

W. F. CARLTON & H. W. LOCKE.  
PHOTOGRAPHIC CAMERA.

No. 558,039.

Patented Apr. 14, 1896.

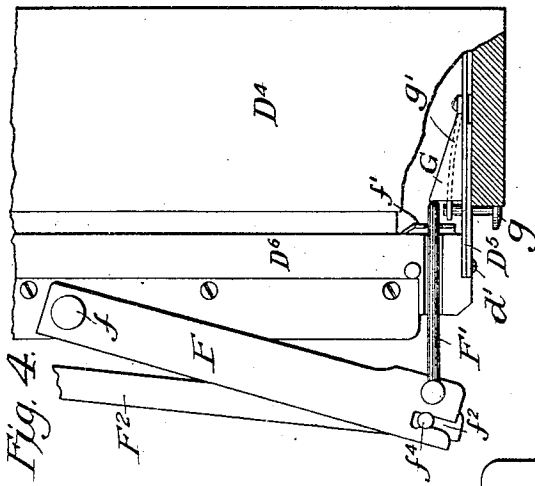


Fig. 4.

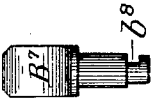


Fig. 7.

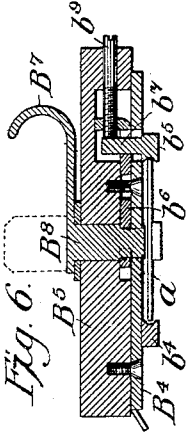


Fig. 6.

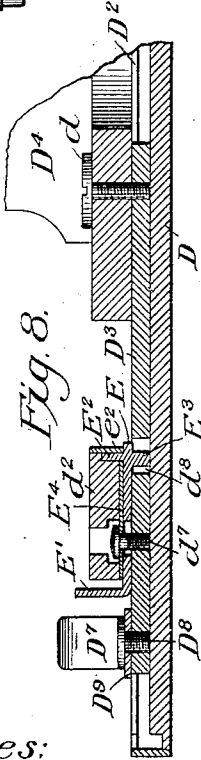


Fig. 8.

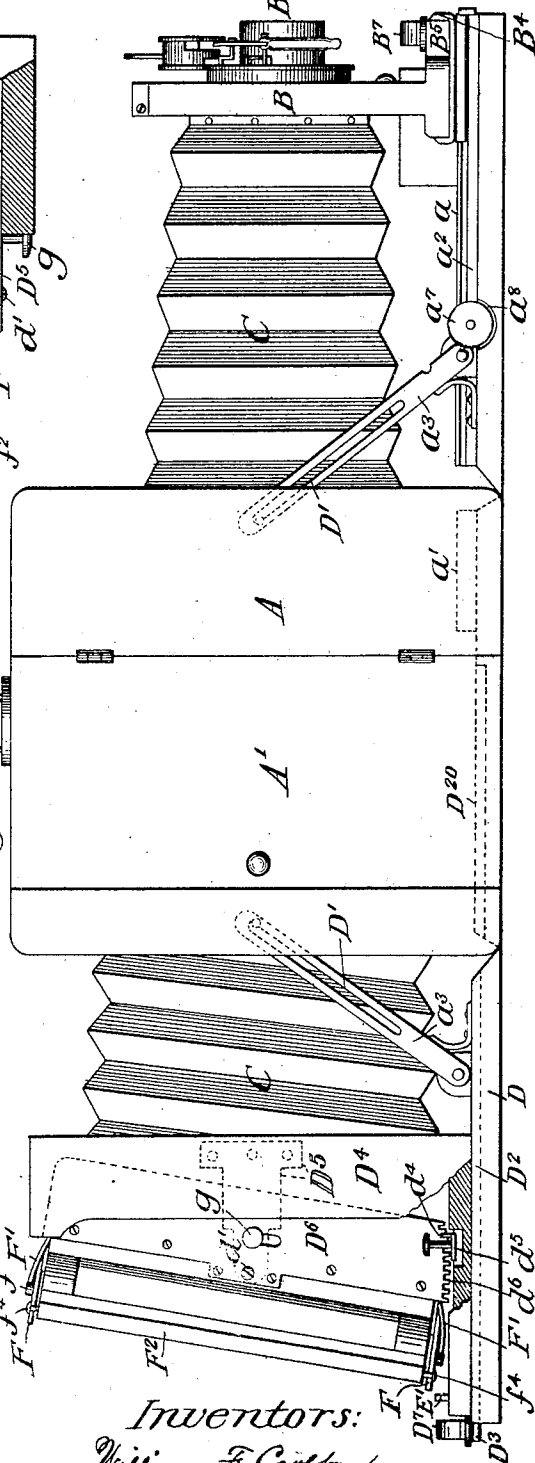


Fig. 1.

Witnesses:

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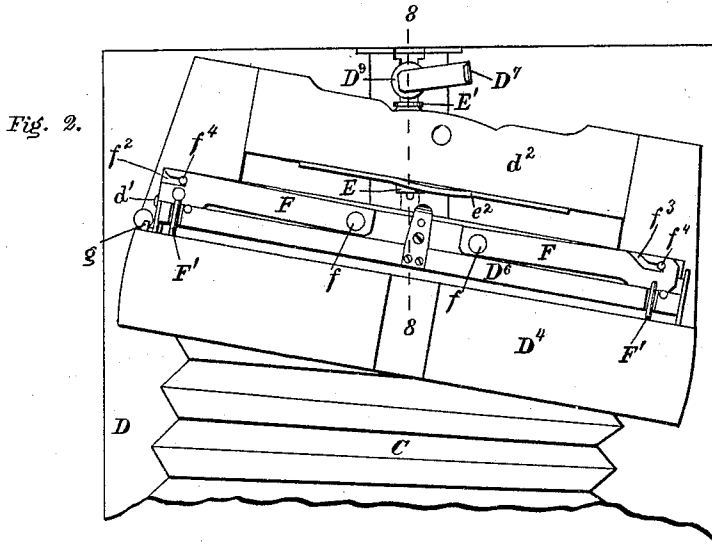


Fig. 2.

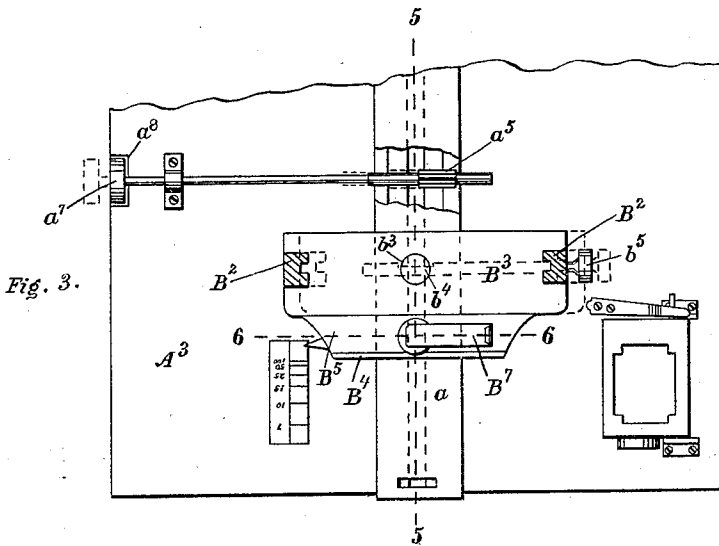


Fig. 3.

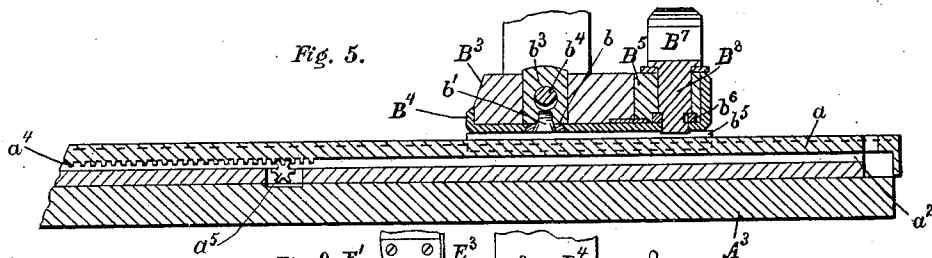


Fig. 5.

Witnesses  
 D. E. Eaton  
 C. H. Marcellus.

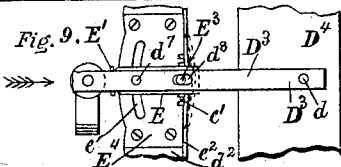


Fig. 9. E'

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# UNITED STATES PATENT OFFICE.

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SAID LOCKE ASSIGNOR TO SAID CARLTON.

## PHOTOGRAPHIC CAMERA.

SPECIFICATION forming part of Letters Patent No. 558,039, dated April 14, 1896.

Application filed October 5, 1895. Serial No. 564,817. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM F. CARLTON and HARVEY W. LOCKE, citizens of the United States, and residents of the city of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Photographic Cameras, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of one of our cameras fully extended and with the swinging back inclined with reference to the base, a part being removed to show construction. Fig. 2 is a top plan of the swinging back, showing it inclined in a vertical plane. Fig. 3 is a top plan view of the adjusting devices of the lens-support, parts being removed to show construction. Fig. 4 is a top plan view of a portion of the swinging back, showing the means for engaging and disengaging the plate-holder or roll-holder, parts being removed to exhibit construction. Fig. 5 is a vertical section on the line 5 5 of Fig. 3. Fig. 6 is a vertical section of the clamping device on the line 6 6 of Fig. 3. Fig. 7 is an elevation of the cam and its handle of the clamping device for the lens-support. Fig. 8 is a vertical section of the swinging and clamping devices on the line 8 8 of Fig. 2, and Fig. 9 is a bottom plan view of the same devices removed from the falling back of the camera.

The object of our invention is to provide a camera having a long range by extending the bellows to the utmost extent which the construction permits, and having various adjustments hereinafter set forth, and also having simple and effective clamping means for various parts.

Our invention consists in the mechanisms and combinations hereinafter set forth and claimed.

In the drawings, A is a hand-camera box of suitable size, preferably having a side door A' and a handle A<sup>2</sup>.

A<sup>3</sup> is the falling front of the camera, hinged to the box A and supported by slotted links a<sup>3</sup>, one on each side, and having also a medial longitudinal guideway a<sup>2</sup>. In line with the guideway a<sup>2</sup> and within the box A is a similar guideway a', which permits the lens-sup-

port B to be moved from the falling front A<sup>3</sup> into the interior of the box A and to be capable of direct movement from the guideway a' within the box to the guideway a<sup>2</sup> on the falling front. The engaging-guides b<sup>4</sup> b<sup>5</sup> of the lens-support B are so long as to be capable of passing from the guideway a<sup>2</sup> to the guideway a' without sidewise displacement and without disengaging from one guideway before fully engaging with the other.

A lens B' and its attachments are supported by the frame B and may be of any suitable construction. The frame B is suitably arranged for change of the lens. The frame B is supported by means of side posts B<sup>2</sup> (see Fig. 3) upon a base B<sup>3</sup>. This base rests upon a plate B<sup>4</sup> and is capable of transverse movement thereon by means of a slot in the plate, in which slides a guide-piece b, held therein and to the base B<sup>3</sup> by means of a screw b', fastened in a plug b<sup>3</sup>, which plug is bored transversely and parallel to the line of said slot for the insertion of a cam b<sup>4</sup>, provided with a handle b<sup>5</sup>. On turning the handle b<sup>5</sup> the cam raises or lowers the plug b<sup>3</sup> and presses the plate b in its slot, whereby the base B<sup>3</sup> and the supporting-plate B<sup>4</sup> are clamped together.

On turning the handle b<sup>5</sup> from the position shown in Fig. 5 the base B<sup>3</sup> and plate B<sup>4</sup> are loosened with respect to each other, and the base B<sup>3</sup> may be moved transversely of the camera, as indicated in dotted lines in Fig. 3, in order to change the transverse alinement of the lens with reference to the sensitive-plate. To the plate B<sup>4</sup> is also fastened a bar B<sup>5</sup>, (see Figs. 5 and 6,) against which, in the form shown, the base B<sup>3</sup> moves, as shown in Fig. 3. We provide the following means of clamping the plate B<sup>4</sup> longitudinally of the machine. Upon the guides a<sup>2</sup> slides a plate a. On the under side of the plates B<sup>4</sup> are a pair of clamping-jaws b<sup>4</sup> b<sup>5</sup>, (see Fig. 6,) one of which, as b<sup>4</sup>, may be stationary and the other of which is movable to and from the edge of the plate a to clamp the same. In a suitable recess in the under side of the bar B<sup>5</sup> slides a plate b<sup>6</sup>, capable of transverse movement in the recess. A pin b<sup>7</sup> extends upwardly from the movable jaw b<sup>5</sup> through a hole in the plate b<sup>6</sup>, and through another perforation in the plate b<sup>6</sup> extends the cam B<sup>8</sup>,

provided with the handle B<sup>7</sup>. The lower end of the cam B<sup>8</sup> is cut away, as shown in Fig. 7, so that on turning the handle the plate B<sup>6</sup> may move into the notch b<sup>8</sup> to unclamp the jaw b<sup>5</sup>. The turning of the handle B<sup>7</sup> in either direction into the position shown in Fig. 3, or in line with said position, clamps the bar B<sup>5</sup> and also the plate B<sup>4</sup> to the sliding plate a, while a position between these two permits a sidewise movement of the bar b<sup>6</sup> and allows the jaw b<sup>5</sup> to unclamp. An adjusting-screw b<sup>9</sup> passes through an upturned edge of the plate b<sup>6</sup> and presses against the pin b<sup>7</sup> in order to adjust the clamping action of the jaw b<sup>5</sup> with reference to the edge of the plate a and the movement of the handle B<sup>7</sup> and in order to take up wear. If the handle B<sup>7</sup> is turned to loosen the jaw b<sup>5</sup>, the lens-support B may be freely moved backward and forward upon the plate a or into the box A and upon the guide a'. Of course either or both of said jaws may be operated by the plate b<sup>6</sup> by providing pins for either or both jaws and connecting either or both with the plate.

On the under side of the plate a is a longitudinal rack a<sup>4</sup>, Fig. 5, with which meshes a pinion a<sup>5</sup> for slowly focusing the lens when its support is clamped to the plate a. The pinion a<sup>5</sup> is long and is set in suitable bearings to be movable transversely of the rack without disengaging therefrom and is connected to a milled head a<sup>7</sup>, Fig. 3, which is capable of being pushed into a cavity a<sup>8</sup> in the edge of the falling front A<sup>3</sup>, Figs. 1 and 3, whenever the front A<sup>3</sup> is to be closed, but is capable of being pulled out therefrom in order that the head a<sup>7</sup> may be properly grasped in order to focus the camera. The length of the pinion a<sup>5</sup> permits the latter to remain in engagement with the rack a<sup>4</sup> in either position of the head a<sup>7</sup>, as shown in dotted and full lines in Fig. 3. We thus provide simple and efficient means of moving and clamping the lens-support B either longitudinally or transversely of the camera for quick adjustment thereof, and we also provide simple means for the slow adjustment or accurate focusing thereof, all of which devices are so constructed that the device is capable of being compactly packed in a hand-case.

The back D of the camera-box is hinged thereto and is arranged to drop to a position in line with the bottom of said box, being guided and supported by the links D', one on each side. The falling back D is provided with recessed longitudinal guideways D<sup>2</sup>, (see Fig. 8,) in which slides a bar D<sup>3</sup>, which supports the frame D<sup>4</sup> for the swinging back, as hereinafter described. Corresponding guideways D<sup>20</sup> in the box A permit the swinging back to be slid from the falling back D into the camera-box and to be fastened therein. When the swinging back is inside the camera-box and the falling back is closed, the device becomes an ordinary hand-camera, and the door A' is used to obtain access to the swinging back. The bottom rail of the frame D<sup>4</sup>

is fastened to the bar D<sup>3</sup> by the screw or pin d, upon which the frame D<sup>4</sup> is capable of turning as a vertical pivot. (See Fig. 9.) The bellows C extends from the lens-support B to the swinging back, and, by means of the slides or guides D<sup>2</sup> and a<sup>2</sup> for the swinging back and for the lens-support, these two parts are separable to the utmost extent which the extreme length of the falling front A<sup>3</sup> and the falling back D can permit. Our camera is therefore capable of great range on account of this great extensibility of the bellows C, and at the same time is capable of being packed very compactly into the box A, and may be used as a hand-camera or as a tripod-camera, and with a long-focus or a short-focus lens.

To the frame D<sup>4</sup> is fastened a pair of arms D<sup>5</sup>, one of which is shown in dotted lines in Fig. 1, one arm being on each side of the frame, and to these arms are pivoted by horizontal pivots d' the supplementary frame D<sup>6</sup>, which is therefore capable of swinging on a horizontal axis formed by the pivots d', which is at right angles to the axis d on which the frame D<sup>4</sup> turns. This gives a universal adjustment to the focusing-plate, plate-holder, or roller-holder, which are attached to and supported by the frame D<sup>6</sup>. The frame D<sup>6</sup> has a curved rack d<sup>6</sup> thereon, and curved upon a radius drawn from the pivot d'. A spring d<sup>5</sup>, provided with a suitable handle, is attached to the frame D<sup>4</sup> and is provided with a tooth d<sup>4</sup>, which engages with the rack d<sup>6</sup>. By pressing the spring d<sup>5</sup> away from the rack the tooth d<sup>4</sup> is disengaged therefrom, the frame D<sup>6</sup> may be turned upon its pivots d', and on releasing the spring d<sup>5</sup> may be locked in any suitable angle to the horizontal.

The frame D<sup>4</sup> has a supplementary rearward extension consisting of the frame d<sup>2</sup>, (see Fig. 8,) to which are connected the devices for locking the frame D<sup>4</sup> in various positions when turned upon the vertical pivot d. These devices are shown in Figs. 8 and 9. A movable plate E is set under the extension-frame d<sup>2</sup>, provided with the handle or finger-plate E', the upwardly-extending pin E<sup>2</sup>, and the downwardly-extending pin E<sup>3</sup>. A plate E<sup>4</sup> is fixed to the frame d<sup>2</sup> and is interposed between the frame and the plate E and has a curved slot e, Fig. 9, drawn from the pivot d as a radius, and is also provided on its forward edge with a series of teeth or notches e' capable of engagement with the pin E<sup>2</sup>.

A spring e<sup>2</sup> is attached to the frame d<sup>2</sup> and is capable of slight movement to and from the same, and the pin E<sup>2</sup> is normally held in engagement with the teeth e' by the pressure of the spring e<sup>2</sup>. The plate E, being capable of slight longitudinal movement when pressed longitudinally in the direction of the arrow in Fig. 9, presses the spring e<sup>2</sup> away from the plate E<sup>4</sup>, and the pin E<sup>2</sup> is thereby released from the teeth e', whereupon the frame D<sup>4</sup> may be swung about its pivot d to the extent permitted by the curved slot e. A pin d<sup>7</sup> extends through the plate E and into the slot e

in the bar  $D^3$ , which last runs in the guides  $D^2$ . This pin, therefore, retains the sliding plate  $E$  stationary and forms the stop which, moving in the slot  $e$ , limits the movement of the frame  $D^4$  and retains the sliding plate  $E$  in a fixed position, while permitting the extended portion  $d^2$  of the frame to swing about the pivot  $d$  as a center. The downward-extending pin  $E^3$  of the plate  $E$  slides in a slot  $d^3$  in the bar  $D^3$ . The bar  $D^3$  is clamped to the guides  $D^2$  by a handle  $D^7$ , which actuates a screw  $D^8$ , engaging the bar  $D^3$  and clamping the guides  $D^2$  between the bar  $D^3$  and a washer  $D^9$ .

The swinging back is provided with means for attaching the focusing-plate, a plate-holder, or a roll-holder for films. The supplementary frame  $D^6$  is provided with four pivoted levers  $F$ , (see Figs. 1, 2, and 4,) two of these levers being on the lower side of the frame  $D^6$  and two being on the upper side thereof. Each lever  $F$  is pivoted near the middle of the frame  $D^6$  at  $f$ . The upper and lower levers on each side are connected together by means of the bent wires  $F'$ , which are attached to the free ends of the levers and extend therefrom around the frame  $D^6$ , (see Fig. 4,) being normally pressed by springs  $f'$ , so that the springs tend to bring the levers into the position shown in Fig. 2. Each lever is slotted at the end, as at  $f^2 f^3$ , for engagement with pins  $f^4$  upon the upper and lower sides of the focusing-plate  $F^2$ , Figs. 1 and 4, or upon the plate-holder or a roller-holder. The slots have ends open in the same direction, so that the pins  $f^4$  may enter the slots by movement in the same direction. The action of the springs  $F^2$  brings the focusing-plate, plate-holder, or roller-holder closely against the back end of the supplementary frame  $D^6$ . We thus provide means for attaching plate-holders or roller-holders of varying thicknesses to our camera.

In order to hold the levers  $F$  in a suitable position for the insertion of the focusing-plate, plate-holder, or roller-holder, we provide a stationary guide-plate  $G$ , Fig. 4, upon the inside of the swinging back. In Fig. 4 it is shown attached to the inner side of the frame  $D^4$ . The connecting-wire  $F'$  slides over the plate  $G$ , and being somewhat elastic slips over the corner of the plate and engages it, as shown in Fig. 4, whereby the levers  $F$ , connected to that wire, are held away from the frame  $D^6$ , and in order to disengage the wire  $F'$  from the plate  $G$  we provide a push-button  $g$ , which is normally pressed outward by a spring  $g'$ . When the push-button  $g$  is pushed inward, it presses the wire  $F'$  inward and away from engagement with the edge of the plate  $G$ , so that the action of the spring  $f'$  immediately moves the levers  $F$  back to press the plate-holder or roller-holder against the frame  $D^6$  from the position shown in Fig. 4 to that shown in Fig. 2.

What we claim is—

1. The combination of the camera-box  $A$ ,

the falling front  $A^3$  hinged to said box and provided with the guideway  $a$ , the lens-support  $B$  sliding upon said guideway, the guideway  $a'$  in the box  $A$  in line with the guideway  $a$ , the clamp attached to the lens-support  $B$  and engaging the guideway  $a$  or  $a'$ , the bellows  $C$ , the falling back  $D$  hinged to said box and provided with the guideway  $D^2$ , the guideway  $D^{20}$  in the box  $A$  in line with said guideway  $D^2$ , a plate or film support provided with devices running in said guideways  $D$  and  $D^{20}$  and means for clamping the same in said guideways, substantially as and for the purposes described.

2. The combination of the camera-box  $A$ , the falling front  $A^3$  hinged to said box and provided with the guideway  $a$ , the lens-support  $B$  sliding upon said guideway, the guideway  $a'$  in the box  $A$  in line with the guideway  $a$ , the clamping-jaws  $b^4 b^5$  attached to the lens-support  $B$  and engaging the guideway  $a$  or  $a'$ , and the cam  $B^8$  for clamping said jaws upon said guideways, the bellows  $C$ , the falling back  $D$  hinged to said box and provided with the guideway  $D^2$ , the guideway  $D^{20}$  in the box  $A$  in line with said guideway  $D^2$ , a swinging back provided with devices, as the bar  $D^3$ , running in said guideways  $D$  and  $D^{20}$  and means, as the screw  $D^8$  engaging said bar and said guideways, for clamping the same in said guideways, substantially as and for the purposes described.

3. In a camera, the combination of a guideway  $a$ , a plate  $B^4$  sliding thereon provided with clamping-jaws  $b^4 b^5$  for engagement with said guideway, a movable plate  $b^6$  operating one of said jaws through a pin  $b^7$  on said jaw and engaging with said plate, and a cam  $B^8$ , having a notch  $b^8$ , for operating said plate  $b^6$ , whereby the plate  $B^4$  is adjustably clamped upon the guide  $a$ .

4. In a camera, the combination of a guideway  $a$ , a plate  $B^4$  sliding thereon provided with clamping-jaws  $b^4 b^5$  for engagement with said guideway, a movable plate  $b^6$  operating one of said jaws through a pin  $b^7$  on said jaw and engaging with said plate, a cam  $B^8$ , having a notch  $b^8$ , for operating said plate  $b^6$ , whereby the plate  $B^4$  is adjustably clamped upon the guide  $a$ , a supporting-frame  $B^3$  movable transversely upon said plate  $B^4$ , a guide-piece  $b$  sliding in a transverse slot in said plate, and a cam  $b^4$  attached to said guide-piece and adapted to clamp said guide-piece and said supporting-frame to said plate  $B^4$ , substantially as and for the purposes described.

5. In a swinging-back camera, the combination of a supporting-frame  $D^4$  pivoted, as at  $d$ , to a bar, as  $D^3$ , or to another suitable portion of the camera, a rack as  $e'$  connected to said frame  $D^4$  swinging about the center  $d$ , a finger-piece, as  $E'$ , having a tooth, as  $E^2$ , holding said pin  $E^2$  in engagement with said rack, a pin  $E^3$  attached to said plate  $E$  and engaging in a slot in said bar  $D^3$  and a pin  $d^7$

attached to said bar  $D^3$  extending through a slot in said plate E and through a curved slot  $e$  adjacent to said rack.

5 6. A plate-holding device for cameras, consisting of the spring-actuated levers F pivoted to the camera-back and connected in  
10 pairs, the respective pairs having slots  $f^2 f^3$  extending in the same direction and adapted to engage pins  $f^4$  upon a focusing-plate, a  
15 plate-holder or a roller-holder, whereby the same may be disengaged from or engaged with said levers by movement in one direction and whereby the focusing-plate, plate-holder or roller-holder is held against the  
camera-back by the action of the spring-actuated levers.

7. A plate-holding device for cameras, consisting of the spring-actuated levers F piv-

oted to the camera-back and connected in  
pairs, the respective pairs having slots  $f^2 f^3$  20  
extending in the same direction and adapted to engage pins  $f^4$  upon a focusing-plate, a  
plate-holder or a roller-holder, whereby the  
same may be disengaged from or engaged  
with said levers by movement in one direc- 25  
tion and whereby the focusing-plate, plate-holder or roller-holder is held against the  
camera-back by the action of the spring-  
actuated levers, and devices for holding and  
releasing one or both pairs of said levers in 30  
a position away from the camera-back.

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Witnesses:

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