

(No Model.)

2 Sheets—Sheet 1

T. SAMUELS.
PHOTOGRAPHIC CAMERA.

No. 321,139.

Patented June 30, 1885.

Fig. 1.

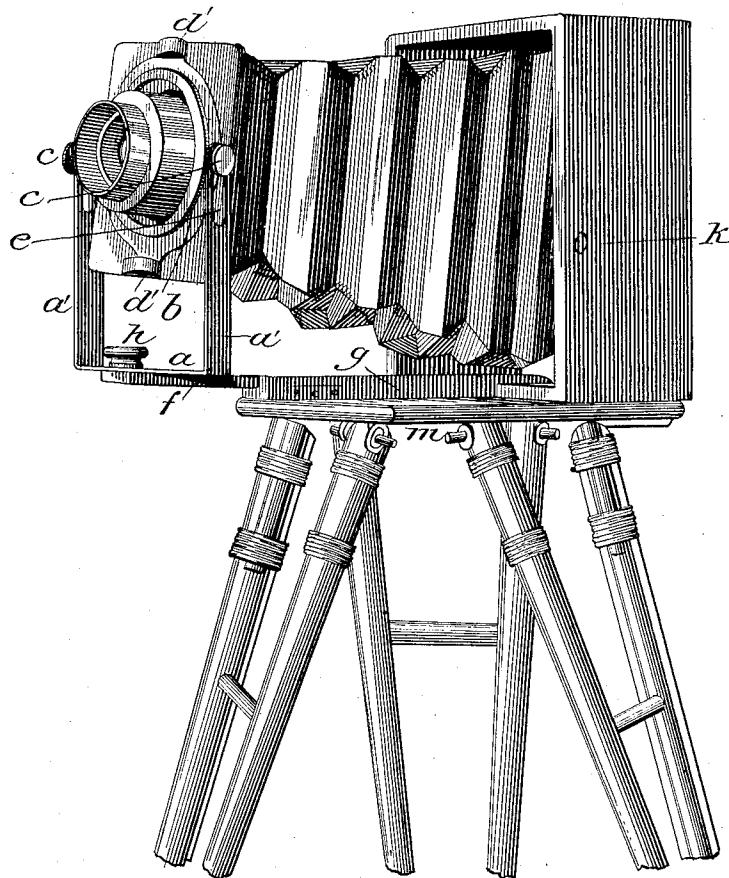
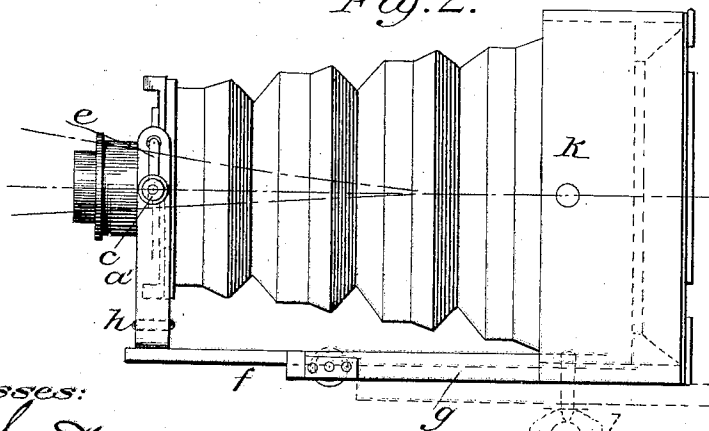


Fig. 2.



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Munn & Co.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

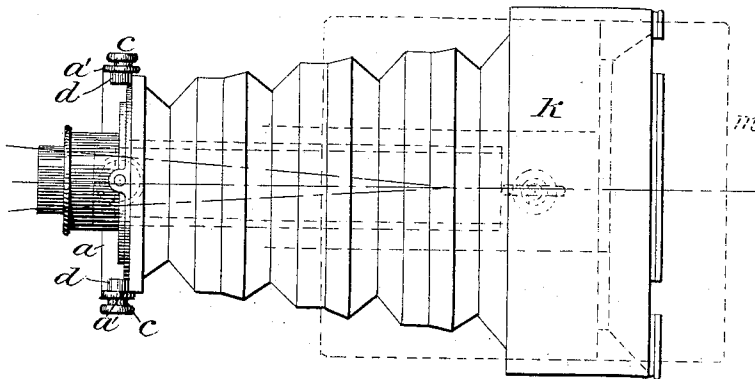


Fig. 4.

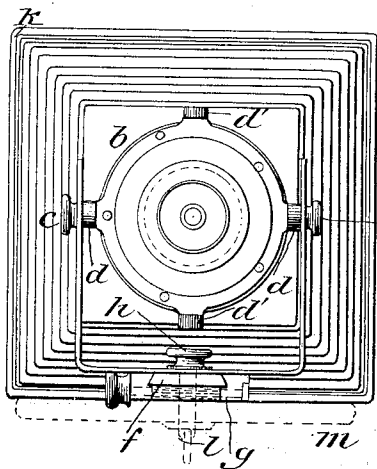


Fig. 5.

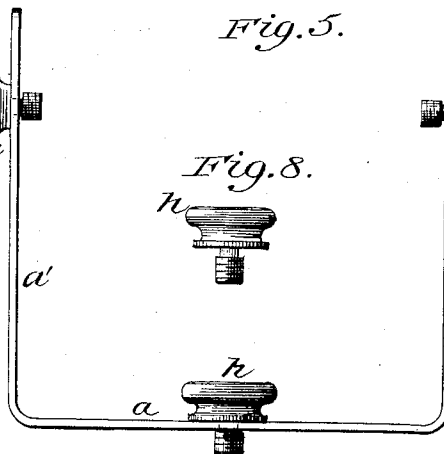


Fig. 6.

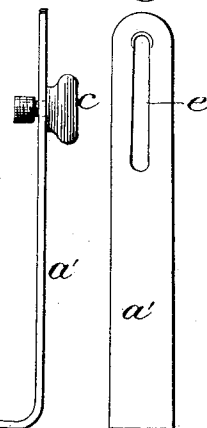


Fig. 8.

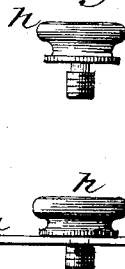
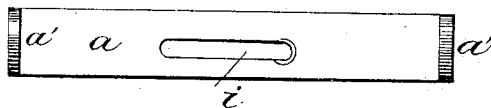


Fig. 7.



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UNITED STATES PATENT OFFICE.

THOMAS SAMUELS, OF HADLEY-MONKEN, COUNTY OF MIDDLESEX, ENGLAND, ASSIGNOR OF ONE-HALF TO ALEXANDER MELVILLE CLARK AND WILLIAM CLARK.

PHOTOGRAPHIC CAMERA.

SPECIFICATION forming part of Letters Patent No. 321,139, dated June 30, 1885.

Application filed September 17, 1884. (No model.) Patented in England May 3, 1884, No. 7,201; in France September 1, 1884, No. 164,039; in Belgium September 2, 1884, No. 66,194, and in Germany September 9, 1884, No. 31,170.

To all whom it may concern:

Be it known that I, THOMAS SAMUELS, of Hadley-Monken, in the county of Middlesex, England, gentleman, have invented a new and useful Improvement in Photographic Cameras, of which the following is a full, clear, and exact description.

My invention relates to an improvement in photographic cameras; and it has for its object to supersede the use of the ordinary sliding front, whereby the horizontal and vertical adjustment of the lens is effected, and likewise the employment of the double swing-back, whereby the sensitive plate is adjusted at an angle to the optical axis of the lens.

My invention consists in so supporting the lens as to enable it to swing both on a horizontal axis and on a vertical axis, and to have likewise vertical and horizontal adjustments, whereby the same results may be attained as by the combined use of the sliding fronts and swing-backs now employed. The support of my invention is used in combination with a bellows-body, (preferably of the usual pyramidal form known as the "Kinnear" camera,) the front of the body being only of the necessary dimensions to carry the lens holder or mount. The front of the camera instead of being connected rigidly with the base-board so as to be incapable of any adjustment except the usual horizontal rack motion, is so supported that, besides having this usual rack motion for focusing, the lens may be oscillated both on a horizontal and a vertical axis, and may also be raised or lowered or moved toward either side, as may be required, the bellows-body of the camera lending itself readily to these various adjustments.

In order that my invention may be readily understood, I have illustrated it in the accompanying drawings, forming part of this specification, and will proceed to describe it with reference thereto.

Figure 1 is an elevation in perspective of the camera with the lens-support. Fig. 2 is a side elevation, Fig. 3 a plan, and Fig. 4 a front elevation, of the same. Figs. 5, 6, and

7 are respectively a front edge and plan view of the lens-support of my invention.

A convenient form for this support consists of a U-shaped frame, $a a'$, between the standards or arms a' of which the lens-mount b is pivoted by means of clamping-screws c , screwing into holes tapped in ears d at diametrically opposite sides of the lens-mount, the said screws passing through slots e in the arms a' , to permit of a rising motion of the lens, and likewise a swinging motion on the said screws c as a horizontal axis. This frame a is connected to the focusing-slide f on the base-board g by a single clamping-screw, h , passing through a slot, i , in the cross-bar a of said frame, which permits of a lateral adjustment of the lens, and likewise of a swinging motion on the said screw h as a vertical axis.

To prevent loss of the screws c and h , I prefer to make them and the slots e and i as follows: I file away the thread next to the head of the screw, leaving a neck as shown in Fig. 8, and at one end of the intended slot I drill and tap a hole to correspond to the thread of the screw, and then cut the slot sidewise from the hole and of a width equal only to the diameter of the neck of the screw, which is inserted by being screwed through the tapped end of the slot, and is then free to slide laterally in the slot, but cannot fall out; or, instead of tapping a hole at the end of the slot, the latter may be a bayonet-slot opening out at the edge of the frame so as to admit of the insertion of the screw.

In Fig. 1 the lens is represented as raised and tilted upward, whereby the same effect is obtained as when a "swing-back" is used to hold the sensitive plate, and it is tilted backward or forward. In Figs. 2 and 3 the dot-and-dash lines indicate the various directions which the optical axis of the lens may take in a vertical and a horizontal plane, respectively, the combination of these two motions enabling any desired adjustment to be given to the lens.

For convenience of transport the focusing-rack motion f is made detachable from the

wooden part *k* of the camera-body, and is connected thereto by the same thumb-screw *l* by which the camera is fixed upon the top board, *m* of the tripod-stand.

5 The lens-mount has two pairs of ears, *d d* and *d' d'*, to admit of a horizontal camera being turned on its side when required.

The double adjustment hereinbefore described is not obligatory—that is to say, the 10 adjustment either on a vertical or horizontal axis may be used independently the one of the other, as will be readily understood.

I have described the use of clamping-screws passing through slots, which are the simplest 15 means of accomplishing the desired result; but it will be evident that equivalent devices might be employed.

Having now particularly described and ascertained the nature of my said invention, and 20 in what manner the same is to be performed, I declare that what I claim is—

1. In combination with a bellows-body camera, a lens mounted and supported, substantially as shown, so as to be capable of an oscillating adjustment both on a horizontal and 25 a vertical axis, and of sliding adjustment in the vertical and lateral directions, substantially as and for the purpose herein specified.

2. In combination with a bellows-body camera, a U-shaped slotted frame and pivotal clamping-screws passing through the slots of the U-frame and screwing into sockets on the front of the body, to form a horizontal axis for the lens, and to permit of its adjustment, substantially as shown and described. 30

3. In combination with a bellows-body camera, a U-shaped slotted frame and pivotal clamping-screws forming a horizontal axis for the lens, substantially as described, and a clamping-screw passing through a slot in the 40 U-frame and connecting said frame to the focusing-rack motion or other part of the base-board and forming a vertical axis for the lateral adjustment of the lens, substantially as shown and described. 45

The foregoing specification of my improvement in photographic cameras signed by me this 4th day of September, 1884.

THOMAS SAMUELS.

Witnesses:

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Both of 17 Gracechurch St., London, E. C.