No. 771,939. PATENTED OCT. 11, 1904.

J. SCHAUB.

PHOTOGRAPHIC PLATE HOLDER.

APPLICATION FILED NOV. 6, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

FIG. 1.

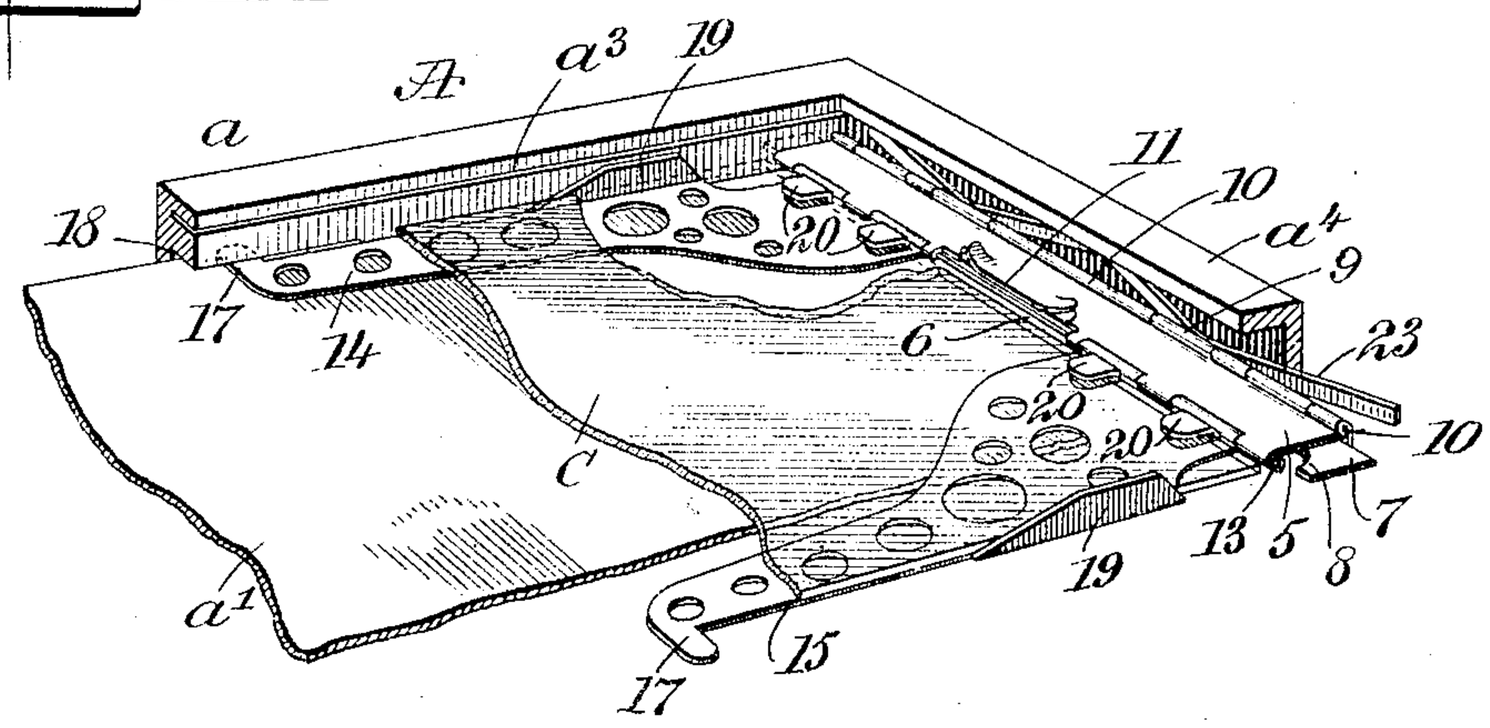


FIG. 2.

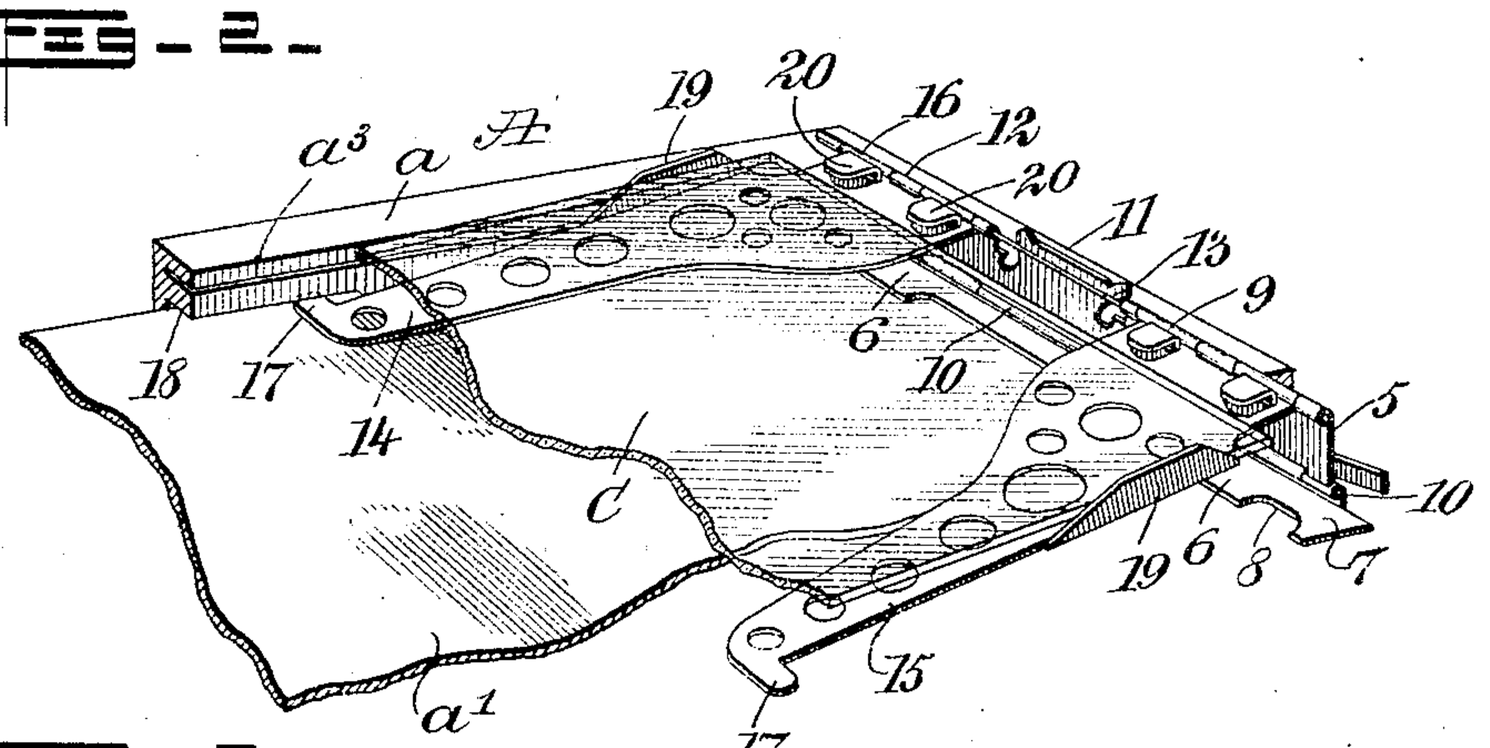


FIG. 3.

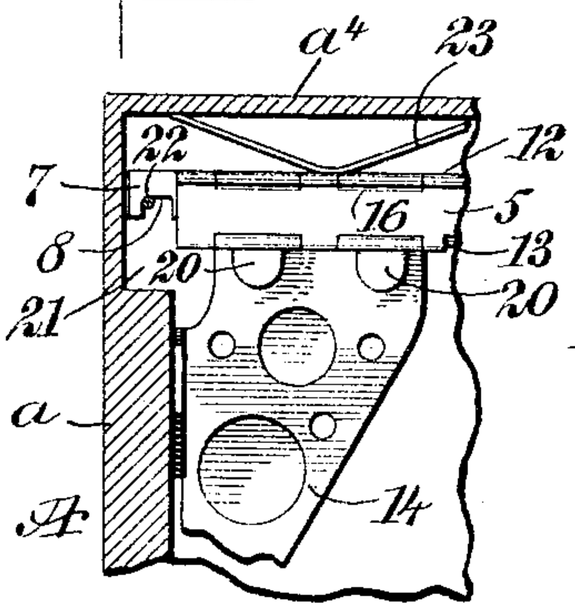
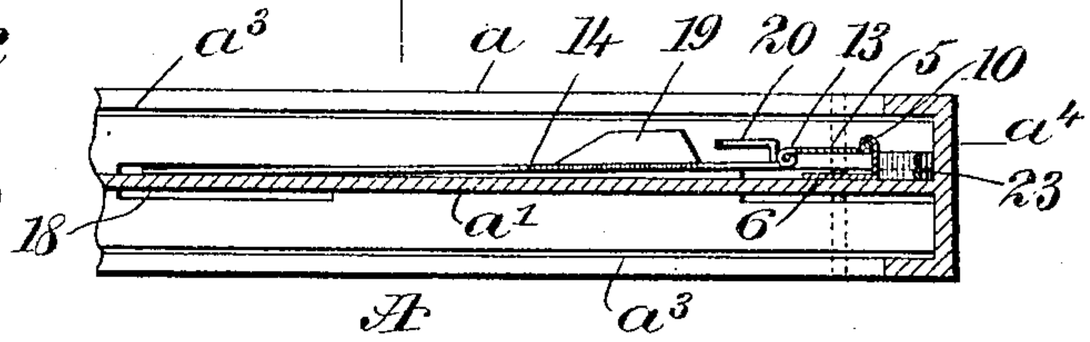


FIG. 4.



WITNESSES:

H. C. Abbott

H. J. Berukoff

INVENTOR

Jacob Schaub

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ATTORNEYS

No. 771,939. PATENTED OCT. 11, 1904.

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PHOTOGRAPHIC PLATE HOLDER.

APPLICATION FILED NOV. 6, 1903.

NO MODEL. 2 SHEETS—SHEET 2.

FIG. 5.

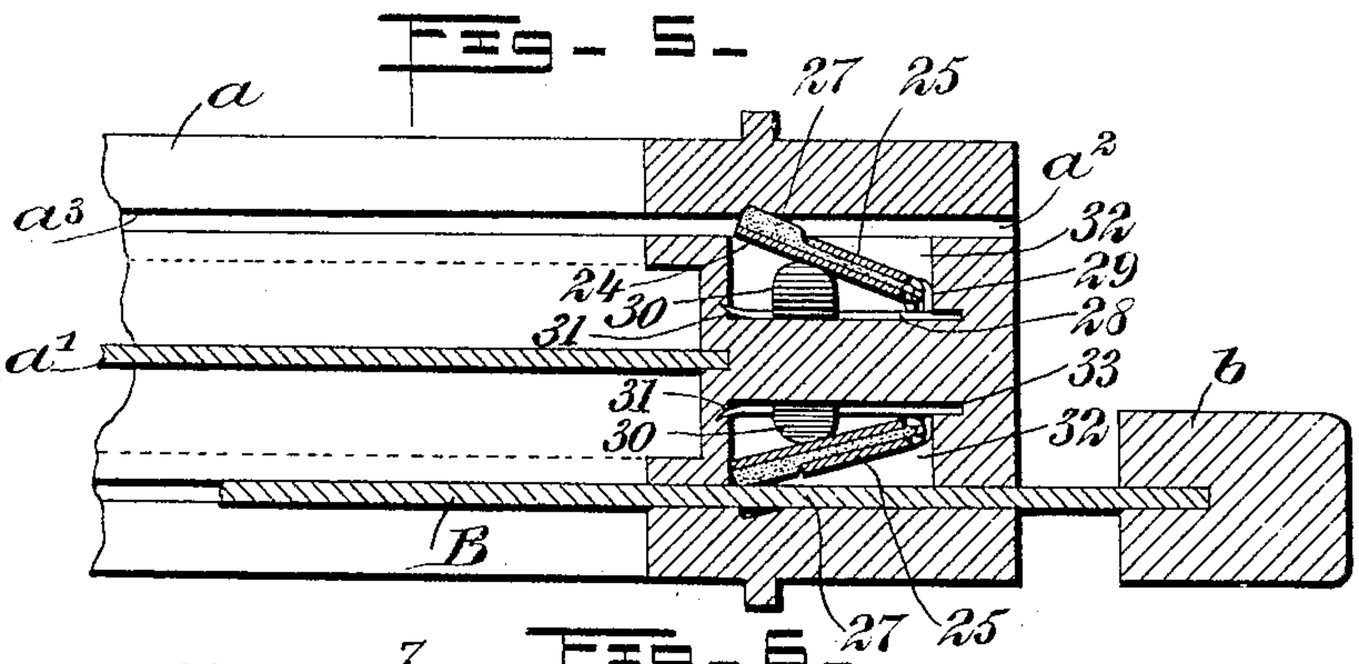


FIG. 6.

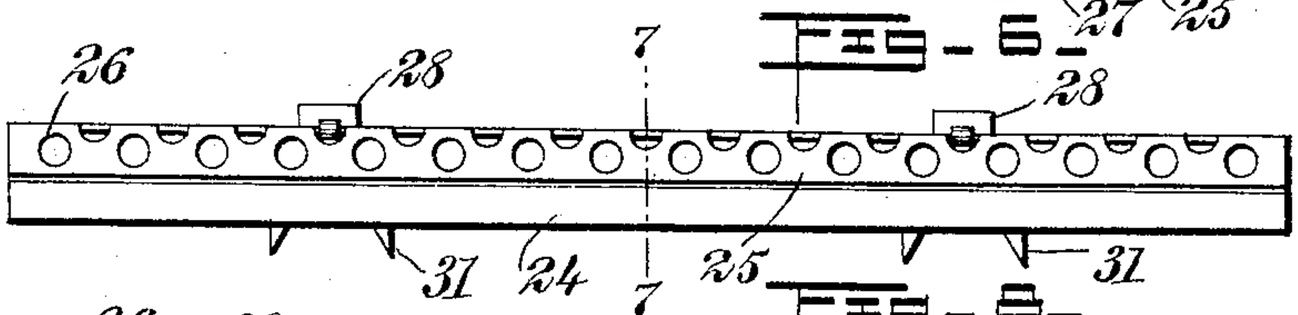


FIG. 7.

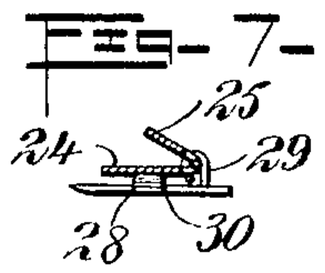


FIG. 8.

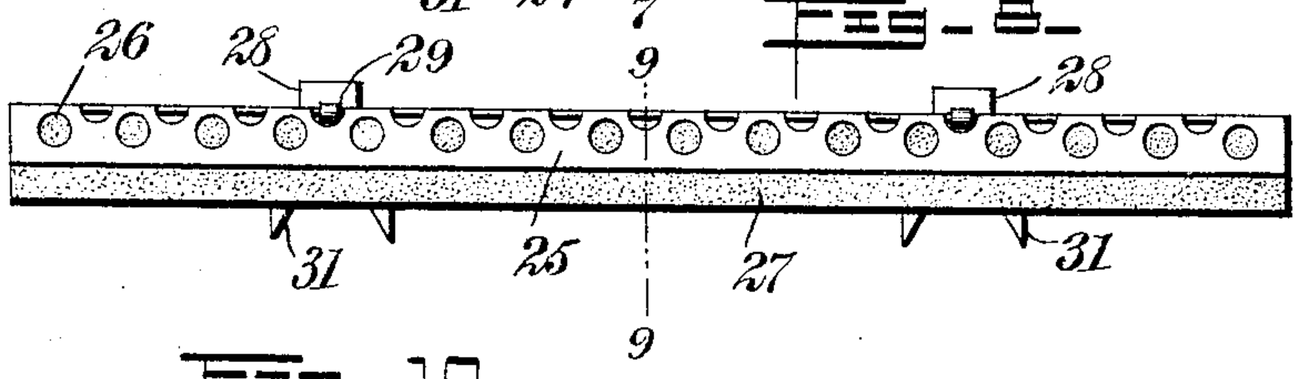


FIG. 9.

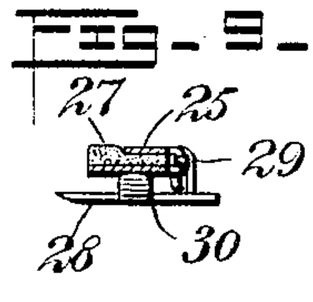


FIG. 10.

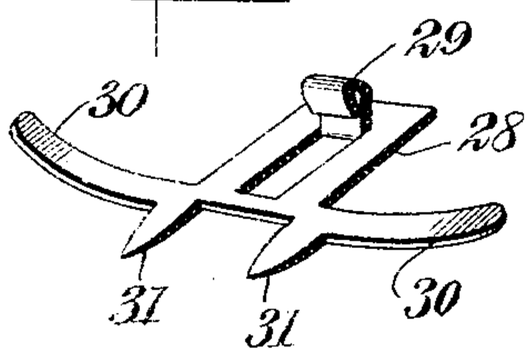


FIG. 11.

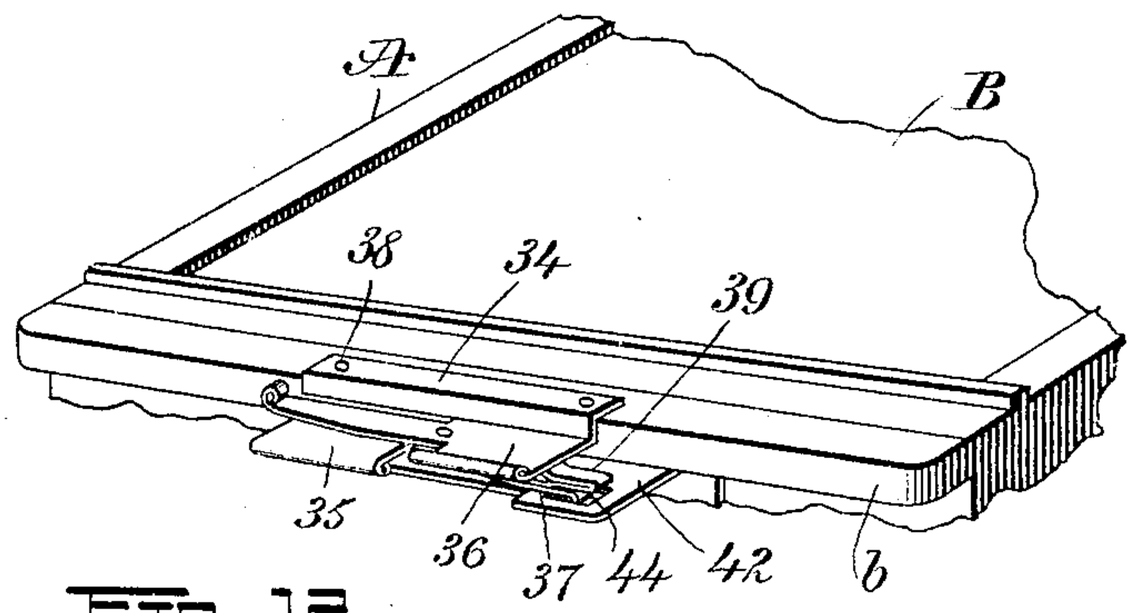
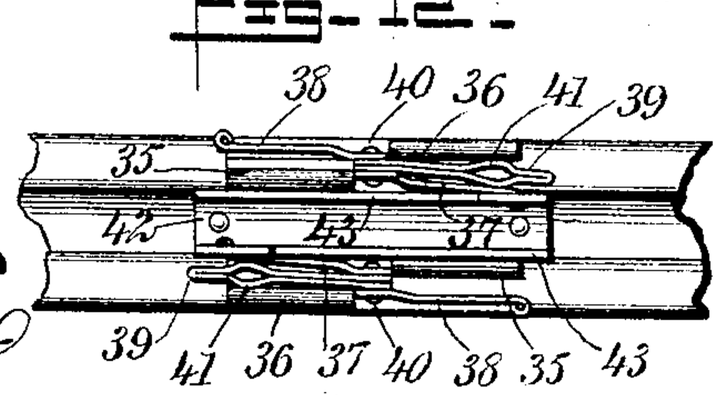


FIG. 12.



WITNESSES:

H. C. Abbott

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No. 771,939. Patented October 11, 1904.

UNITED STATES PATENT OFFICE.

JACOB SCHAUB, OF LOGAN, UTAH.

PHOTOGRAPHIC-PLATE HOLDER.

SPECIFICATION forming part of Letters Patent No. 771,939, dated October 11, 1904.

Application filed November 6, 1903. Serial No. 180,044. (No model.)

To all whom it may concern:

Be it known that I, JACOB SCHAUB, a citizen of the United States, and a resident of Logan, in the county of Cache and State of Utah, have invented a new and Improved Photographic-Plate Holder, of which the following is a full, clear, and exact description.

My invention relates to improvements in holders for photographic dry-plates, the same being susceptible of embodiment as a single or a double plate-holder.

Ordinary plate-holders of commerce are equipped with a plate-receiving groove and a spring to hold the plate against movement; but difficulty and annoyance is experienced in removing an exposed plate from the holder, as well as in placing a plate therein, so that the fingers not infrequently come in contact with the sensitized surface and leave marks or impressions thereon.

One of the improvements which I have made resides in a device located in the plate-chamber by which a plate can be easily and quickly inserted or removed without touching the sensitized surface thereof, such device serving also as a means for locking the plate against movement when fully inserted and tending to prevent accidental dropping of the plate during the manipulation of the holder in inserting or removing the plate.

Another improvement which I have made is a novel form of light-excluding flap which is held by yielding pressure against the slide of the plate-holder, said flap being self-adjusting to the plate-holder slide and the flap being equipped with a layer of fabric which is held securely in place, so as to have engagement with the slide.

A further improvement resides in a novel type of slide-lock adapted to positively retain the slide in its closed position and serving as a handle for the convenient withdrawal of the slide. The lock is reversible, so as to confine the slide in either of its inserted positions, and when two locks are used on a double plate-holder they afford a convenient handle by which the holder may be inserted into and withdrawn from a camera, thus minimizing the tendency to break the rubber slides from the exposed wooden strips usually employed on such slides.

Further objects and advantages of the invention will appear in the course of the subjoined description, and the actual scope thereof will be defined by the annexed claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional perspective view of a plate-holder with certain parts broken away and showing the plate receiving and locking shelf in a closed position, so as to confine a plate against movement within the holder. Fig. 2 is a view similar to Fig. 1 with the plate-locking shelf in a raised position adapted to lift a plate or film to a position where it can be conveniently grasped at its side edges, thus allowing the plate to be easily removed from the holder without scratching or marring the sensitized surface of the plate. Fig. 3 is a sectional plan view through a part of the plate-holder and a portion of the plate-shelf, illustrating the means employed for retaining the hinge of the plate-shelf within a recessed part of the holder. Fig. 4 is a vertical longitudinal sectional view taken through a portion of a double plate-holder and showing the plate receiving and locking shelf in a closed or lowered position. Fig. 5 is another longitudinal sectional view through a double plate-holder, illustrating the individual light-excluding flaps adapted to coöperate with the separate slides of said holder. Fig. 6 is a plan view, on an enlarged scale, of the metallic part of the flap removed from the plate-holder. Fig. 7 is a cross-section on the line 7 7 of Fig. 6. Fig. 8 is a plan view of the flap shown by Fig. 6 with a plush fabric inserted and held therein. Fig. 9 is a cross-section on the line 9 9 of Fig. 8. Fig. 10 is an enlarged detail perspective view of a form of spring-hinge associated with the flap shown by Figs. 7 to 9, inclusive. Fig. 11 is a perspective view of a portion of a plate-holder, illustrating a novel form of slide-lock; and Fig. 12 is an end elevation of a double slide-lock which is associated with a double plate-holder.

The plate-holder A in its general construction is similar to ordinary plate-holders extensively used in the art of photography, and in the drawings this device is shown as a double plate-holder adapted to contain two dry-plates, which are arranged back to back; but I would have it understood that the improvements which I have made may be embodied individually or collectively in the construction of single plate-holders, if desired.

The plate-holder consists of a marginal frame *a*, which is divided into two compartments by a partition *a'*. In one end of the plate-holder are slide-receiving slots a^2, which are coincident with the slide-grooves a^3 in the sides of the holder-frame. The slides B are adapted for insertion into or withdrawal from the slotted and grooved parts of the holder-frame, and, as is usual in the art, each slide is equipped with a flange or head *b*, the latter being adapted for abutting engagement with the slotted end portion of the frame. The end a^4 of the frame opposite to the slotted end for the insertion of the slide is solid or unbroken, as represented by Figs. 1 to 4, inclusive, of the drawings, and in the compartments of the holder and at the solid end a^4 thereof I provide the devices by which the plate may be inserted, locked, and removed without requiring the operator to touch with the fingers the sensitized surface of the plate. The plate adjusting and locking devices which are individually provided in the compartments of the double holder are identically the same in construction and arrangement, so that a description of one device will answer for the other. This device includes in its construction a novel form of hinge comprising two longitudinal members or leaves 5 6, each made of sheet metal by stamping or striking it up in the required form. The member 6 of the hinge is provided at its end portions with tongues 7, which have recesses or notches 8, substantially as shown by Fig. 3. The two members 5 6 are formed with eyes or loops 9, which are disposed in alined relation, and through these eyes passes a longitudinal hinge-rod 10, the latter serving to connect the leaves or members 5 6 hingedly together. The member 5 is furthermore provided with a finger-piece 11, which is stamped or bent from the middle portion of the leaf, and said member is also provided at its free edge with a series of eyes 12, the same being spaced for a purpose which will presently appear and receiving another hinge-rod 13, the latter extending longitudinally along the free edge portion of the leaf 5 and being movable or adjustable therewith. The leaf 5 is operatively associated with members 14 15, which constitute the plate-shelf, each member being stamped or struck up in a single piece of metal and of any appropriate form or size, substantially as shown by the drawings. It will be understood, however, that I do not limit myself to any particular form, size, or material, because I reserve the right to modify the shelf in these particulars. The members 14 15 of the shelf are provided with eyes 16, which are fitted in spaces between the eyes 12 of the leaf 5 and are loosely mounted on the hinge-rod 13, the latter being common to the two members of the shelf, although said shelf members may be pivoted individually to the movable leaf of the hinge. The members of the shelf are connected with the leaf 5, so as to be adjustable therewith, and these members are fitted slidably to the frame of the plate-holder in order to be held in position thereby. I prefer to make guide-lugs 17 at the free ends of the members 14 15 and to fit these lugs slidably in narrow guide-channels 18, which are provided in the sides of the holder-frame just above the partition *a'* and below the slide-grooves a^3 thereof, whereby the members 14 15 are limited to slidable movement within the holder-frame when the leaf 5 of the hinge is raised and lowered. Said shelf members are furthermore provided at their side edges with short longitudinal flanges 19, adapted to prevent sidewise movement of the plate in two directions, and the shelf members are furthermore provided with plate-retaining lips 20, the latter being formed in the members quite close to the points where they are hinged to the movable leaf 5, as shown by Figs. 1 to 3, inclusive. The flanges 19 project upwardly from the shelf members, and when the shelf is lowered to its normal position in the plate-holder these flanges lie just below the slide-grooves a^3, whereby the flanges 19 are adapted to prevent the accidental opening of the device by the flanges bearing against the slide.

The plate adjuster and lock just described is fitted in the closed end portion of the holder-frame, so as to have a limited movement or play therein, and to this end I provide the sides of said frame with comparatively deep channels or recesses 21. (See Fig. 3.) These recesses receive the tongues 7 of the lower member 6, forming a part of the hinge, and in the recesses 8 of the tongues are adapted to fit fixed stop-pins 22, the latter serving to confine the leaf against accidental displacement within the holder and to limit the movement of the leaf and plate-shelf in one direction under the action of a spring 23. This spring is fitted between the hinged leaves and the closed end a^4 of the holder, and, as shown by Figs. 1 and 3, the spring is made from a strip or length of metal which is bent at a number of points to have engagement with the closed end a^4 and the movable hinge, although I may employ other forms of spring devices to impel the plate adjusting and locking device for a limited distance toward the slotted end a^2 of the holder-frame.

It is well understood by those skilled in the art that a sensitized photographic film or plate

should never come in contact with the fingers. Much less should it be scratched or scraped, if it is desired to obtain the best results. Ordinary holders which are equipped with springs or spring-pressed bars that are to be depressed parallel with the plate afford opportunities for the plate being touched with the fingers, and to illustrate this point it is desired to explain that in loading a holder of ordinary construction the same is held in almost a perpendicular position with the spring or spring-bar at the bottom portion of the holder. When the plate is inserted, an end edge thereof rests on the spring or spring-bar, and the thumb-nail is employed to depress the spring and allow the plate to fall by gravity into the lower groove of the holder; but it frequently happens that the dry-plate refuses to slide into position by its weight alone, and the fingers are employed to press the plate into the desired position. It is of course understood that these operations must be performed in the dark. By unskilled persons or amateurs considerable difficulty is sometimes encountered in loading the plate into the holder and more difficulty is experienced in removing the plate from the holder. In consequence of these objections the fingers frequently come in contact with the plate so as to mar or scratch the surface thereof. In removing the plate from the holder it is inclined toward the thumb which is engaged in the operation of depressing the spring, so as to allow the upper edge of the plate to leave the holder, whereupon it must be caught with the fingers of the other hand. The liability of touching the plate is greatly increased when the plate obstinately refuses to leave the holder by gravity, and the only recourse the operator then has is to shake or pound the holder until the plate flies out, considerable skill being required on the part of the operator to keep control of the plate. To overcome these practical difficulties is one object of my improved construction, wherein I have embodied a double hinge or knuckle joint in connection with a shiftable plate-shelf.

In the operation of inserting a plate the photographer should first press upwardly on the finger-piece 11, so as to lift the leaf 5 and draw the shelf upwardly from the partition a' and toward the closed end a^4 of the holder, the several parts taking the position shown by Fig. 2. The plate can now be dropped into the holder, so as to rest upon the shelf and lie between the flanges 19 thereof, one edge portion of the plate being close to the lips 20 on the members of the shelf. The operator now depresses the finger-piece 11, so as to close the leaf 5 toward the leaf 6 in the position shown by Fig. 1, and the operation of depressing said leaf 5 imparts slidable movement to the members 14 15 of the shelf and closes the lips 20 over the end edge of the inserted plate. The other end edge of the plate slides toward the slotted end a^2 of the holder, and during the lowering movement of the shelf and the leaf the spring 23 is compressed by the resistance offered by the plate during the operation of lowering the leaf 5 and the shelf, so as to make the parts take the closed relation shown by Figs. 1 and 4. The plate is merely laid in the holder, and the simple operation of pressing downward on the thumb-piece 11 adjusts the several parts, so as to move the plate to its closed position and lock it against movement. The knuckle-joint device or hinge offers increased spring-power against the edge of the plate, and when closed the spring is practically at the limits of its motion, and thus the plate cannot be accidentally dislodged in any way after the slide is inserted. In these operations the fingers are not required to move along the surface of the plate; but the pressure is brought against its edge by the knuckle-joint, the fingers doing the work at right angles to the plate. The device closes with a snap, because the center line of the spring-pressure is above the center line of the plate, and by utilizing this principle the plate is held firmly in position, and the device has no tendency to bulge out the slide when the latter is inserted. To remove the plate from the holder, the slide is withdrawn, and, if desired, the holder may be held in the hand so that the plate faces upwardly. The operator now moves the holder and its contained plate with a quick movement in one direction, thereby making the leaf 5 and the plate-shelf move outwardly to the inclined position of Fig. 2, the leaf 5 passing the center line of the hinge. The plate-shelf may also be lifted by pressing upwardly against the lip 11. During this quick movement of the plate-holder or the lateral movement by pressure on the lip 11 the lips 20 remain in engagement with the plate, so that it cannot accidentally fly out of the holder, and when the leaf is moved beyond the center line of the hinge and the shelf is drawn to an inclined position the operator can readily thrust the thumb-nail below the flange 11, thus permitting the leaf 5 to be lifted and the shelf to be raised, so as to move the plate above the plane of the holder-frame, whereby free access can be obtained to the side edges of the plate for the purpose of holding it in the hand without permitting the fingers to touch the sensitized surface.

I will now proceed to describe the improved construction of the light-excluding flap, which is adapted to have frictional engagement with the slide B and to conform to irregularities therein during the operations of inserting or removing the slide, thereby effectually excluding the admission of light-rays to the holder. The flap 24 is shown by Figs. 5 to 9, inclusive, as being made from a single piece of sheet metal, which is doubled upon

itself to form a flange 25. The base 24 of the flap is practically imperforate throughout its length; but the flap is provided with a plurality of rows of perforations 26, two of such rows being shown by Figs. 6 and 8. One row of perforations 26 is in the flange 25 of the flap, and the other row is in the doubled edge of the flap, as shown. The flap is equipped with a piece of fabric 27, the latter being in the nature of plush or other pile fabric, which is laid on the imperforate base 24 of the flap so that the pile will pass through the openings 26 when the flange 25 is pressed firmly upon the fabric and toward the base in the position shown by Fig. 9. The perforated flange of the flap is somewhat narrower than the base 24, thereby leaving a portion of the pile fabric exposed, as indicated by Figs. 8 and 9, the pile of the fabric passing through the perforations 26, so as to be exposed along with the uncovered surface of the fabric. With each flap I associate a plurality of hinges, which are constructed to exert spring tension on the flap in a way to press the latter against the slide and make the flap conform or adjust itself to inequalities in the surface of the slides. Each hinge 28 is provided with a loop or eye 29, adapted to engage loosely with a perforated part of the flap, at the folded edge thereof. The hinge 28 is furthermore provided with spring-tongues 30, which extend in opposite directions from said hinge, the latter being furthermore provided with prongs or spurs 31, extending from the hinge at right angles to the plane of the spring-tongues. The slotted end of the holder-frame is provided with recesses 32, which have communication with the slots a^2, as shown by Fig. 5, and in each recess 32 is arranged the improved flap and its spring-hinge. The hinge is placed in the bottom or the closed side of the recess 32 so that one edge of the hinge will be received in a shallow groove 33, while the spurs or prongs 31 of said hinge are adapted to be embedded in a closed side wall of the recess, thereby fastening the hinge firmly in place within the recessed end of the holder-frame. The flap takes or assumes a diagonal position within the recess, so as to incline from the hinge toward the slot a^2 and present the exposed face of the fabric for engagement with the slide, and this flap is pressed to its position by the spring-tongues 30 of the hinge. It will be observed by reference to Figs. 6 and 8 that each flap is equipped with two of the spring-hinges, although the number may be increased, if desired, and that each spring-hinge is provided with a plurality of tongues having engagement at a number of points with the imperforate base of the flap. The employment of the hinges and the provision of the tongues on the hinges allows the flap to be mounted in the recessed frame of the holder so as to have a limited movement therein, and the described construction and arrangement of parts provides means for frictional engagement with the slides in a way to allow the easy insertion or removal thereof and to effectually exclude light from entering the compartments of the holder.

As shown by Fig. 10, the hinge and its springs and spurs are made of a single piece of metal by stamping the same and bending the tongues with the loop or eye; but I do not strictly confine myself to this specific form of hinge, although I have found it to be quite advantageous, because it may be readily fastened to the holder, and it serves as an efficient means for hingedly connecting the flap to said holder for exerting the requisite tension on the flap.

Another important feature of my invention is a means for locking the slide and for conveniently inserting and withdrawing the same, and in Fig. 12 of the drawings I have shown a double lock for the two slides, the same adapted to serve as a handle in the operation of inserting or withdrawing the holder into or from a camera. The head *b* of each slide B is provided with a flanged plate 34, which is fastened to an edge portion thereof, as shown by Fig. 11, and this plate is constructed with two flanges 35 36, the same being arranged out of alinement with each other, as shown by Fig. 12. The flange 35 of the plate has a spring-latch 37, which is extended in a direction alongside of the flange 36, and in a similar way the flange 36 is provided with a spring-latch 38, which is disposed alongside of the flange 35. Between the two spring-latches is arranged an end portion of a lever 39, which is pivoted by a pin 40 to the adjacent portions of the spring-latches 37 38, said lever 39 being equipped with an enlarged swelled or cam portion 41. It will be understood that each slide B is equipped with plates having the spring-latches and the cam-lever, said devices coöperating with a keeper 42, which is made fast with the end portion of the holder-frame at a point between the slide-slots a^2 thereof. This keeper 42 consists of a metallic plate which is doubled into U shape in cross-section, so as to produce parallel flanges 43, and these flanges are provided with slots 44, the slot in one flange of the keeper being at an opposite end from the slot in the other flange of the keeper, so that the spring-latches of the respective slides may have individual engagement with the keeper. When it is desired to withdraw a slide from the plate-holder, the lever 39 is turned to a position at right angles to that shown by Figs. 11 and 12, thus exposing the lever for convenient gripping by hand and withdrawing the lever from engagement with the tongue 37, the spring of which causes it to release itself from the aperture 44 of the keeper. By pulling on the lever the slide can be easily

withdrawn; but when the slide is replaced the lever is turned to the position shown by Figs. 11 and 12, thereby bringing the cam portion 41 of the lever to bear against one of the spring-latches 37 or 38 and force it into engagement with the keeper. The employment of the two latches extending in opposite directions from the pivotal point of the lever allows the slide to be reversed when inserting the same in the plate-holder in order to indicate whether or not the plate has been exposed, and the lever may be turned in one direction or the other in order to engage with one or the other of the latches 37 or 38, whereby either latch may be pressed by the cam of the lever into the slot of the keeper for the purpose of locking the slide against movement within the holder. The employment of the locking devices for the two slides provides a convenient grip for the fingers in the manipulation of the holder when inserting or withdrawing said holder into or from a camera, thereby minimizing the tendency to break the heads *b* from the slides in the manipulation of the holder.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A plate-holder having means therein for displacing the adjacent end of a plate laterally from said holder.

2. A plate-holder having means contained therein for displacing a plate laterally from said holder, and means for holding the plate in engagement with the displacing means during the manipulation of said holder to displace the plate.

3. A plate-holder having a plate-displacing member which is movable laterally within the holder, said member having means for engagement with the plate, and effective in retaining the plate on said member during its displacement.

4. A plate-holder having a hinged plate-displacing member, and a tension device for said member.

5. A plate-holder having a hinge, and a plate-displacing member pivoted to one leaf of the hinge and shiftable therewith.

6. A plate-holder having a hinge confined therein, a plate-shelf pivoted to one leaf of said hinge, and a tension device acting against the hinge.

7. A plate-holder having an inclosed hinge, a plate-shelf pivoted to one leaf of said hinge, and means on said plate-shelf for holding a plate in engagement therewith.

8. A plate-holder provided with an inclosed hinge consisting of two leaves one of which is disposed for limited movement within said holder, a spring acting against said hinge, and a plate-shelf connected to one leaf and shiftable therewith.

9. A plate-holder having a hinge confined therein, and a plate-shelf pivoted to one leaf of the hinge and confined slidably within the holder.

10. A plate-holder having an inclosed hinge consisting of two leaves, and a plate-shelf pivoted to one leaf and shiftable therewith, said pivotal connection between the plate-shelf and the hinge-leaf adapted to lie below the plane of the hinge connection between the leaves of said hinge.

11. A plate-holder having a two-part hinge inclosed therein, one leaf of the hinge being slidably confined within said holder, a spring acting against the hinge, and a plate-shelf provided with lips and having pivotal connection with one leaf of the hinge.

12. In a plate-holder, a flap consisting of a metallic strip doubled upon itself to form a flange, the latter being perforated, and a length of fabric confined within the doubled plate and exposed through and beyond the perforated flange thereof.

13. A recessed plate-holder, a hinge secured within said recess and provided with spring-tongues, and a flap pivoted to said hinge and engaged by the spring-tongues thereof.

14. A plate-holder provided with a keeper, a slide having a latch, and a lever disposed to ride against the latch and force it into engagement with the keeper.

15. A plate-holder having a reversible slide, a keeper fixed to said holder, oppositely-extending latches carried by the slide, and a reversible lever disposed for engagement with either of said latches.

16. A plate-holder having a reversible slide, a keeper fixed to said holder, a double-flanged plate attached to the slide and provided with oppositely-extending latches, and a cam-lever pivoted at a point between the latches and shiftable into engagement with either of them.

17. A double plate-holder having a slotted keeper between the slide-receiving slots thereof, reversible slides fitted in the slotted plate-holder, a pair of latches mounted on each slide, and a lever fulcrumed on the slide for engagement with either latch thereof, the latch and lever devices of the respective slides being exposed and affording a finger-piece for the manipulation of the holder.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JACOB SCHAUB.

Witnesses:
T. LE ROY CORDON,
R. H. WILKINSON.