shelf G′, the lens being properly focused on the object to be photographed and uncapped, the first plate in the series will thus be exposed. When the exposure is sufficient, a new view may be adjusted by a change of position of the box A, and a movement of the thumb-piece s will shove the drawer E forwardly, so as to allow the impressed plate to drop off of the platform of the bracket-shelf down into the dark-chamber below, or a series of negatives of one object may be rapidly photographed by a simple manipulation of the thumb-piece s in the manner stated.

Slight changes may be made in the form of some of the parts, while their essential features are retained and the spirit of the invention embodied. Hence I do not desire to be limited to the precise form of all the parts as shown, reserving the right to vary therefrom.

Having thus described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

1. In a camera, the combination, with a casing having a shelf projecting from its rear wall, of a plate-holding box having its front wall extending about half the height of the box from the bottom upward and its rear wall extending about half the height of the box from the top downward, substantially as described.

2. In a camera, the combination, with a casing, of a plate-holding box having its front wall extending about half the height of the box from the bottom upward and its rear wall extending about half the height of the box from the top downward and provided with a groove in the top surface of its bottom, and a shelf secured to the rear wall of the casing and having its lower portion fitting in the groove of the plate-holding-box, substantially as described.

3. In a camera, the combination, with a casing having an exposure-chamber of less width than the casing and a dark-chamber below the exposure-chamber, of a plate-holding box having its front wall extending about half the height of the box from the bottom upward, said box being adapted to slide in the casing with its side walls in the space between the sides of the casing and the sides of the exposure-chamber, and a shelf secured to the rear wall of the casing and projecting into the plate-holding box, substantially as herein shown and described.

4. In a camera, the combination, with a casing having an exposure-chamber of less width than the casing and a dark-chamber below the exposure-chamber, of a plate-holding box having its front wall extending about one-half the height of the box and provided with a rack on its bottom, a ratchet-wheel in the bottom of the casing and engaging the rack of the plate-holding box, a shelf secured to the rear wall of the casing and projecting into the plate-holding box, and means for operating the ratchet-wheel, substantially as herein shown and described.

5. The combination, with a drawer in a camera-box, of a rack on the lower side of the drawer, a toothed wheel on the box lower wall, which engages the rack, a revoluble gear-hub having teeth, a pawl, a detent-spring, and a thumb-piece on the gear-hub, substantially as set forth.

6. The combination, with a removable door that seals the rear end of a camera-box, of a bracket-shelf comprised of a horizontal platform, a central upright support secured thereto, a forward transverse supporting-piece that is secured to the front edge of the vertical support and also to the platform, and a tongue-plate which engages rabbeted strips on the side of the door, substantially as set forth.

ARNOLD L'EPLATTENIER.

Witnesses:
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E. M. CLARK.