No. 796,447. PATENTED AUG. 8, 1905.

W. A. PETERS.

APPARATUS FOR CARRYING AND CHANGING PHOTOGRAPHIC PLATES.

APPLICATION FILED MAR. 29, 1905.

4 SHEETS—SHEET 1.

Fig. 1.

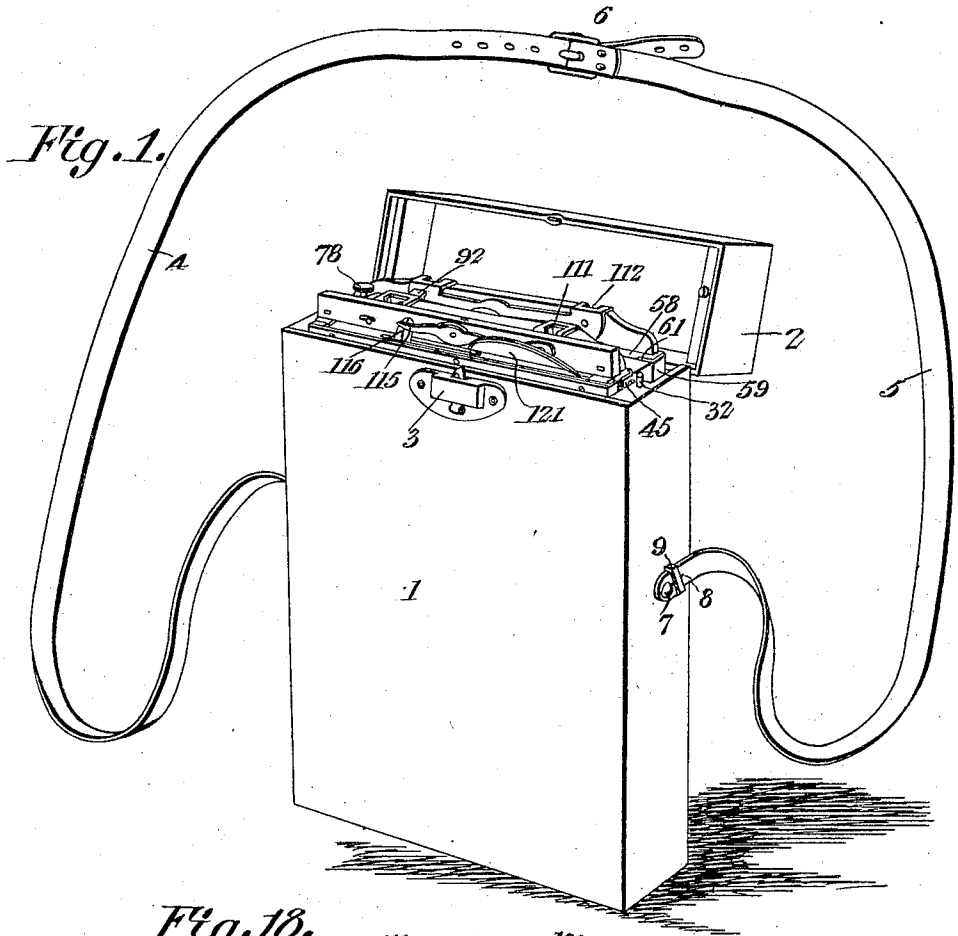


Fig. 18.

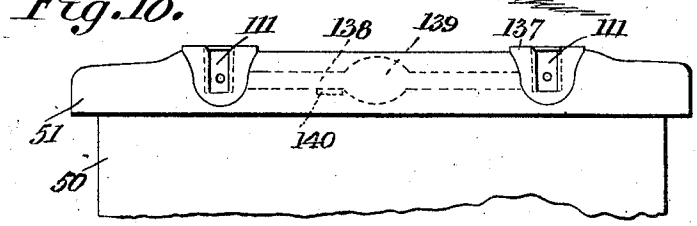


Fig. 19.

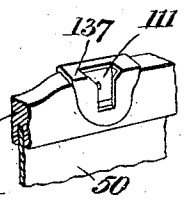
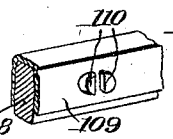


Fig. 20.



Witnesses,

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4 SHEETS—SHEET 2.

Fig. 4.

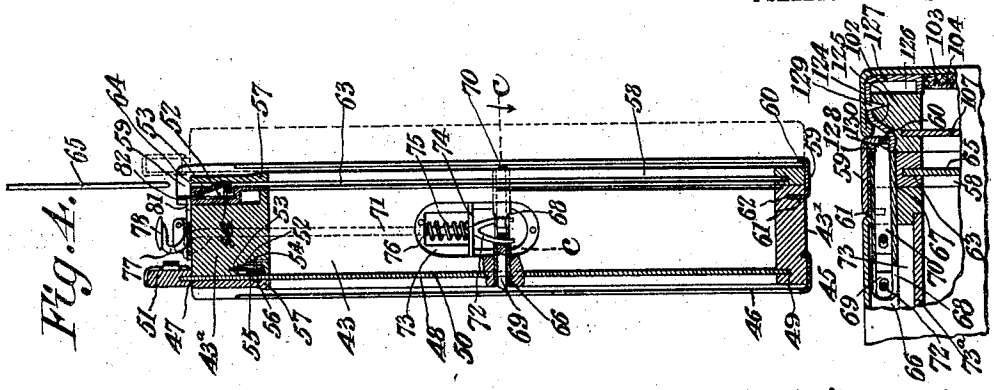


Fig. 5.

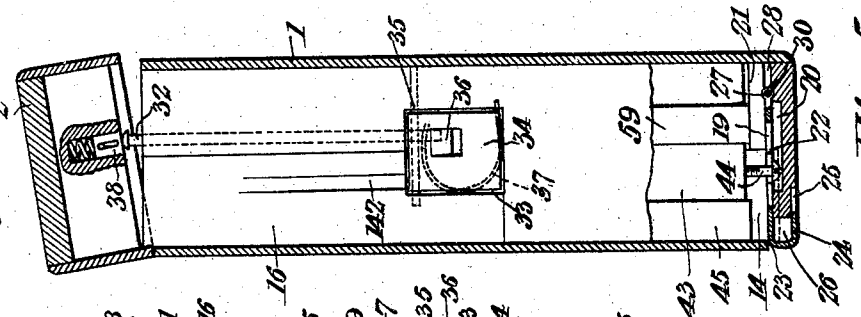


Fig. 3.

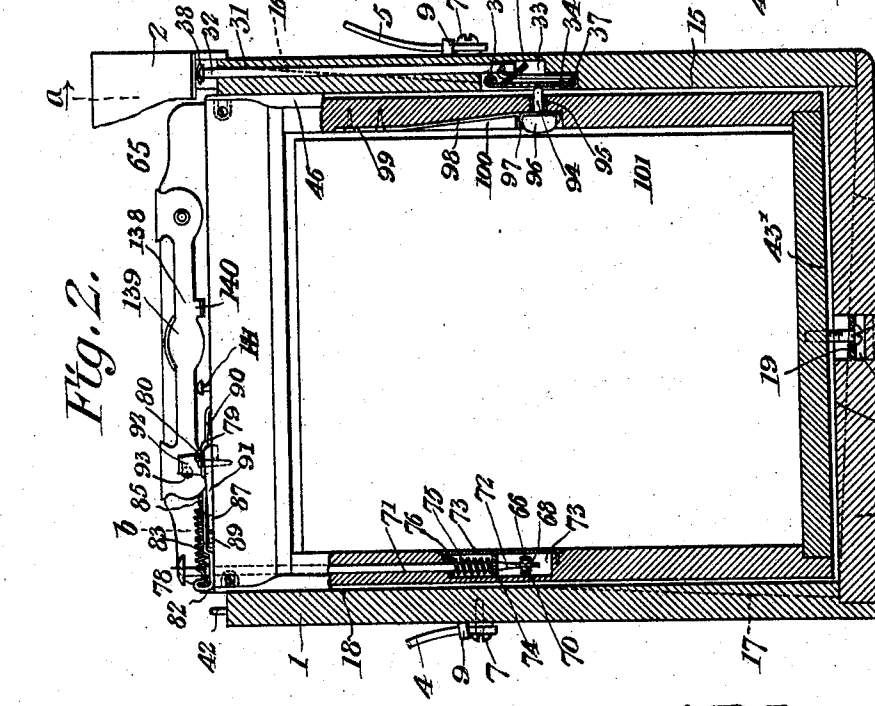


Fig. 2.

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4 SHEETS—SHEET 3.

Fig. 7.

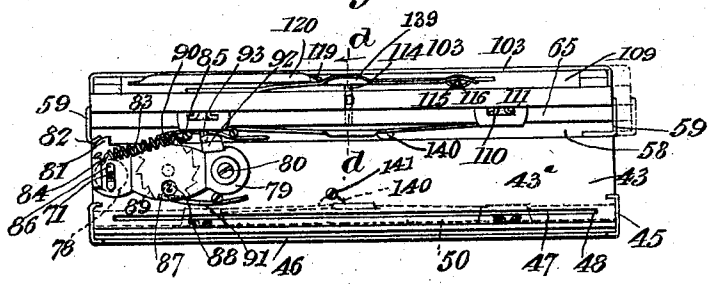


Fig. 8.

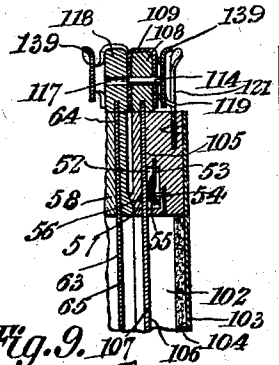


Fig. 6.

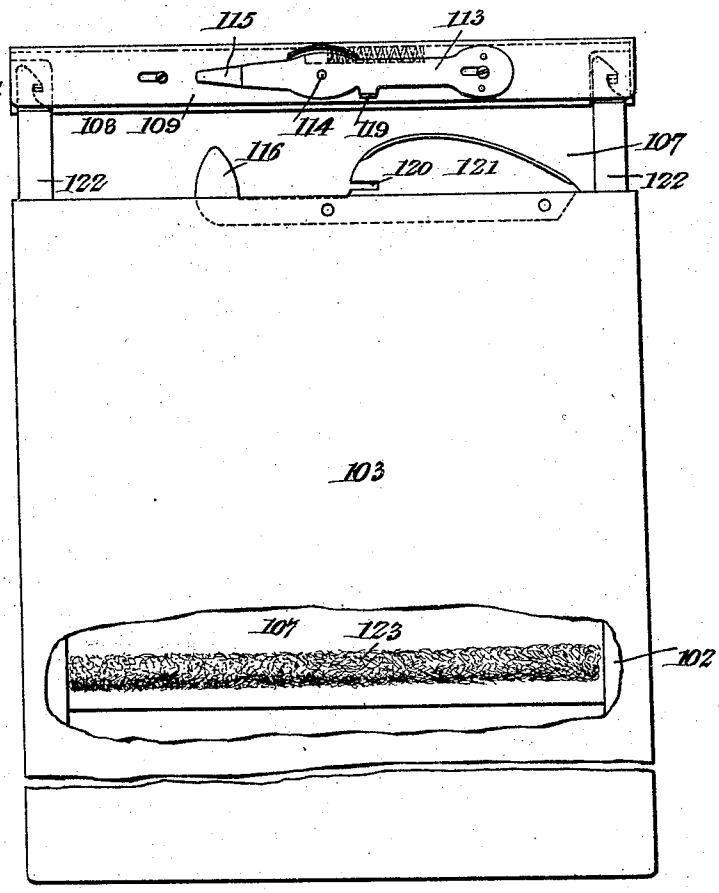


Fig. 9.

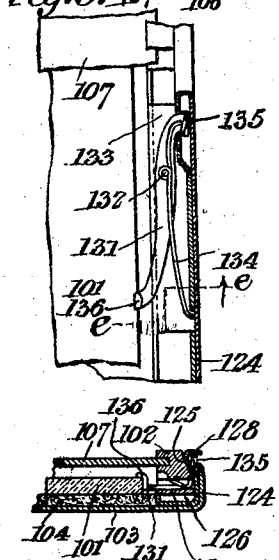


Fig. 10.

Witnesses

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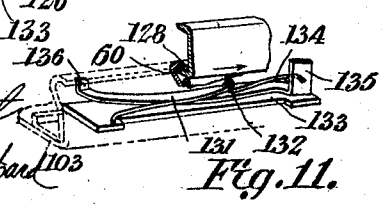


Fig. 11.

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4 SHEETS—SHEET 4.

Fig. 14.

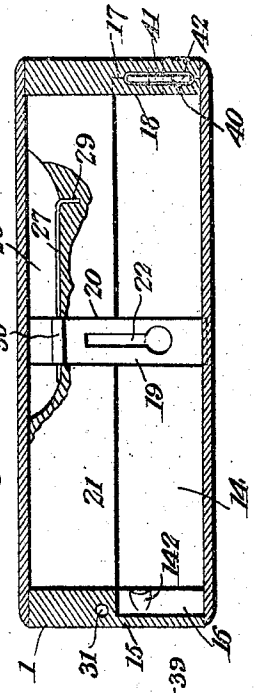


Fig. 13.

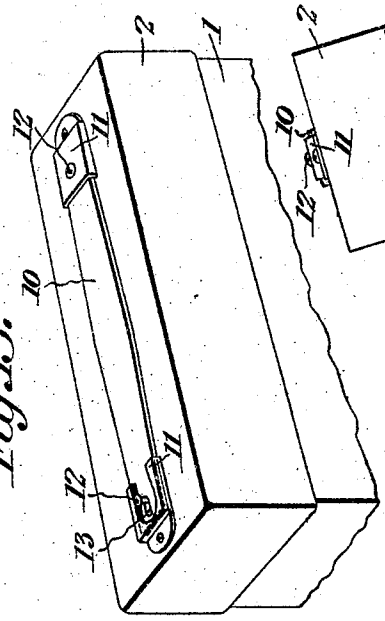


Fig. 15.

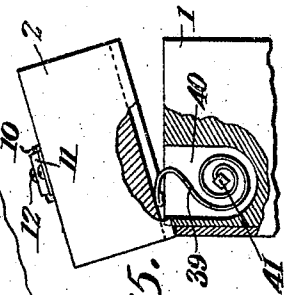


Fig. 16.

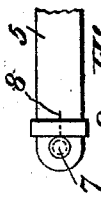


Fig. 12.

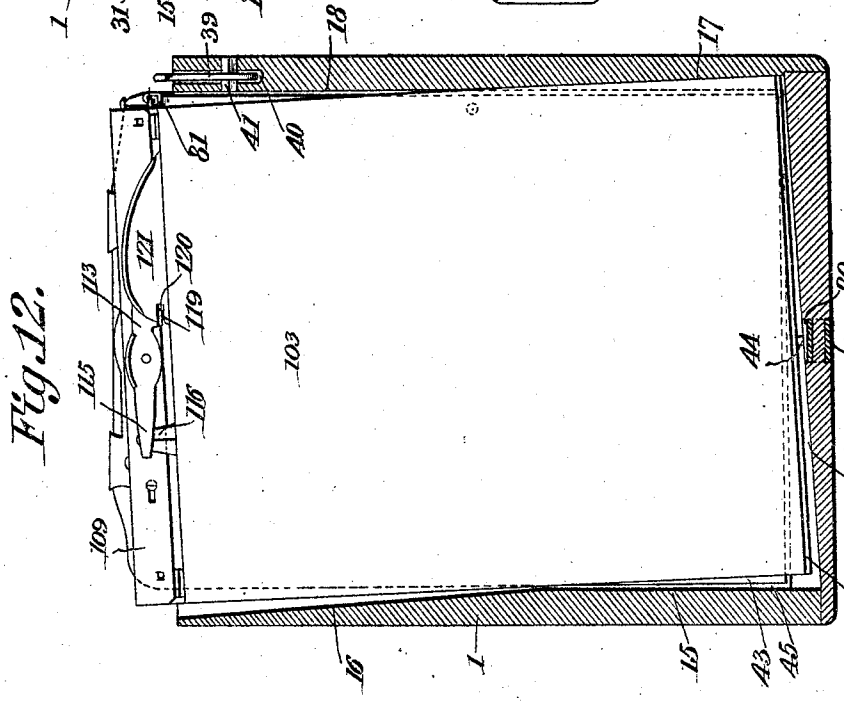


Fig. 17.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR CARRYING AND CHANGING PHOTOGRAPHIC PLATES.

No. 796,447. Specification of Letters Patent. Patented Aug. 8, 1905.

Application filed March 29, 1905. Serial No. 252,764.

To all whom it may concern:

Be it known that I, WILLIAM A. PETERS, a citizen of the United States, residing at Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Apparatus for Carrying and Changing Photographic Plates, of which the following is a specification.

This invention relates to apparatus for carrying a stack or plurality of photographic plates and capable of discharging the plates one at a time to a plate-holder for transfer to a camera, and is designed to provide certain new and useful improvements in the device disclosed by Patent No. 756,402, issued to me April 5, 1904.

In the former embodiment of my invention it is necessary to remove the device from the pocket of the clothing, a satchel, or wherever carried to enable the manipulation of the device for discharging a plate from the magazine into the plate-holder, thereby entailing considerable annoyance in bringing the device into position for use and in returning the same to its original position. In view of this objection it is an important object of the present invention to provide a carrier in the nature of a casing for containing the device and constructed and arranged to enable the manipulation of the device for discharging a plate from the magazine to the plate-holder and also for returning an exposed plate from the plate-holder to the magazine without removing the device from the casing, while at the same time permitting of the convenient engagement and disengagement of the plate-holder with respect to the magazine and discharger. In this connection it is proposed to provide for positively holding the magazine in the carrier, so as to prevent looseness and displacement thereof during the shifting of the discharger without in any manner interfering with the manipulation of the discharger and at the same time to enable the convenient removal of the entire device whenever desired for recharging the magazine or for any other purpose.

Another object of the invention is to effect a clamping of the plates in the magazine, so as to prevent rattling and damage thereto when the carrier is closed and being carried about and to effect automatic release of the plates by the opening of the carrier, so as not to interfere with the proper discharge of the plates under the manipulation of the discharger.

It is furthermore designed to provide for automatically locking the plate-holder with the magazine and the discharger by the operation of engaging the plate-holder with either of these members and to provide for the convenient release of the plate-holder to permit removal thereof.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a perspective view of the present invention, showing the cover of the carrier open and the apparatus exposed for manipulation to discharge a plate from the magazine to the plate-holder. Fig. 2 is a longitudinal sectional view of the apparatus. Fig. 3 is a cross-sectional view taken on the line *a a* of Fig. 2, the magazine, discharger, and plate-holder being broken away to disclose one of the interior faces of the carrier. Fig. 4 is a sectional view taken through the magazine and discharger on the line *b b* of Fig. 2, the position of the plate-holder being indicated by dotted lines. Fig. 5 is an enlarged detail sectional view on the line *c c* of Fig. 4. Fig. 6 is a plan view of the back of the plate-holder with the slide partially drawn, the back of the plate-holder being broken away to disclose a wiper upon the slide. Fig. 7 is an end view of the apparatus removed from the carrier. Fig. 8 is a detail sectional view taken on the line *d d* of Fig. 7. Fig. 9 is a fragmentary sectional view illustrating the means for holding a photographic plate against looseness in the plate-holder. Fig. 10 is a cross-sectional view on the line *e e* of Fig. 9. Fig. 11 is a fragmentary perspective view of the elements shown in Figs. 9 and 10, parts being broken away to show the manner of releasing the plate-clamping device when returning a plate from the plate-holder to the magazine. Fig. 12 is a view similar to Fig.

2, but looking in the opposite direction, with the discharger shifted to receive a plate from the magazine. Fig. 13 is a detail perspective view of the top of the carrier closed. Fig. 14 is a cross-sectional view of the carrier with the cover removed, parts being broken away to show the mounting of the spring for the latch in the bottom of the carrier. Fig. 15 is a detail view, parts being broken away to show the mounting of the spring for automatically snapping open the cover of the carrier. Figs. 16 and 17 are detail views showing the manner of connecting the shoulder-strap to the carrier. Fig. 18 is a detail view of the outer end of one of the slides. Fig. 19 is a fragmentary perspective view of the socketed portion of one of the slides. Fig. 20 is a detail view showing the manner of forming a button upon one of the slides.

Like characters of reference designate corresponding parts in each and every figure of the drawings.

The general features of the magazine, the discharger, and the plate-holder of the present embodiment of my invention are the same as embodied in the patent hereinbefore mentioned, to which reference may be had for a more complete understanding of the operation of the discharger.

In disclosing the present invention I will first describe the carrier for containing the magazine, the discharger, and the plate-holder and afterward set forth the construction and assemblage of said elements, together with their mounting and mode of manipulation within the carrier.

As best shown in Figs. 1, 2, 3, and 12 of the drawings, it will be seen that the carrier 1 is in the nature of a flat rectangular box or casing having an open end which is capable of being closed by a hinged cover 2, which is normally held closed by an appropriate lock or catch 3. It is proposed to have the carrier swung from the shoulders, and therefore it is provided with a suspending-strap made up of two sections, (designated 4 and 5,) which are connected at their upper ends by means of a buckle 6. Upon the exterior of each edge of the case there is a headed stud or button 7, having its head spaced from the case and designed for engagement with the adjacent end of one of the strap-sections, said section being provided with a longitudinal slit 8, through which the head of the stud is designed to be passed, there being a metallic loop 9 slidably embracing the strap and capable of being slid up against the stud, so as to embrace the slitted portion of the strap and prevent separation or opening of the slit, thereby to prevent accidental disconnection of the strap from the stud, while at the same time enabling the disconnection thereof whenever desired. For convenience in opening the lid or cover there is a handle 10, consisting of a strip of leather or the like having each end received within a metallic clip 11, secured to the top of the cover and pierced by a fastening 12, set through the clip and passing through a slot 13, formed longitudinally in the strap. By this arrangement the handle may lie flat upon the top of the cover when not in use, as shown in Fig. 13, while at the same time it is loose enough to permit of the fingers being engaged beneath the handle for opening the cover and for carrying the device in the hand.

When the apparatus is being manipulated to discharge or return a photographic plate, the back of the carrier, or that side to which the cover is hinged, is down and the opposite or front side of the carrier is up, wherefore these two sides of the carrier will be referred to as the "back" or "bottom" and the "front" or "top." The front or upper half of the interior of the carrier has its respective dimensions the same throughout its length; but the back or bottom half varies as follows: The closed end of the bottom half of the carrier is depressed or recessed at 14 throughout its entire length, said recess increasing in depth from one end to the other, as indicated in Fig. 12 of the drawings. At the deep end of this recess the internal upright wall portion 15 of the carrier is straight or at substantially right angles to the end of the carrier for a distance somewhat less than the length of the carrier, and then said wall is recessed so as to incline outwardly, as at 16, to the open end of the carrier, which increases the width of the interior of the carrier toward its open end. The interior wall portion 17, which is opposite the straight wall portion 15, is inclined outwardly from a point intermediate of the ends of the carrier toward the closed end thereof, while the adjacent outer wall portion 18 is substantially parallel with the wall portion 15. By this construction the inner end portion of the bottom half of the carrier is enlarged at one edge, and the outer portion thereof is enlarged at the opposite edge, so as to permit tilting of the discharger, as will hereinafter appear.

Across the inner face of the closed end of the carrier there is an endwise-slidable latch 19, which is let into a recess 20 in the flat portion 21 of the closed end of the carrier, said latch being provided with a longitudinal key-hole-slot 22, with its enlarged end disposed adjacent the back or bottom of the carrier. The outer end of this latch is exposed through an opening 23 in the back or bottom of the carrier and is bent back upon itself to form a hook 24, slidably embracing the adjacent end of the carrier, which is externally recessed, as at 25, to receive the rebent portion of the slidable latch, said recessed portion being cut away, as at 26, at its outer end to permit endwise movement of the latch. A spring-bar 27 is let into a saw cut 28 in the closed end of the carrier opposite the finger-piece formed by the hook 24, one end of this spring being

fixed, as at 29, and its other free end connected to the inner end of the latch 20 by being passed through an eye or tubular bead 30, formed transversely across the latch. This spring yieldably maintains the latch at its outer limit, and said latch may be moved inwardly by pressing upon the finger-piece 24. The purpose of this latch is to hold the magazine against looseness when contained within the carrier, as will be hereinafter explained.

In that edge of the carrier which has the enlargement or cut-away portion 16, as best shown in Figs. 3 and 14, and in front of the cut-away portion there is a passage 31, in which works an endwise-movable rod 32, which has its inner end extending into a recess 33, within which is a flap 34, pivotally supported, as at 35. The inner end of the rod 32 works across the back of the flap, and the latter is provided with an inclined trip projection 36, across which the rod wipes, so as to swing the flap into the interior of the carrier. A substantially U-shaped spring 37 is disposed within the recess and has its free end connected to the inner end of the rod 32, so as to yieldably project the outer end of the rod at the open end of the carrier into position for contact by the cover 2 when closed, thereby to project the flap 34 into the carrier. A spring-pressed plunger 38 is mounted in one end wall of the cover in position to engage the outer end of the rod 32, so as to prevent undue projection of the flap 34 under certain circumstances, as will be hereinafter pointed out.

It is proposed to automatically swing the cover 2 open when the lock or latch 3 is released, and this is accomplished by a spring 39, (shown in Fig. 15,) which is seated in a recess 40, formed in the outer end of that edge of the carrier which is opposite the rod 32. This spring has its inner end coiled about and connected to a pin 41, carried transversely in the recess, while the outer free end 42 of the spring bears against the adjacent edge of the cover, so as to push the latter open when the latch 3 is released.

The magazine 43 consists of a rectangular wooden frame, which is open at its front and back and of a size to fit easily within the front portion of the carrier 1, with its end 43′ resting upon the flat end portion 21 of the carrier and having a headed pin or projection 44 for engagement with the slot 22 of the latch 19, so as to firmly anchor the magazine within the holder and prevent looseness thereof. At the open top or front of the magazine and extending around the end 43′ and the longitudinal sides of the magazine there is a metallic edge strip 45, which is projected beyond the edge of the magazine and turned in to form a flange 46, which overlaps the adjacent edge of the magazine-frame, so as to form a groove or guideway. The end 43ª of the magazine is provided with a longitudinal slot 47 adjacent the open front side of the magazine, and each side of the latter is provided with a longitudinal groove 48 in communication with the slot 47, the inner side of the end 43′ having a longitudinal groove 49 in communication with each of the grooves 48. A light-excluding slide 50 works in the guideway thus produced and is provided at its outer end with a wooden edge strip 51, constituting a handle lying upon the exterior of the frame of the magazine.

To exclude light from gaining access to the interior or plate-receiving chamber of the magazine through the open end of the guideway for the slide 50, a recess 52 is formed in the inner wall of the slot 47 for the reception of a light-excluding packing consisting of a metal plate 53, having one edge secured in a saw cut in the outer wall of the recess and its free portion bowed across the recess and sustained in a projected position by a spring 54, the outer side of the metal strip being provided with a facing 55 of felt or the like to bear against the slide and thereby produce a light-tight joint. When the slide 50 is withdrawn, the felt facing 55 is projected into a seat or recess 56 in the opposite side of the slot 47, the latter slot being produced between a strip of veneer 57 and the outer face of the magazine-frame, which is notched to produce the slot 47 and to which the veneer is secured.

At the discharge side of the magazine, which is opposite the slide 50, there is a discharger consisting of a rectangular frame 58, conforming to the size and shape of the magazine and provided with a metallic edge binding 59, bent over and spaced from the outer side of the frame to form a flange 60, with a channel or guideway between the channel and the frame. The other edge of the binding-strip is bent inwardly to form an inner peripheral flange 61, spaced from the frame of the discharger and engaging a peripheral groove or channel 62, formed externally around the frame of the magazine, this groove being of a depth to permit pivotal shifting of the discharger upon the magazine for separating a plate from the magazine and discharging the same through the discharger in the manner shown and described in my patent hereinbefore referred to. In the inner face of the discharger-frame 58 there is a guideway 63, communicating with a slot 64 in the outer end of the frame for the reception of a slide 65, which is shown withdrawn in Fig. 4 of the drawings. The slot 64 is provided with a light-excluding device, as hereinbefore described, for the slot 47 of the magazine.

For pivotally connecting the discharger with the magazine there is a tube 66, (best shown in Figs. 4 and 5,) which is fixed transversely in one longitudinal side of the magazine and projects beyond the same into an opening 67, formed through the frame of the discharger 58, with the latter adapted to turn

upon the sleeve as a pivotal center. The other end of the sleeve 66 extends to the opposite edge of the magazine-frame, and the middle of the tube is longitudinally slotted, as at 68, in opposite sides thereof. Endwise-movable latch pins or bolts 69 and 70 work in the opposite end portions of the tube or sleeve, with their outer ends beveled and normally projected beyond the open ends of the tube to lock the plate-holder upon either side of the magazine. The means for controlling the latch-pins consists of an endwise-movable rod 71, working in a passage in the frame of the magazine, with its inner end forked or provided with diverged projections 72, working endwise through suitable openings formed transversely through the inner end portions of the latch-pins. The inner ends of the latch-pins and the inner end of the rod 71 are received within a recess 73 in the inner face of the magazine, and this recess is normally closed by a plate 73ª, let in flush with the face of the magazine, so as not to interfere with the photographic plates carried within the magazine. Within the recess 73 there is a fixed cross-bar 74, through which the rod 71 works, there being a helical spring 75 embracing the rod portion within the recess and bearing against a projection 76 upon the rod to yieldably project the latter at the outer edge of the magazine, and thereby partially withdraw the fork members 72 transversely through the latch-pins 69 and 70, which tends to force the latter outwardly or apart, and thereby project their outer beveled ends at the outer faces of the magazine and the discharger. The outer end of the rod 71 projects externally of the magazine-frame and has its projected end inclined laterally, as at 77, and is provided with an outer terminal head or button 78, located concentrically with respect to the rod. By pressing inwardly upon the head or button 78 the rod will be moved inwardly, the fork members 72 moved transversely through the latch-pins 69 and 70, and the latter thereby drawn inwardly so as to bring their outer ends within the outer faces of the magazine and the discharger.

When the discharger is pivotally shifted upon the magazine to trap a single photographic plate between the magazine and the discharger, it is proposed to lock the discharger in this position to enable the withdrawal of the slide 65 to permit of the trapped plate passing through the discharger, and this is carried out by a latch mechanism mounted and arranged as follows: Upon the outer face of the end 43ª of the magazine and adjacent the projected end of the rod 71 there is a latch member 79 in the form of a plate terminally pivoted at its inner end, as at 80, to swing transversely across the magazine with its outer end provided with a laterally-projected catch-head 81, (best shown in Fig. 7,) to engage a keeper 82, formed by the adjacent projected edge of the metallic binding-strip 59 upon the discharger, when said discharger is pivotally shifted to the position indicated by dotted lines in Fig. 7. A helical spring 83 has one end connected to the free end of the latch 79, as shown at 84, while its other end is connected, as at 85, to the discharger, so as to yieldably maintain the catch-head in engagement with the keeper 82 and to automatically return the discharger into alinement with the magazine when the latch is released from the keeper. The free end of the latch is provided with a transverse slot 86, through which the rod 71 projects, with its inclined or cam portion 77 working against that end of the slot which is opposite the keeper 82, so that when the button 78 is pressed the cam portion 77 rides across said end of the slot, and thereby swings the latch 79 out of engagement with the keeper 82, whereupon the discharger is automatically snapped back into its normal position under the influence of the spring 83. Besides controlling the latches 69 and 70 it will now be understood that the rod 71 and the button 78 also control the pivotal latch 79, whereby all three of the latches are simultaneously released by manipulation of the tripping or controlling rod 71. It is also proposed to maintain a tally or record of the number of plates removed from the magazine, and this is accomplished by means of a rotatable numbered dial 87, mounted upon the magazine between the latter and the latch 79, the intermediate portion of the latch being bridged or offset to accommodate the dial, and this offset portion is provided with an opening 88 to successively expose the numbers upon the dial. The peripheral edge of this dial is provided with ratchet-teeth 89 for engagement by the hooked free end of a spring dog or pawl 90, carried by the discharger, so as to pull upon and rotate the dial one space at a time by the pivotal shifting movement of the discharger upon the magazine. A spring-dog 91, carried by the magazine and engaging the toothed periphery of the dial, operates as a check to prevent backward rotation of the dial.

Upon that edge of the latch 79 which is adjacent the discharger 58 there is an upstanding hook 92, (shown in Figs. 1 and 7 of the drawings,) designed to overhang a projection 93, extending from the slide 65 of the discharger, so as to prevent withdrawal of the slide in the normal position of the discharger. When the discharger is pivotally shifted upon the magazine, the projection 93 is withdrawn from beneath the hook 92, and the slide may then be withdrawn to permit of the trapped plate dropping through the discharger.

The means for holding the photographic plates against looseness within the magazine when the latter is in the carrier is best shown in Fig. 2 of the drawings and includes a push-pin or plunger 94, working through an opening 95, formed transversely in the frame of

the magazine at the flap 34 of the carrier, the inner end of the plunger being provided with a laterally-enlarged head 96, received in a recess 97 in the frame of the magazine, the plunger being yieldably pressed outward away from the plates by a leaf-spring 98, having its free end engaging the plunger and its other end secured to the inner face of the magazine, as at 99, there being a recess 100 in the frame to accommodate the spring. When the cover 2 of the carrier is closed, it forces the rod 32 inwardly, which in turn forces the flap 34 toward the magazine and against the plunger 94, thereby forcing its head 96 against the adjacent edges of the stack of photographic plates, one of which has been indicated at 101, whereby said plates are snugly held between the plunger and the opposite side of the magazine against working loose and becoming scratched when the device is contained within the carrier. Upon opening the cover 2 the plunger 94 will automatically spring away from the plates, so as to release the same preparatory to removing one of the plates from the magazine or returning an exposed plate thereto.

The plate-holder for introduction into a camera is best shown in Figs. 6 and 8 and includes a rectangular open frame 102, having a metallic back 103 embracing the edges of the frame. A facing 104 of felt or other material is applied to the inner side of the back to form a cushion for preventing damage to the photographic plates when they drop from the magazine into the plate-holder. One end of the plate-holder is provided with a slot 105, and each side of the frame of the plate-holder is provided in its inner face with a longitudinal groove 106, communicating with the slot 105, so as to form a guideway for a slide 107, the outer end of which is provided with a wooden strip 108, serving as a handle and designed to engage the end of the plate-holder, and thereby limit the inward movement of the slide. This handle 108 is incased within a metal strip 109, folded thereon and provided at its front side with two pairs of buttons, one of which has been shown in Fig. 20 and is formed by a pair of substantially semicircular upstruck portions 110, designed to successively engage the flanged sockets 111 and 112 of the magazine-slide 50 and the discharger-slide 65, so as to prevent accidental edgewise separation of the slides when thus connected. Upon the opposite side of the handle 108 there is a longitudinally-disposed leaf-spring 113, having one end secured to the handle and provided intermediate of its ends with a transverse pin or projection 114, working through a perforation formed in the handle and projected at the other side thereof, said pin being located midway between the opposite ends of the handle. The free end 115 of the spring 113 is drawn away from the handle by engagement with a beveled or inclined trip 116, carried by the adjacent end of the plate-holder frame, so as to withdraw the pin 114 from engagement with a socket or opening 117 in the handle 118 of the discharger-slide 65, whereby the plate-holder may be applied and removed without interfering with the slide 65. However, by pressing inwardly upon the middle of the spring 113 the pin or projection 114 may be projected into the socket 117 of the handle 118 to enable the simultaneous withdrawal of the slides 107 and 65. The spring-arm 113 is provided at its inner edge with a hooked catch 119 to snap into a notch or opening 120 in a finger-piece 121, projected from the adjacent end of the plate-holder, thereby to prevent accidental withdrawal of the slide 107. The catch 119 may be disengaged from the keeper 120 by pressing inwardly upon the spring 113 to enable the withdrawal of the slide whenever desired. The outward movement of the slide 107 is limited by limiting-bars 122, connected to the handle and working in guideways in the sides of the plate-holder in the manner disclosed in my prior patent hereinbefore referred to. The detachable connection between the limiting-bars 122 and the handle 108, which has been indicated in dotted lines and by slots and pins in Fig. 6, is fully disclosed in said patent, and as it in no wise bears upon the features of the present invention it has not been deemed necessary to describe and illustrate its construction in detail. Adjacent the inner end and upon the inner face of the slide 107 there is a wiper-strip 123, of felt or the like, to remove particles of dust from the sensitized face of the plate when the slide is withdrawn preparatory to exposing the plate in a camera.

To enable the plate-holder being slidably connected with either the flange 46 of the magazine or the flange 60 of the discharger, said plate-holder is provided with a guideway constructed as follows and best shown in Fig. 5 of the drawings: The metallic back 103 of the plate-holder extends around the outer edge of the plate-holder frame, as shown at 124, and the inner edge of the frame is cut away, as at 125, the edge of the flange 124 being projected beyond the cut-away portion of the frame. Each longitudinal side of the frame 102 is cut away, as at 126, to form a guideway between the frame and the back 103 for accommodating the adjacent limiting-bar 122 of the slide 107. Within this guideway and fitting snugly against the back 103 is a metallic strip 127, which follows the contour of the back, and its flange 124 then extends across the cut-away portion 125 of the frame and is finally bent back upon itself to form a flange 128, and thereby produce a groove or guideway upon the exterior of the plate-holder between the flanges 128 and 124 for the reception of the flange 60 on the discharger or the flange 46 on the magazine to slidably connect the plate-holder to either of said mem-

bers. For connecting the metallic strip 127 to the frame 102 a plurality of barbs are struck up from the strip, one of such barbs being shown at 129, which is driven into the wooden frame, so as to hold the strip in place. The flange 128 is provided with a perforation 130 to receive either one or the other of the latch-pins 69 and 70, so as to lock the plate-holder against endwise movement when associated with either the magazine or the discharger.

When a photographic plate is in the plate-holder, it is held against looseness therein by the means shown in Figs. 9 and 11, wherein there is a spring-pressed latch 131, mounted in a recess in the inner face of one side of the plate-holder. This latch or lever is fulcrumed intermediate of its ends, as at 132, upon a base-plate 133, fixed in said recess. A spring 134 is coiled around the pivot or fulcrum 132, with one end bearing against the closed edge of the recess and its other free end bearing against an upstanding shoulder 135 to project the other end of the latch or lever into the interior of the plate-holder, said other end having a laterally-offset hooked terminal 136 to engage the adjacent edge of the photographic plate and the front face thereof, so as to prevent looseness of the plate and also to prevent the latter from falling out of the plate-holder when its slide 107 is withdrawn. The part 135 also forms a trip projection lying in the guideway formed between the flanges 128 and 129 and in the path of the flange 60 on the discharger, whereby the latch or lever is thrown by the flange 60 to disengage the latch from the photographic plate to permit of the latter being returned to the magazine.

As shown in Fig. 18, it will be seen that the respective pairs of clips 137, which embrace the handles of the magazine-slide 50 and the slide 65 to form the flanges for the sockets 111, are connected by an integral metal strip 138 upon that side of the slide which is opposite the sockets 111, said strip being slightly bowed away from the handle to give elasticity thereto and provided with an intermediate flanged enlargement or finger-piece 139, there being a hooked projection 140 upon the inner edge of the spring-bar. The hook 140 of the magazine-slide is designed to engage beneath a keeper in the nature of a headed projection 141 upon the outer face of the end 43^a of the magazine, as shown by dotted lines in Fig. 7, so as to prevent accidental displacement of the slide. To remove the slide, the finger-piece 139 is pressed in against the handle, so as to disengage the hook 140 from the keeper 141, whereupon the slide may be withdrawn.

In practice the magazine and the discharger are assembled as shown in Fig. 4, and then they are introduced into the carrier, the outer end of the plunger 94 being accommodated by the cut-away portion 16 of the carrier and a longitudinal channel 142 formed in said cut-away portion and leading to the flap 34. The latch 19 is pressed inwardly, so as to receive the head of the projection 44 through the slot 22, and then the latch is released to permit of it springing back into its normal position for holding the magazine within the carrier. The plate-holder is then introduced into the carrier between the back of the latter and the discharger with each flange 60 of the discharger received in its corresponding guideway on the plate-holder, as best indicated in Fig. 5. When the plate-holder has thus been fitted in place, one of the flanges 60 of the discharger presses against the part 135 of the latch 131, as indicated in Figs. 9 and 11, so as to move the free end 136 of the lever 131 back into the recess 133, so as not to interfere with the depositing of a photographic plate in the plate-holder. The cover or lid 2 of the carrier is then closed, whereby the rod 32 will be forced inwardly, and through the medium of the flap 34 the plunger 94 will be forced into engagement with the adjacent edges of the stack of plates 101, so as to prevent looseness of the latter within the magazine. It will here be explained that the magazine has been previously charged with photographic plates and the plate-holder is empty.

When it is desired to use one of the photographic plates in a camera, the lid or cover 2 is opened, which releases the stack of plates 101 in the magazine. The plate-holder and the discharger are then shifted upon the pivotal connection between the discharger and the magazine, which pivotal shifting is permitted by the respective internal enlargements 16 and 17 at the back or bottom of the carrier. When the discharger is thus shifted, the projection 93 thereon is drawn from beneath the keeper 92, and the slide 65 is thereby freed to be withdrawn. The finger-pieces 139, as best shown in Figs. 7 and 8, are then grasped between the thumb and forefinger, so as to move the projection 114 into the socket 117, and thereby interlock the plate-holder slide 107 with the discharger-slide 65, and these two slides are then simultaneously drawn out, which opens communication from the discharger to the plate-holder and permits the plate entrapped between the magazine and the discharger to drop into the plate-holder. The slides are then pushed in and the finger-piece or button 78 is pushed so as to release the latch 79 from the discharger, and thereby permit of the spring 83 automatically returning the discharger and the plate-holder to their original positions. During these successive manipulations the plate-holder is held against endwise displacement by the latch-pin 70, and in order that the plate-holder may be removed from the carrier it is necessary to press upon the head or button 78, so as to withdraw the latch-pin 70 from engagement with the plate-holder,

whereupon the latter is drawn out of the carrier by pulling outwardly upon the finger-piece 121. The plate-holder, with a single photographic plate therein, is then placed in a camera in the usual manner and the plate exposed by withdrawing the slide 107, which is of course pushed in after the exposure, so as to exclude light from the exposed plate.

After a plate has been exposed the plate-holder may be taken to a dark room and the plate removed for developing or the plate may be returned to the magazine, so as to preserve the plate for development at some future time.

To return an exposed plate into the magazine at the opposite side from which it was originally removed, the plate-holder is introduced into the carrier above or in front of the magazine, and then the slides 50 of the magazine and 107 of the plate-holder, which have the same form of mutual connection, as hereinbefore described, for the slides 107 and 65, are simultaneously drawn out, so as to drop the exposed plate into the magazine upon the top or front of the stack of unexposed plates, after which the slides are closed, and the apparatus is then in condition for removing another unexposed plate from the magazine by withdrawing the plate-holder and returning the same to the carrier at the under side of the discharger. In removing the plate-holder from the carrier in either of its positions below and above the magazine it is necessary to first push in upon the button 78 to release one or the other of the latch-bolts 69 and 70 from the plate-holder, whereupon the latter may be drawn out by pulling upon the finger-piece 121. The shifting of the magazine from the bottom to the top of the carrier, and vice versa, is permitted by reason of the headed projection 44 upon the inner end of the magazine working in the slot 22 of the latch 19, which holds the magazine in the carrier.

It will here be explained that the discharger side of the magazine is always underneath during the manipulation of the apparatus in order that a plate may gravitate from the magazine into the plate-holder when removing a plate and to permit of an exposed plate gravitating from the plate-holder into the top of the magazine when returning a plate thereto.

When returning an exposed plate from the plate-holder into the magazine, it will of course be understood that one of the flanges 46 at the top or front of the magazine engages the latch or lever 131 in the plate-holder, so as to release the same from the plate in order that the latter may be free to drop into the magazine when the slides 50 and 107 are withdrawn.

In the manipulation of the apparatus both for discharging and returning a plate it will be noted that the magazine and the discharger remain in the carrier and it is the plate-holder alone that is removed, thereby materially simplifying the manipulation of the apparatus. As the carrier can remain swung from the shoulders during the manipulation of the apparatus, there is little or no danger of damage to the apparatus and the photographic plates by dropping or upsetting of the apparatus.

When not in use, the entire apparatus is effectually housed within the carrier and is always in condition for immediate use, and all the parts may be conveniently separated for repairs. The magazine is also readily accessible for charging the same, although it is necessary to remove the magazine and withdraw the slide 50.

Having thus described the invention, what is claimed is—

1. In an apparatus of the character described, the combination of a carrier-case, a magazine contained therein and a plate-discharger mounted upon the magazine and shiftable thereon to discharge a plate therefrom, the interior of the carrier-case being formed to permit shifting of the discharger while the latter and the magazine are in the carrier.

2. In an apparatus of the character described, the combination of a carrier-case, a plate-magazine contained therein, and a plate-discharger mounted upon the magazine and shiftable thereon to discharge a plate therefrom, that portion of the carrier which receives the discharger being laterally enlarged to permit shifting of the discharger while in the carrier.

3. In an apparatus of the character described, the combination of a carrier-case, a magazine contained therein, and a plate-discharger mounted upon the magazine and pivotally shiftable thereon to discharge a plate therefrom, that portion of the carrier which incloses the discharger being laterally enlarged upon one side at the open end of the carrier and the opposite side of the carrier being laterally enlarged at the other end thereof to permit pivotal shifting of the discharger while in the carrier.

4. In an apparatus of the character described, the combination of a carrier-case having a removable closure, a plate-magazine contained therein, and means controlled by the closure to hold plates in the magazine against looseness when the closure is closed.

5. In an apparatus of the character described, the combination of a carrier-case having a removable closure, a plate-magazine contained therein, plate-clamping means carried by the magazine, and a push-rod mounted upon the carrier in coöperative relation with the plate-clamping means and disposed in the closing path of the closure to render the plate-clamping means active when the closure is closed.

6. In an apparatus of the character described, the combination of a carrier-case having a removable closure, a plate-magazine con-

tained therein, plate-clamping means including a plate-engaging plunger working through one side of the magazine, a swinging flap mounted within the carrier in coöperative relation with the outer end of the plunger and provided with a lateral trip projection, and a push-rod mounted upon the carrier with its inner end in coöperative relation with the trip projection of the flap and its outer end in the closing path of the closure to force the plunger inwardly.

7. In an apparatus of the character described, the combination of a carrier-case, a plate-magazine carried therein, means to detachably hold the magazine within the carrier, a plate-discharger carried by the magazine and shiftable thereon to discharge a plate, and a plate-holder removably mounted upon the discharger to receive a plate therefrom.

8. In an apparatus of the character described, the combination of a carrier-case, a magazine contained therein, a plate-discharger mounted upon the magazine and shiftable thereon to discharge a plate therefrom, a plate-holder carried removably by the discharger to receive a plate therefrom, and means to detachably retain the magazine within the carrier consisting of a headed projection upon the magazine and a slidable spring-pressed latch having a keyhole-slot for the reception of the headed projection.

9. In an apparatus of the character described, the combination of a carrier-case, a magazine contained therein, means to detachably hold the magazine against movement in the carrier, a plate-discharger mounted upon the magazine and shiftable thereon to discharge a plate therefrom, a plate-holder removably carried by the discharger to receive a plate therefrom, that portion of the carrier which contains the discharger and the plate-holder being laterally enlarged to permit shifting of the discharger and the plate-holder while in the carrier.

10. In an apparatus of the character described, the combination of a carrier-case having a closure, a plate-magazine contained within the carrier, means to hold the magazine against movement in the carrier, a plate-discharger mounted upon the magazine and shiftable thereon to discharge a plate therefrom, a plate-holder removably carried by the discharger and shiftable therewith to receive a plate therefrom, that portion of the carrier which incloses the discharger and the plate-holder being enlarged to permit shifting of these members when in the carrier, plate-clamping means carried by the magazine, and a push-rod mounted upon the carrier in cooperative relation with the plate-clamping means and in the closing path of the closure to render the plate-clamping means active when the closure is closed.

11. In an apparatus of the character described, the combination of a carrier-case, a plate-magazine contained within the carrier, a plate-discharger carried by the magazine and shiftable thereon to discharge a plate therefrom, a removable plate-holder capable of successive engagement with the outer sides of the discharger and the magazine, the discharger and the plate-holder being shiftable when in the carrier to receive a plate from the magazine, and the magazine and discharger being laterally movable within the carrier to permit of the plate-holder being transferred from the discharger to the magazine and vice versa.

12. In an apparatus of the character described, the combination of a carrier-case, a plate-magazine carried therein and having a laterally-slidable detachable connection with the carrier to prevent endwise looseness thereof, a plate-discharger mounted upon the magazine and shiftable thereon to discharge a plate therefrom, and a removable plate-holder capable of alternate engagement with the discharger and the magazine, the magazine being movable upon its slidable connection with the carrier to accommodate the plate-holder first at one side and then at the opposite side of the magazine.

13. In an apparatus of the character described, the combination of a plate-magazine, a discharger mounted upon the magazine and shiftable thereon to discharge a plate therefrom, a plate-holder removably carried by the discharger for receiving a plate therefrom, means to lock the plate-holder upon the discharger, and releasing means therefor.

14. In an apparatus of the character described, the combination of a plate-magazine, a plate-discharger mounted thereon and shiftable to discharge a plate therefrom, a plate-holder removably carried by the discharger, locking means to prevent looseness of the plate-holder upon the discharger, and a releaser for said locking means mounted upon the magazine.

15. In an apparatus of the character described, the combination of a plate-magazine, a plate-discharger mounted thereon and shiftable to discharge a plate therefrom, a plate-holder removably carried by the discharger, a latch to hold the plate-holder against looseness upon the discharger, and a releasing push-rod mounted upon the magazine in operable relation to the latch.

16. In an apparatus of the character described, the combination of a plate-magazine, a plate-discharger mounted upon the magazine and shiftable thereon to discharge a plate therefrom, a plate-holder removably carried by the discharger, an endwise-movable latch-pin mounted upon the magazine and working through the discharger for engagement with the plate-holder to lock the same upon the discharger, and a releasing push-rod mounted

upon the magazine in operable relation to the latch-pin for withdrawing the latter from the plate-holder.

17. In an apparatus of the character described, the combination of a plate-magazine, a plate-discharger mounted thereon and pivotally shiftable to discharge a plate therefrom, a plate-holder removably carried by the discharger and shiftable therewith, and means located at the pivotal axis of the discharger for removably interlocking the plate-holder therewith.

18. In an apparatus of the character described, the combination of a plate-magazine, a plate-discharger carried by the magazine, a tubular pivotal connection between the magazine and the discharger, the discharger being shiftable upon its pivotal connection with the magazine to discharge a plate therefrom, a removable plate-holder mounted upon the discharger, and means working in the tubular pivotal connection for detachably interlocking the plate-holder with the discharger.

19. In an apparatus of the character described, the combination of a plate-magazine, a plate-discharger mounted upon the magazine, a tubular pivotal connection between the magazine and the discharger, said discharger being pivotally shiftable upon its pivotal connection to discharge a plate from the magazine, a plate-holder removably mounted upon the discharger to receive a plate therefrom, a latch-pin working in the tubular pivotal connection for locking the plate-holder upon the discharger, and a releasing push-rod mounted upon the magazine in coöperation with the latch-pin to withdraw the latter from the plate-holder.

20. In an apparatus of the character described, the combination of a plate-magazine, a plate-discharger mounted thereon and shiftable to discharge a plate therefrom, a plate-holder removably carried by one of these members and transferable from one to the other, means for detachably interlocking the plate-holder with each of the magazine and discharger members, and releasing means mounted upon the magazine.

21. In an apparatus of the character described, the combination of a plate-magazine, a plate-discharger, a tubular pivotal connection between the magazine and the discharger, a plate-holder removably carried by one of these members and transferable from one to the other, opposite latch-pins working in the pivotal connection for detachably interlocking the plate-holder with each of the magazine and discharger members, and a releasing push-rod mounted upon the magazine in operable relation with the latch-pins to withdraw the same and release the plate-holder.

22. In an apparatus of the character described, the combination of a plate-magazine, a plate-discharger carried by the magazine and shiftable thereon to discharge a plate therefrom, means to lock the discharger in its shifted position, a removable plate-holder carried by the discharger, means to detachably lock the plate-holder to the discharger, and a controller common to the two locking means for releasing the discharger and the plate-holder.

23. In an apparatus of the character described, the combination of a plate-magazine, a discharger mounted thereon and shiftable upon the magazine to discharge a plate therefrom, a latch carried by the magazine for engagement with the discharger to lock the latter in its shifted position, a plate-holder removably carried by the discharger, a latch to detachably lock the plate-holder to the discharger, and a push-rod mounted upon the magazine in coöperative relation with the two latches for releasing the same.

24. In an apparatus of the character described, the combination of a magazine, a discharger mounted thereon and shiftable to discharge a plate therefrom, a latch mounted upon the magazine for engagement with the discharger to lock the same when shifted, and a push-rod mounted upon the magazine and having a cam portion engaging the latch to release the same from the discharger.

25. In an apparatus of the character described, the combination of a plate-magazine, a plate-discharger carried thereby and shiftable thereon to discharge a plate therefrom, a pivotal latch mounted upon the magazine for engagement with the discharger to lock the same when shifted, said latch being provided with a transverse slot, and a push-rod having a cam portion working through the slot of the latch in frictional engagement with one end of the slot to disengage the latch from the discharger.

26. In an apparatus of the character described, the combination of a plate-magazine having a slide, a removable plate-holder mounted upon the magazine and provided with a slide, a spring-arm having one end connected to the plate-holder slide and provided with a projection for engagement with the magazine-slide to interlock the two slides for simultaneous withdrawal, and a trip member carried by the plate-holder for engagement with the spring-arm when the plate-holder slide is closed to hold the projection out of engagement with the magazine-slide.

27. In an apparatus of the character described, the combination of a plate-magazine having a slide, a removable plate-holder mounted upon the magazine and provided with a slide, a spring-arm carried by the plate-holder slide and having a projection for engagement with the magazine-slide to interlock the slides for simultaneous withdrawal, a

keeper upon the plate-holder, a catch upon the spring-arm for engagement with the keeper, and a trip carried by the plate-holder for engagement with the spring-arm to hold its catch in engagement with the keeper and maintain its projection out of engagement with the magazine-slide.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM A. PETERS.

Witnesses:

EMORY H. BOGLEY,

C. E. DOYLE.