

No. 645,691.

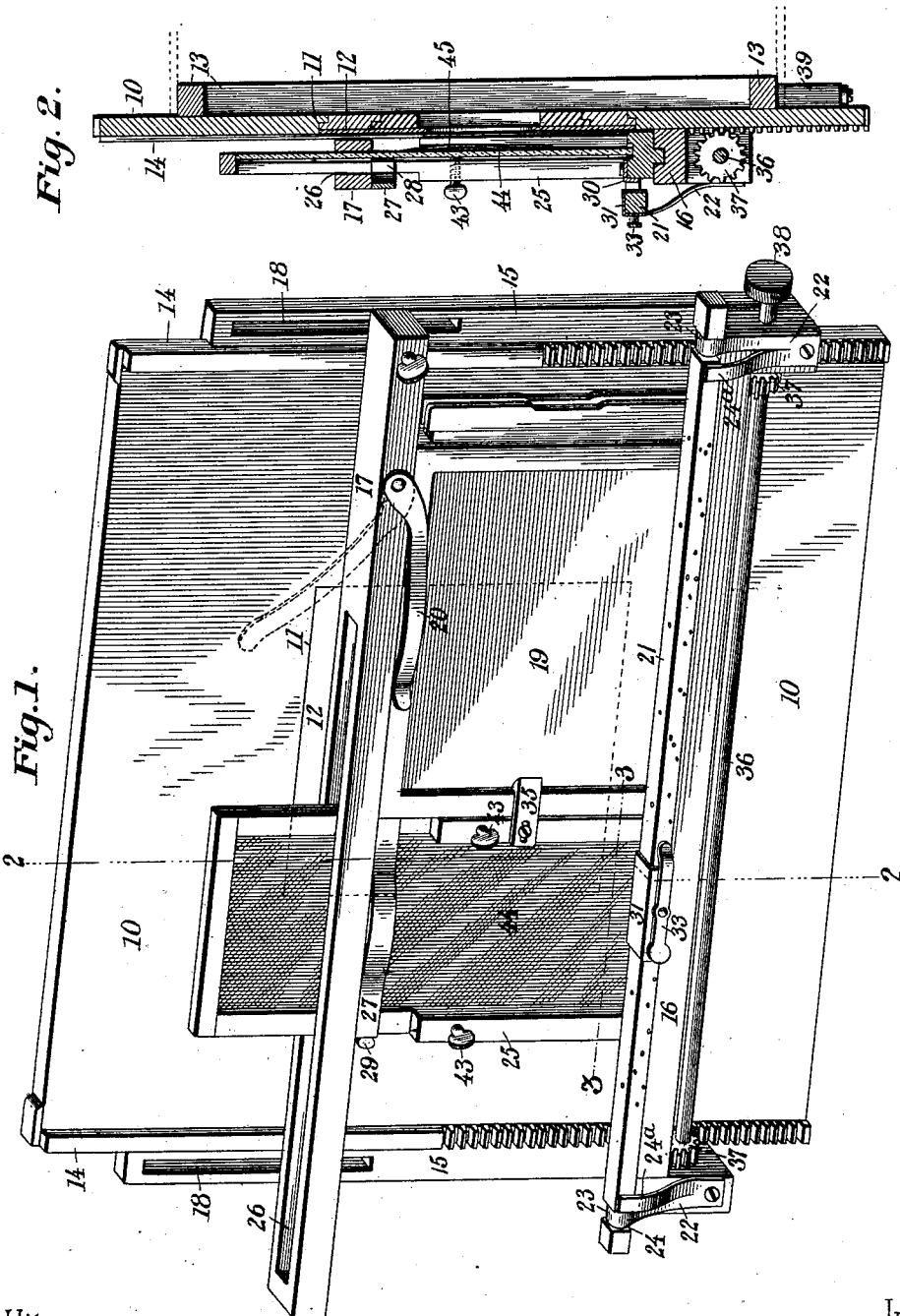
Patented Mar. 20, 1900.

W. A. PETERS.
MULTIPLYING ATTACHMENT FOR CAMERAS.

(Application filed June 16, 1899.)

(No Model.)

2 Sheets—Sheet 1



Witnesses
E. F. Stewart
[Signature]

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By his Attorneys, *William A. Peters*

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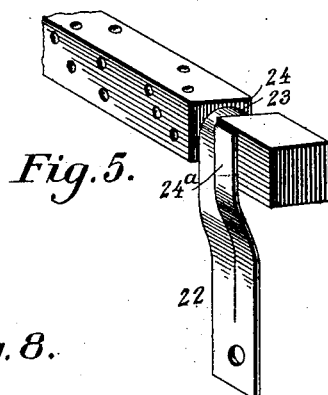
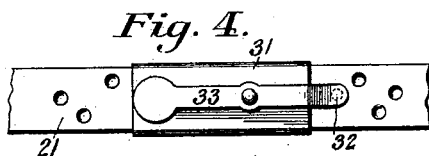
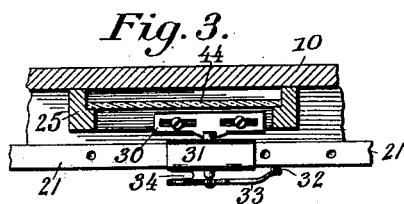


Fig. 8.

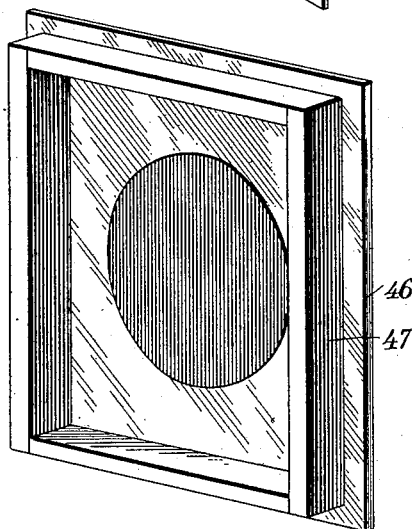


Fig. 6.

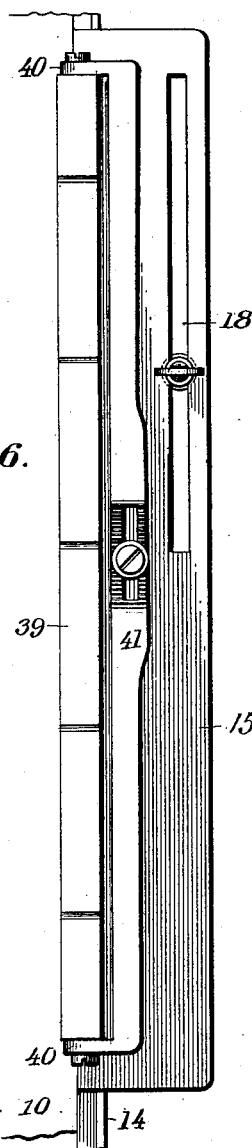
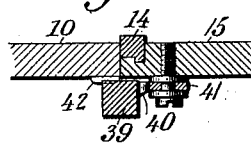


Fig. 7.



Witnesses

E. F. Stewart
W. A. Peters

By his Attorneys,

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UNITED STATES PATENT OFFICE.

WILLIAM A. PETERS, OF CHARLESTON, WEST VIRGINIA, ASSIGNOR OF
THREE-FOURTHS TO BENJAMIN A. CARUTHERS, OF SAME PLACE,
AND JOHN R. SCOTT AND JOHN W. DYER, OF PATRICK, WEST VIR-
GINIA.

MULTIPLYING ATTACHMENT FOR CAMERAS.

SPECIFICATION forming part of Letters Patent No. 645,691, dated March 20, 1900.

Application filed June 16, 1899. Serial No. 720,830. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. PETERS, a citizen of the United States, residing at Charleston, in the county of Kanawha and State of West Virginia, have invented a new and useful Multiplying Attachment for Cam-
5 eras, of which the following is a specification.

My invention relates to photograph and other cameras, and has for its object to provide
10 a simple and improved device for facilitating the successive exposures of different portions of a dry or other plate to take pictures of sizes different from the plate which is used and also to utilize all portions of the surface of the
15 plate.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended
20 claims, it being understood that the improvement is susceptible of various changes in the form, proportion, size, and minor details of construction without departing from the spirit or sacrificing any of the advantages of the
25 invention.

In the drawings, Figure 1 is a perspective view of a camera attachment constructed in accordance with my invention applied in the operative position to a camera-back, which is
30 removably fitted to the rear end of the camera-box, the plate-holder rack being shown in its horizontal position. Fig. 2 is a vertical sectional view of the attachment, taken through the ground-glass holder on the plane indicated by the line 2 2 of Fig. 1. Fig. 3 is a
35 detail horizontal section of the lower portion of the ground-glass holder on the plane indicated by the line 3 3 of Fig. 1 to show the connection between said holder and the traveler on the gage-bar. Fig. 4 is a detail view
40 of the traveler and the adjacent portion of the gage-bar to show the means whereby the movement of the traveler is limited to cause exposures of the desired portions of the plate.
45 Fig. 5 is a detail view in perspective of one of the gage-bar-holding springs and the adjacent portion of the bar. Fig. 6 is a detail view of one of the end bars of the plate-

holder rack, the gage-bar carried by said end bar, and the spring for supporting the gage-
50 bar. Fig. 7 is a detail sectional view of a portion of the same to show the means whereby the spring is locked in its adjusted positions. Fig. 8 is a detail view of one of the medallion-frames.

Similar reference characters indicate corresponding parts in all the figures of the drawings.

The attachment embodying my invention consists, essentially, of a camera-back 10, suit-
60 ably constructed to adapt it to fit snugly in its place in lieu of the ordinary camera-back and also provided with a central opening 11, having its edges rabbeted and adapted to form a seat for a diaphragm 12, having an
65 exposure-opening to determine the field of the picture. It is obvious that diaphragms of different sizes may be arranged in this seat formed in the camera back or base 10 and that a plurality of diaphragms of different
70 sizes may be nested to enable the photographer to secure an opening of the desired area. In practice I prefer to provide the inner or front surface of the camera-back with a plu-
75 rality of strips 13, arranged to form a square and adapted to fit within the camera-box or otherwise engage the same to provide for reversing the back to dispose either edge thereof uppermost.

Attached to the rear surface of the back or
80 base 10 are parallel tracks 14, consisting of rack-bars, of which the extremities are offset and are engaged with the edges of the base, it being understood, however, that the man-
85 ner of attachment may be varied to adapt the device for use in connection with different cameras. The tracks are spaced slightly from the plane of the rear surface of the back, and mounted thereon for sliding movement are
90 the end bars 15 of a plate-holder rack, said end bars being connected by longitudinal side bars 16 and 17. The lower side bar 16 may be rigidly attached to the end bars, as shown, but the upper bar 17 is preferably mounted
95 upon the end bars for adjustment parallel with the latter to provide for varying the width

of the plate-holder rack. In the construction illustrated the end bars are longitudinally slotted, as shown at 18, and the side bars are provided at suitable points with set-screws having engagement with the slots and adapted when tightened to secure the bar 17 in the desired adjusted position. The adjustment of the width of the plate-holder rack is to suit different widths of plate-holders, of which an ordinary form (indicated by the numeral 19) is shown in the drawings, and in order to maintain the plate-holder in its proper position in the rack the upper bar 17 is preferably provided with a pressure-spring 20, of which the terminal portion bears against the exposed side of the frame of the holder.

Forward displacement of the lower edge of the plate-holder with relation to the lower bar or plate-holder seat 16 is prevented by means of a gage-bar 21, which is prismatic in shape or is polygonal in cross-section and is mounted for rotation to arrange either of its side surfaces in contact with the plate-holder. In the construction illustrated gage-bar-supporting springs 22 are attached to the plate-holder rack and are provided with terminal bearings 23, in which reduced or neck portions 24 of the bar are mounted. Also in order to maintain the gage-bar in either of its adjusted positions one of said springs is preferably slitted longitudinally to form a plurality of tongues, of which one terminates in the above-described bearing, while the other (indicated by the numeral 24^a) is extended for contact with one of the side surfaces of the bar. Obviously the pressure of this free tongue will serve to yieldingly maintain the gage-bar in either of its adjusted positions. Also the gage-bar is yieldingly pressed toward the plane of the plate-holder to prevent accidental displacement of the lower portion thereof.

Bearing upon the lower bar or plate-holder seat 16 and disposed in a common plane with the plate-holder is a ground-glass holder 25. The upper portion of this holder is reduced in thickness to operate in a longitudinal slot 26 in the adjustable upper bar 17 of the plate-holder rack, and to prevent upward displacement of the ground-glass holder a holding-bar 27 is arranged transversely upon said holder, with its upper edge in contact with the lower edge of said bar 17. In the construction illustrated this holding-bar is bowed outward at its center to obtain a firm bearing against the under surface of the bar 17, and the extremities thereof are bent to form guides or keepers 28, of which one is provided with a set-screw 29 to lock the holding-bar in an adjusted position. At the lower end of the ground-glass holder is arranged a catch 30 for engagement with a traveler 31, mounted upon the above-described gage-bar 21. The gage-bar is provided upon its different sides or faces with series of perforations or sockets adapted for the reception of a terminal pin 32 and a latch 33, which is mounted

upon the traveler, said latch being capable of transverse pivotal movement as well as swinging movement to adapt its terminal pin to be withdrawn from the sockets or perforations of the gage-bar, and in operative relation with the latch is arranged a spring 34 for yieldingly maintaining said pin in operative engagement with an aligned socket. The ground-glass holder is also preferably provided with a shouldered catch or tongue 35 for engagement with the plate-holder, whereby after the camera has been focused by the aid of the ground glass, as in the ordinary practice, the ground-glass holder may be withdrawn from in front of the object-tube and advanced to draw the plate-holder into position for exposure, the movement of the traveler upon the gage-bar indicating the point to which the ground-glass holder must be advanced in order to dispose the plate-holder as desired.

Mounted upon the plate-holder rack in suitable bearings provided for its reception is a spindle 36, carrying pinions 37, which mesh with the racks, and at one end said spindle is provided with a thumb-wheel 38, whereby the operator may advance the plate-holder rack either upward or downward to correspondingly adjust the plate-holder with relation to the horizontal plane of the object-tube of the camera. After attaining the desired vertical adjustment the necessary movement of the plate-holder in a direction parallel with the plate-holder rack may be attained by the means hereinbefore mentioned. To indicate the required vertical adjustment of the plate-holder rack, I provide it with an auxiliary gage-bar 39, arranged parallel with the direction of adjustment of the rack upon the described tracks, said bar being mounted in bearings 40 on the extremities of supporting-springs 41, and in the side surfaces of the bar are formed notches or seats for engagement by a pin or projection 42 on the stationary camera back or base 10. Owing to the springs which support the auxiliary gage-bar, the latter is adapted to yield sufficiently to disengage its seats or notches from the described pin or projection constituting the catch for holding the plate-holder rack at the desired vertical adjustment.

To adapt the apparatus for use in connection with plate-holders of different thicknesses, the ground-glass holder is provided with set-screws 43 and the ground-glass sheet 44 is mounted in the holder for forward and rearward adjustment, being yieldingly held in place by means of springs 45. Obviously by adjusting the described screws 43 the plane of the ground-glass sheet may be varied. An advantage of the construction above described resides in the fact that it may be readily substituted for the ordinary camera-back and is adapted for use in connection with plate-holders of all sizes and that the exposure may be made either horizontally or vertically by changing the position of the back or base

10 with relation to the camera. In other words, instead of disposing the longitudinal bars 16 and 17 horizontally, as shown in the drawings, the same may be arranged in a vertical position, whereby the adjustment of the rack parallel with its tracks is in a horizontal plane. Furthermore, it will be seen from the foregoing description that after the plate-holder rack has been arranged in the desired transverse plane the movement of the plate-holder parallel with the bars 16 and 17 to a greater or less extent to arrange different portions of a plate in position for exposure will depend upon the movement of the ground-glass holder, which is connected with the plate-holder and by which motion is communicated to the latter. A particular advantage of this feature of the construction resides in the fact that the plate-holder need not be closed or removed from the camera when a number of exposures of the same plate are to be made. After an exposure the ground-glass holder or focusing object may be returned to its original position in front of the object-tube of the camera to enable the photographer to properly focus the instrument and subsequently advanced to another point to expose a different portion of the plate for a second sitting or a new subject. Furthermore, the device may be used in applying ornamental borders or to print designs or letters on a negative, and in work of this class I employ a glass or other transparent diaphragm 46, arranged in a frame 47, which is adapted to be substituted for one of the nested diaphragms on the camera back or base 10, the central portion or field of the diaphragm being opaque to exclude light from the picture. The glass may be blacked to cover the image or picture on the negative, and the impression of the border, design, or lettering is made subsequent to the exposure of the center of the plate for the picture, whereby the negative, with the several impressions, may be developed at one time.

The spring 20, whereby the plate-holder is held in operative position, is preferably pivoted to the bar 17 to adapt it to be turned out of operative position to facilitate the insertion of the plate-holder, and in addition thereto the catch 35 is adjustably mounted by means of a longitudinal slot engaged by the screw, which secures it to the ground-glass frame. This is to adapt the catch to engage plate-holder frames of different widths. Various other changes may be made, as in the arrangement and specific construction of the means of connection between the ground-glass holder and the gage-bar 21 and also as in the matter of means for controlling the extent of exposure of the field and in the specific arrangement of the racks.

Having described my invention, what I claim is—

1. A camera attachment having a camera back or base provided with means for attachment to a camera and reversible with relation to the same, tracks or guides on the said base,

and a plate-holder rack slidably mounted upon said tracks or guides and provided with plate-holder guides arranged at right angles to said tracks or guides on the base, one of said plate-holder guides being adjustable with relation to the other to accommodate various sizes of plates, substantially as specified.

2. A camera attachment having parallel tracks or guides consisting of racks, a plate-holder rack mounted upon said tracks and provided with pinions meshing with the racks, said plate-holder rack having parallel plate-holder-guiding bars, of which one is longitudinally slotted and movable toward and from the other, and means for securing the movable bar in its adjusted positions, substantially as specified.

3. An attachment for cameras having parallel tracks or guides, a plate-holder rack mounted thereon and provided with end bars having slots and side bars connecting said end bars, one of the side bars being provided with means for engagement with said slots, whereby adjustment of the width of the rack may be attained, and means for maintaining the rack in its adjusted positions upon the tracks or guides, substantially as specified.

4. A camera attachment having a plate-holder rack mounted for transverse adjustment, and a yielding gage-bar mounted upon the rack parallel with its direction of adjustment, and provided with a plurality of spaced seats, and a pin or projection for engagement with said seats, said plate-holder rack being provided with parallel longitudinal plate-holder guides, substantially as specified.

5. An attachment for cameras having a plate-holder rack mounted for transverse adjustment and having parallel longitudinal bars between which a plate-holder may be arranged, a holding-spring carried by one of the bars for maintaining the adjacent portion of the plate-holder in its operative position, and a yielding gage-bar carried by the other longitudinal bar for contact with the adjacent portion of the plate-holder, substantially as specified.

6. An attachment for cameras having a plate-holder rack mounted for transverse adjustment, and having parallel longitudinal bars, a ground-glass holder mounted in said rack and provided with a catch for engagement with a plate-holder, a gage-bar arranged parallel with the rack, and an indicating device mounted upon the gage-bar and connected with the ground-glass holder, substantially as specified.

7. A camera attachment having a plate-holder rack mounted for transverse adjustment, a ground-glass holder mounted upon the rack for movement parallel therewith, and provided with a catch for engagement with a plate-holder, a gage-bar arranged parallel with the path of the ground-glass holder, and a traveler mounted upon said gage-bar and connected with the ground-glass holder, substantially as specified.

8. A camera attachment having a plate-holder rack mounted for transverse adjustment and having parallel longitudinal bars of which one is longitudinally slotted, a ground-glass holder having a reduced portion fitted in the slot of said longitudinal bar and bearing at its opposite end edge against the other bar, a catch carried by the ground-glass holder for engagement with the plate-holder, a holding-bar adjustably mounted upon the ground-glass holder for contact with the inner surface of said slotted longitudinal bar, a gage-bar arranged parallel with the path of movement with the ground-glass holder, and a traveler connected with the ground-glass holder and traversing the gage-bar, substantially as specified.

9. A camera attachment having a plate-holder rack mounted for transverse adjustment, a ground-glass holder mounted upon the rack for movement parallel therewith, and provided with a catch for engagement with a plate-holder, a gage-bar arranged parallel with the path of movement of the ground-glass holder and provided with series of sockets, a traveler mounted upon the gage-bar and connected with the ground-glass holder to receive motion therefrom, and a latch mounted upon the traveler and adapted to engage a notch in the gage-bar, substantially as specified.

10. A camera attachment having a plate-holder rack mounted for transverse adjustment, a ground-glass holder mounted upon the

rack for movement parallel therewith, and provided with a catch for engagement with a plate-holder, a prismatic gage-bar arranged parallel with the path of movement of the ground-glass holder, and capable of revolvable adjustment, said gage-bar being provided upon its sides with longitudinal series of sockets, a traveler mounted upon the gage-bar and connected with the ground-glass holder, and a latch on the traveler for engagement with said sockets, substantially as specified.

11. A camera attachment having a plate-holder rack mounted for transverse adjustment, a ground-glass holder mounted upon the rack for movement parallel therewith, and provided with a catch for engagement with a plate-holder, a prismatic gage-bar, supporting-springs having bearings in which journal portions of the gage-bar are mounted, said springs being provided with tongues for engagement with the flat faces of the gage-bar to maintain the latter in an adjusted position, and a traveler mounted upon the gage-bar, connected with the ground-glass holder, and provided with means for engaging the gage-bar at spaced points, substantially as specified.

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:

R. A. COLEMAN,
S. P. SMITH.