

(No Model.)

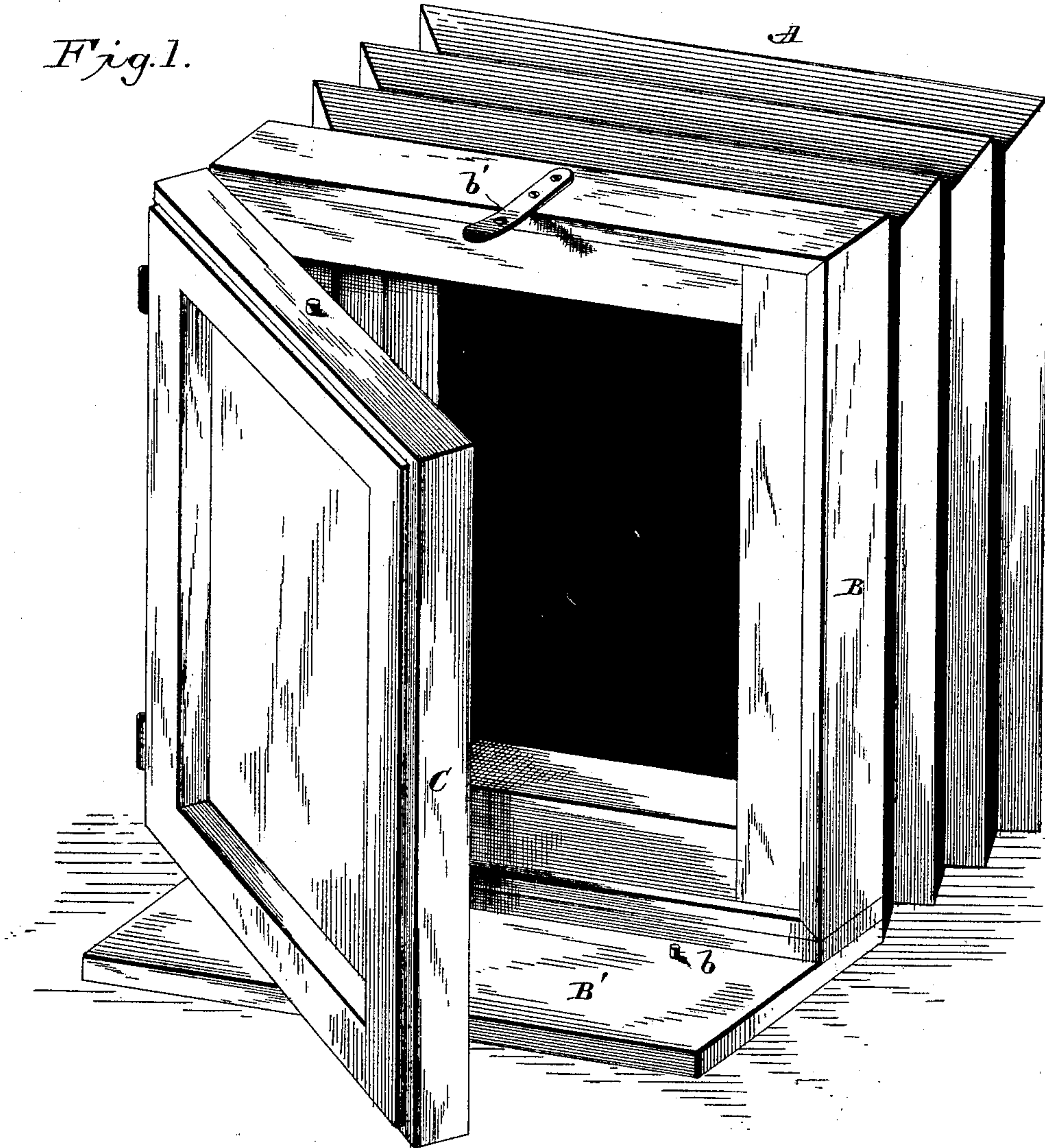
4 Sheets—Sheet 1.

J. M. RHODES.
PHOTOGRAPHIC CAMERA.

No. 434,807.

Patented Aug. 19, 1890.

Fig. 1.



Joseph M. Rhodes

Witnesses

L. S. Elliott,
E. W. Johnson

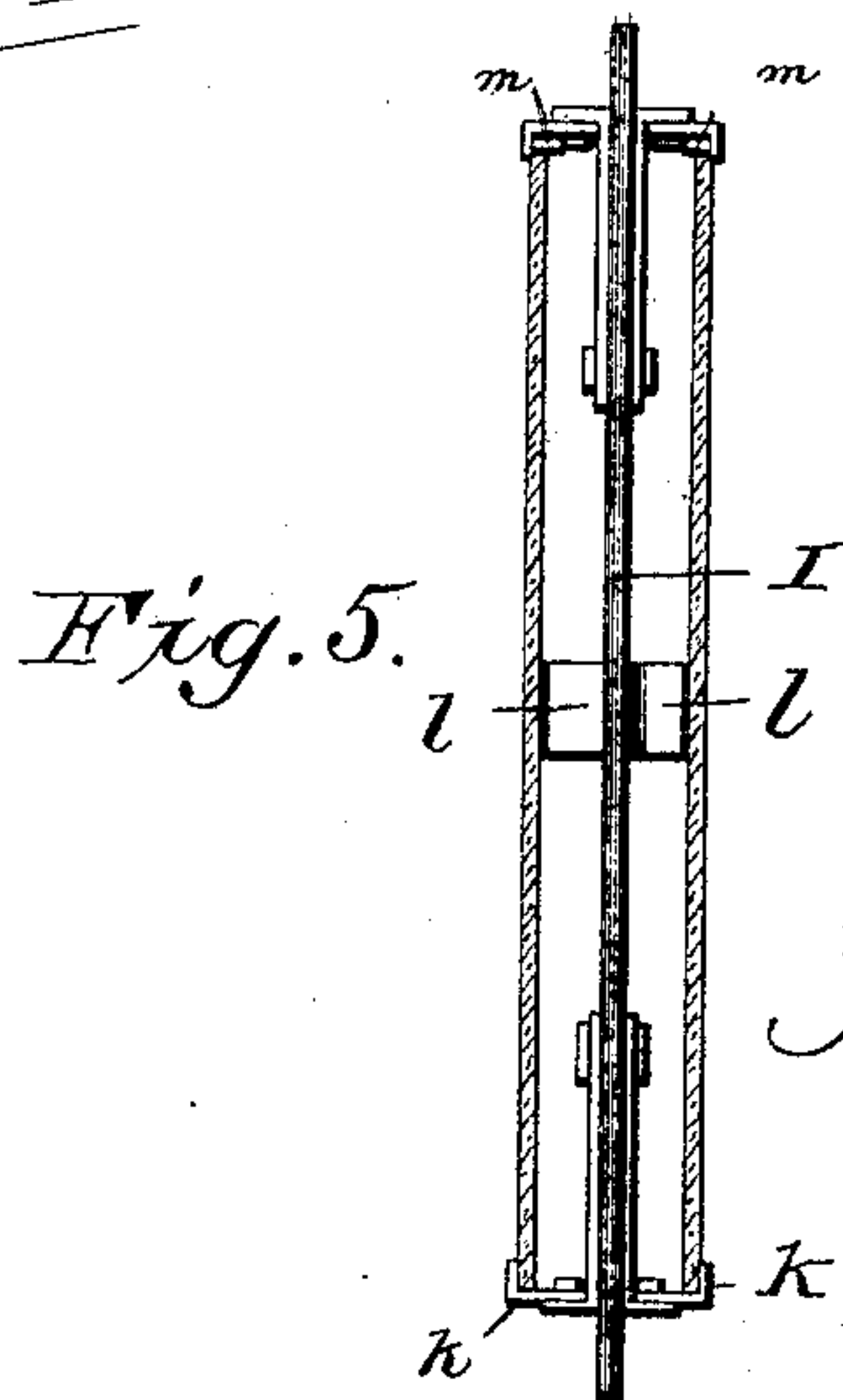
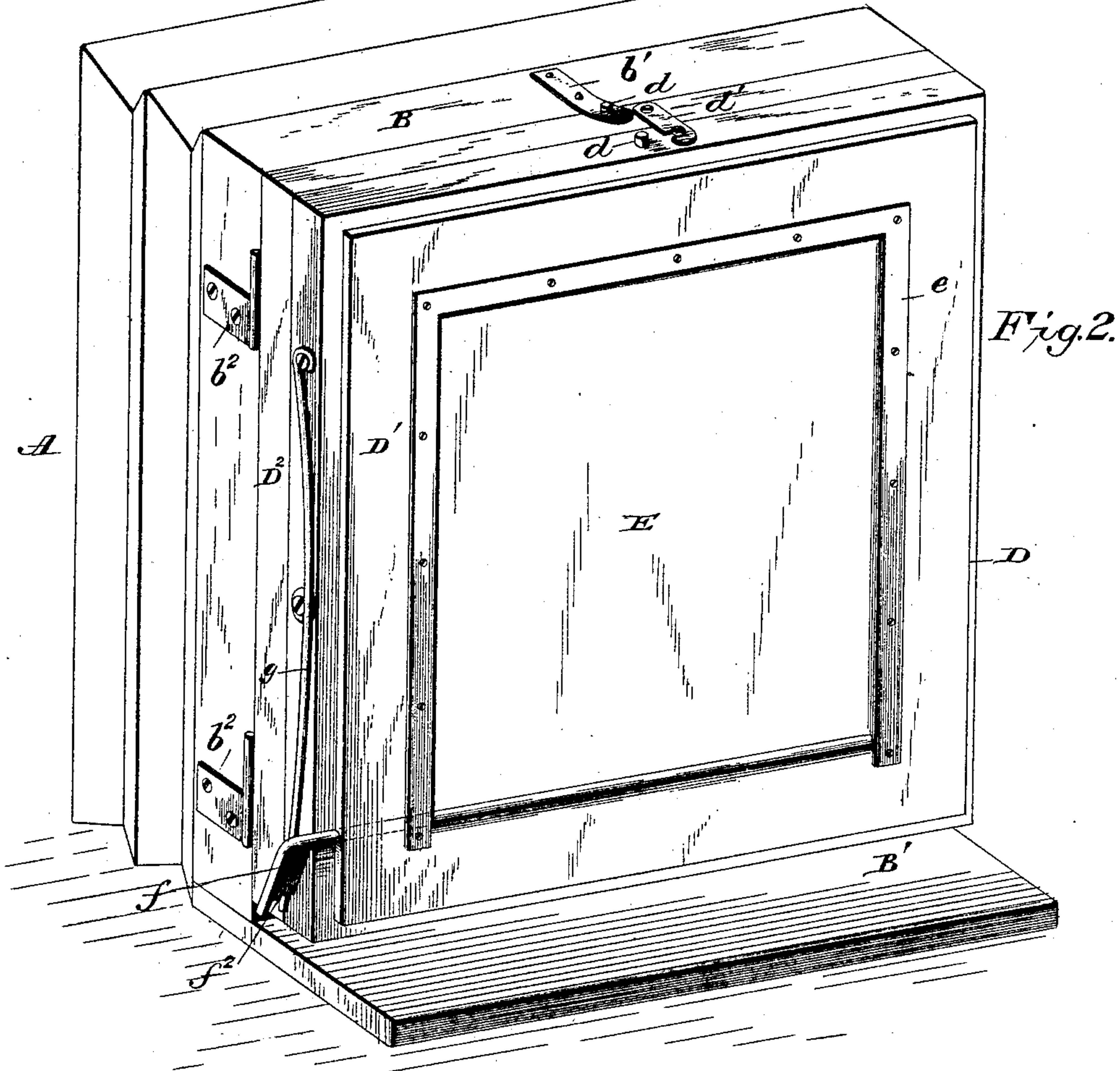
Inventor

By his Attorney

J. M. RHODES.
PHOTOGRAPHIC CAMERA.

No. 434,807.

Patented Aug. 19, 1890.



Joseph M. Rhodes,

Inventor

Witnesses

L. S. Elliott,
E. M. Johnson

By His Attorney

(No Model.)

4 Sheets—Sheet 3.

J. M. RHODES.
PHOTOGRAPHIC CAMERA.

No. 434,807.

Patented Aug. 19, 1890.

Fig. 3.

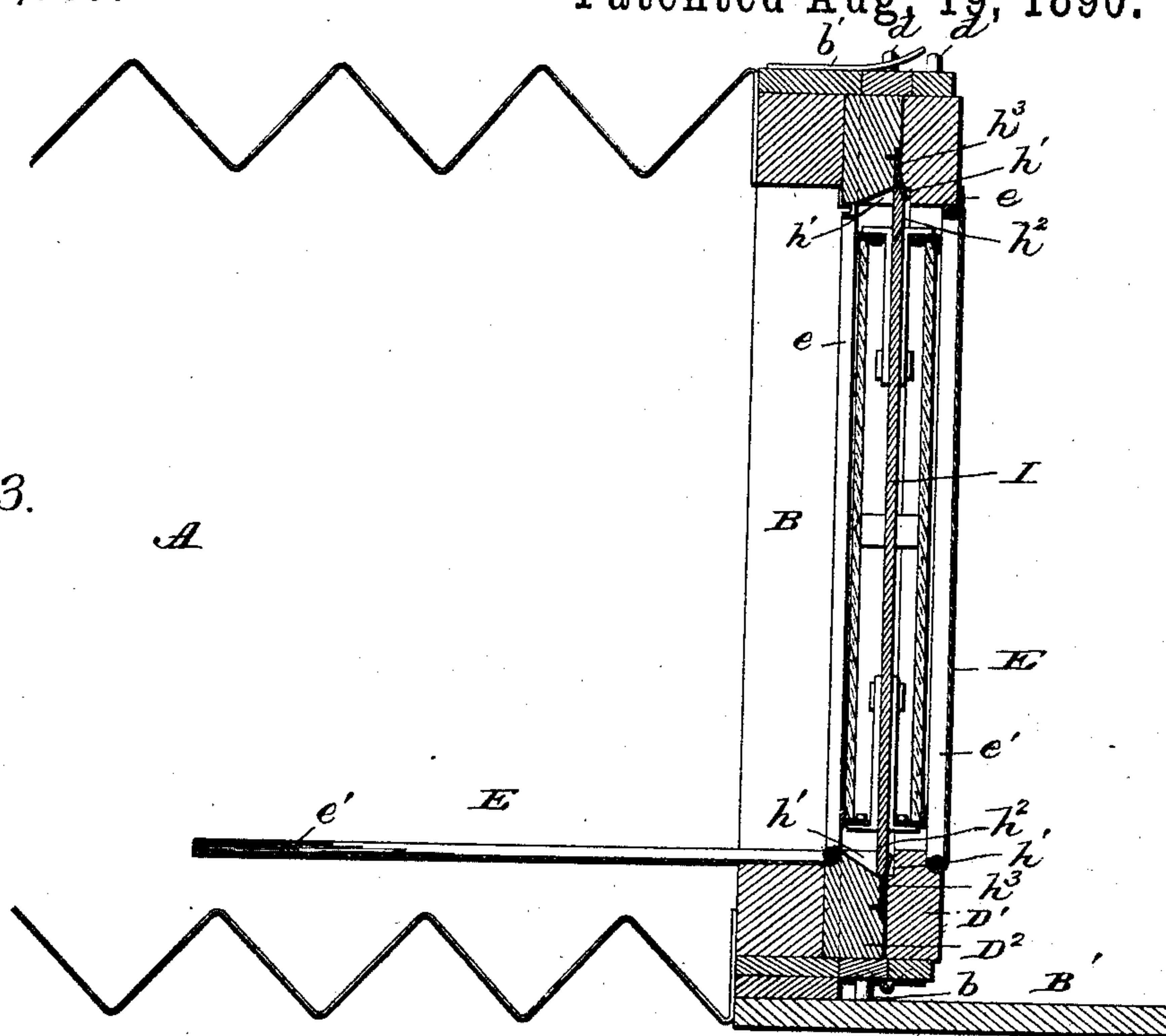
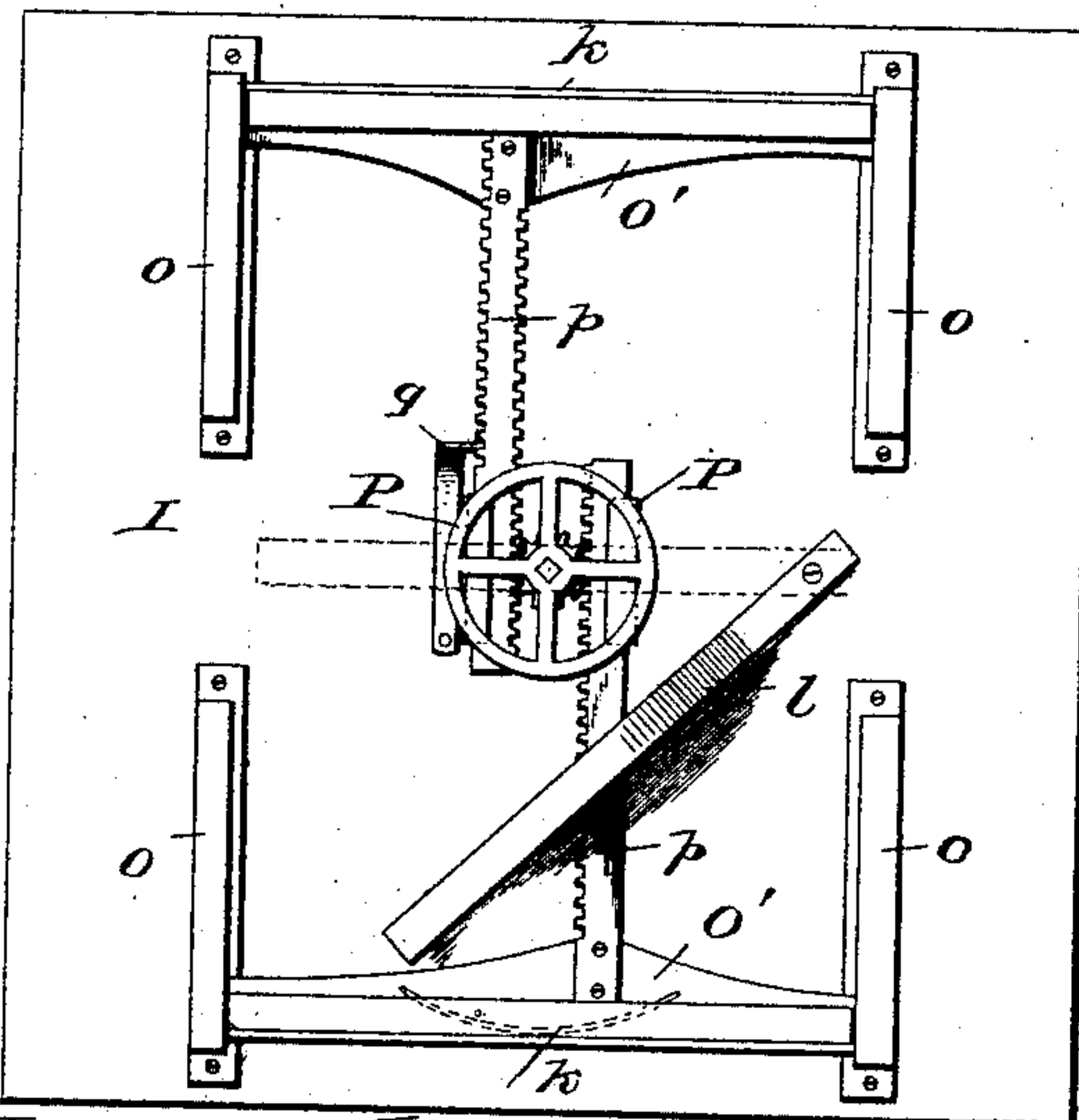
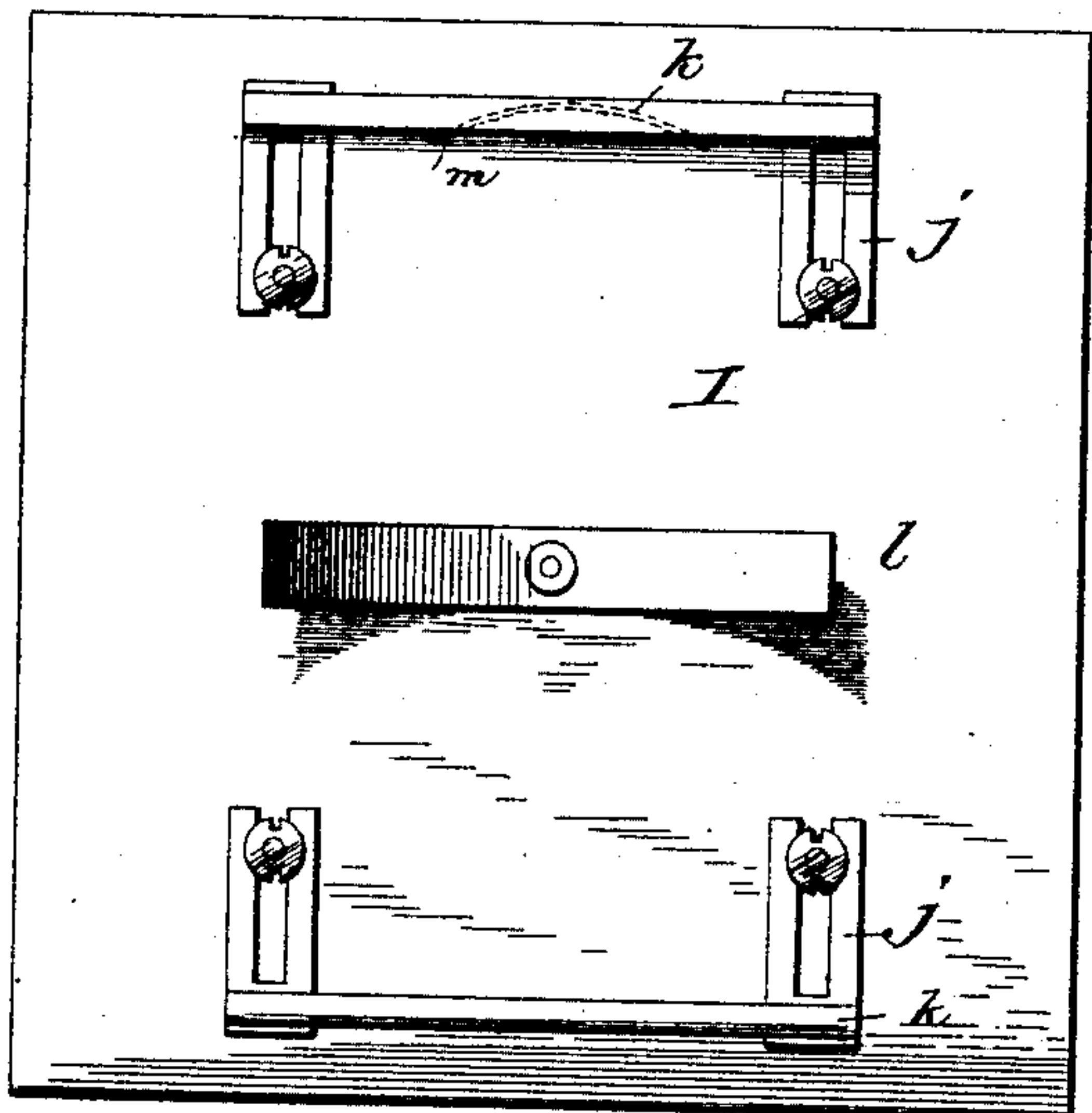


Fig. 4.

Fig. 6.



Joseph M. Rhodes.

Witnesses

L. S. Elliott.
E. M. Johnson

Inventor

By his Attorney

(No Model.)

4 Sheets—Sheet 4.

J. M. RHODES.
PHOTOGRAPHIC CAMERA.

No. 434,807.

Patented Aug. 19, 1890.

Fig. 7.

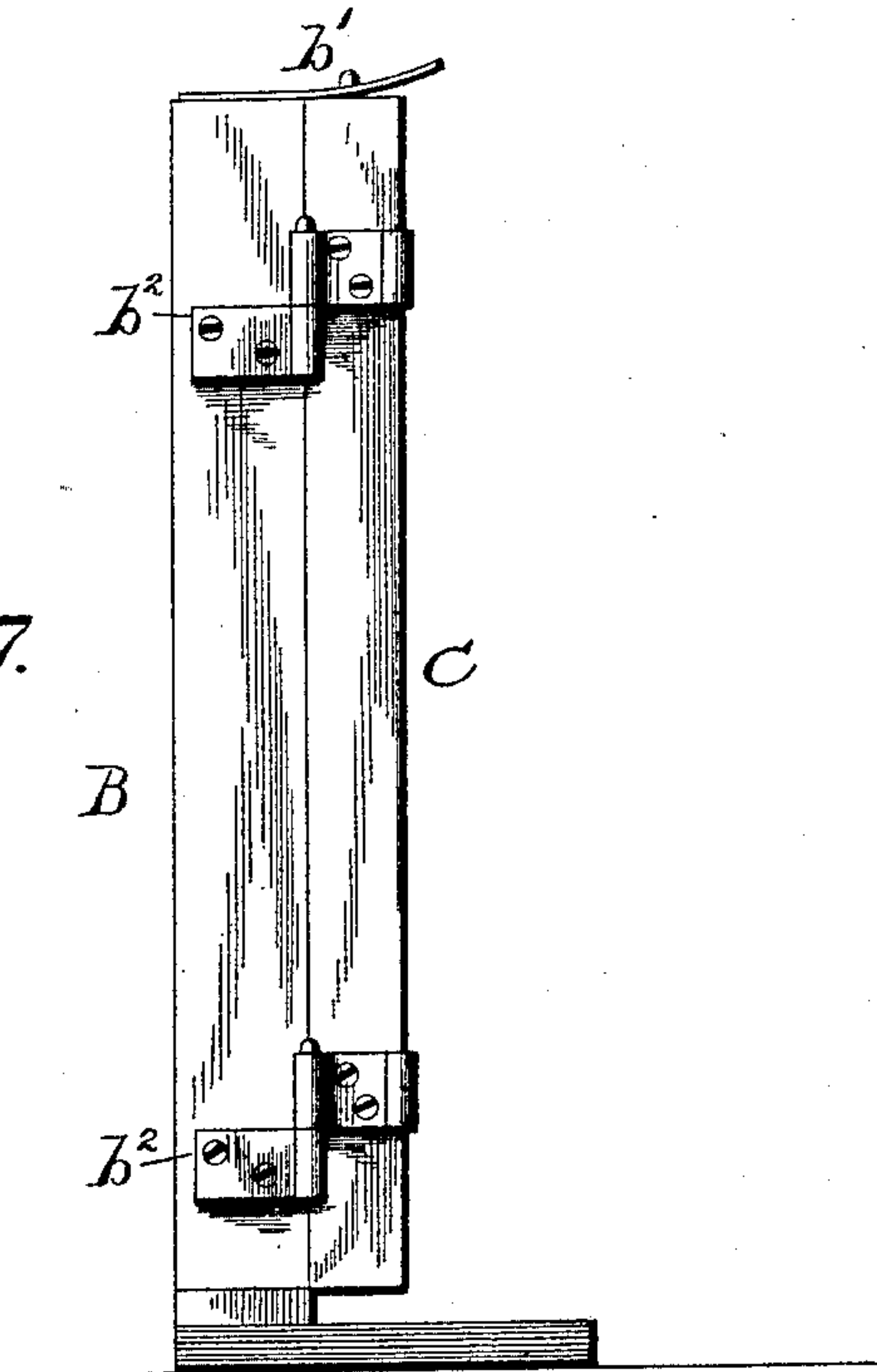
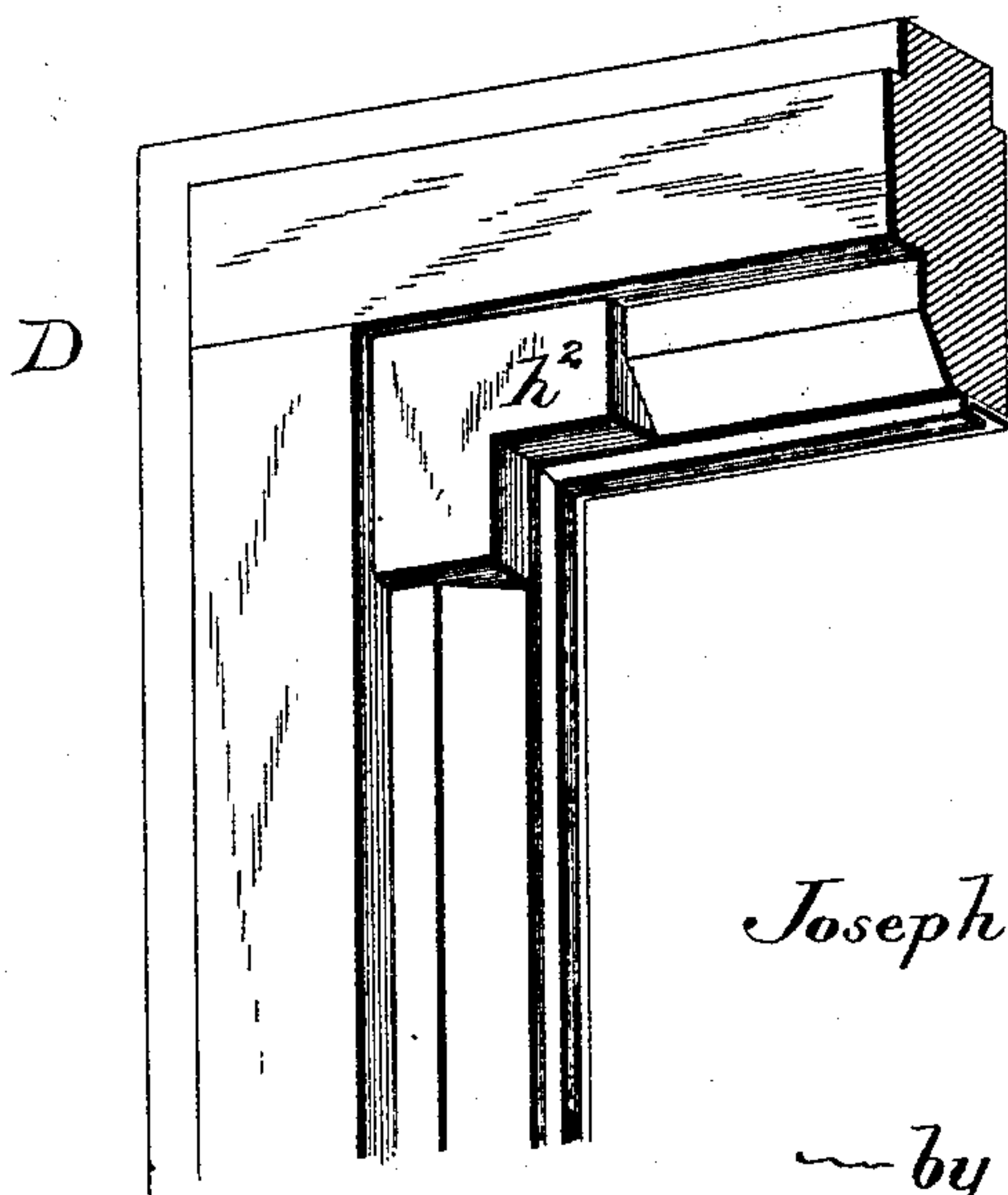


Fig. 8.



Witnesses
G. S. Elliott.
M. Johnson

Joseph M. Rhodes.

Inventor
by *[Signature]*
Attorney

UNITED STATES PATENT OFFICE.

JOSEPH M. RHODES, OF COVINGTON, INDIANA, ASSIGNOR TO SUSAN S. RHODES, OF SAME PLACE.

PHOTOGRAPHIC CAMERA.

SPECIFICATION forming part of Letters Patent No. 434,807, dated August 19, 1890.

Application filed December 19, 1889. Serial No. 334,301. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. RHODES, a citizen of the United States of America, residing at Covington, in the county of Fountain and State of Indiana, have invented certain new and useful Improvements in Photographic Cameras; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in photographic cameras.

The object of the invention is to provide a camera-box with a ground-glass holder hinged to a frame so that it can be reversed to bring the ground glass nearer to or farther away from the lens, the rear frame of the camera being adapted to receive a second frame carrying the sensitized plates, the said second frame being made up of two parts hinged to each other, each half having shutters. The plate-holder is adapted by reason of its peculiar construction to receive either one large plate or two smaller ones and is reversible, by means of which construction I am enabled to take two prints without readjusting the parts of the camera; and my invention consists in the construction and combination of the parts, as will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of the ground-glass holder, showing the same attached to the camera-box. Fig. 2 is a perspective view showing the ground-glass frame removed and the plate-holder frame in position. Fig. 3 is a vertical sectional view showing one of the shutters open to expose the sensitized plate. Fig. 4 is a plan view of the partition-board of the plate-holding frame. Fig. 5 is an end view of the same. Fig. 6 is a plan view of a modification of the plate-holding frame. Fig. 7 is a rear edge view of the ground-glass holder, and Fig. 8 is a detail view showing the interior arrangement of the ledge, recess, and blocks in the plate-holding frame.

The camera-box A is of the usual construction, the rear frame B thereof carrying a rearwardly-projecting ledge B', having projecting pins *b*. Centrally located upon the upper strip of the frame B is a spring-catch *b'*, for engagement with the parts to be hereinafter described. To one edge of the frame B are secured hinges *b*², having upwardly-projecting pintles, and these pintles are adapted to engage with the eyes or socket of the opposite leaf of the hinge, which is rigidly secured to the frame C, in which the ground-glass plate is mounted. The frame C is of considerable thickness, and near one side thereof the ground-glass plate is secured, so as to leave a considerable distance between the plate and opposite side of the frame, and consequently, in order to obtain the proper focus, it will be necessary to place the ground glass to correspond, so that it will occupy the same position relative to the lens as will be occupied by the sensitized plate. Therefore the leaves of the hinges secured to the frame are provided on each edge of the frame with sockets, so that the frame C can be reversed to position the ground-glass plate in the proper relative position. The frame B at its outer edge has a projecting strip which is adapted to lie in the correspondingly-recessed edge of the frame C, so as to provide a tight joint, which will exclude all light.

The plate-holding frame D is made up of two sections D' and D², which are hinged to each other at the bottom, both sides of the frame having a marginal recess within which the projecting strips on the frame B will lie when the plate-holder is placed in position. This plate-holder frame is provided at the base of each section with perforations in which the pins *b* will lie, while the upper edge of each section has a pin *d*, with one of which will engage the spring-catch *b'*. The sections D' and D² are held closed by hook and eye *d'*. Each of the sections D' D² are provided with shutters E, which are adapted to close a central opening therein, and these shutters may be constructed substantially as shown in my application for patent, bearing Serial No. 314,925, or they may consist of a single plate hinged to the frames D' D², the edges thereof being bent inwardly to engage with grooved

metallic strips attached to the inner sides of the openings in these frames, the inwardly-turned edges e' of the plate or shutter E being adapted to lie within the groove in the strips e when the plates are placed to exclude all light from the sensitized plate. Each of the shutters are provided at their lower edge with a bar f , which serves as a hinge for the shutters E, as well as the operating means therefor, and these bars f are bent at right angles and have secured thereto a plate f^2 , the end of which is grooved to engage with the end of a spring g , secured to the edge of the frames D' and D^2 , and by means of the grooved plate, spring, and handle-bar the shutter will be held either opened or closed. One of the sections, preferably D' , is provided adjacent to the central opening therein with a recess h , while the opposite frame D^2 has a deeper-seated recess h' , which is of about the thickness of an ordinary sensitized plate. Blocks h^2 are secured to the corners of the frame D^2 to reduce the depth of the recess h' , so that a sensitized plate of full size or capacity of the camera can be held in the recess h' either in a vertical or horizontal position, and when the full-size plate is used the turn-buttons h^3 are used to retain said plate in place. When a large plate is used, it will be found advantageous to place the frame B upon the frame D, so that the ground-glass will be the same distance from the lens as the sensitized plate. The inner margin of the frames D' and D^2 are provided with a projecting portion and corresponding recess, so that a tight joint will be provided when they are closed.

As it is often desired to take photographs of less size than the extreme capacity of the camera, and also expose two plates in a single frame, I provide a partition-board I, which is adapted to be held in the recess h' , the corners thereof resting upon the blocks h^2 , and this partition is provided on each side with adjustable means for holding the sensitized plates, and thus after securing the proper focus on the ground-glass plate it is removed and the frame D secured in its place and the front shutter opened to expose the plate when the cap is removed from the lens. The partition I is preferably provided with similarly-constructed plate-holders, and one of the essential features of these plate-holders is that they shall not only have a means for adjusting the same laterally, but also have means for adjusting the strips vertically or away from the partition. One form of plate-holder consists of slotted corner-pieces j , which are adjustable longitudinally or laterally by means of clamping-nuts which hold the slotted plates j by frictional contact upon the bolts and against the surface of the partition-board I. The ends of these plates j are upturned and provided with set-screws, the heads of which engage with slots in angular strips k , beneath the overlapping edges of which the sensitized plate is placed. A cen-

tral spring l is provided to hold the sensitized plate against the projecting strips k , and one of said strips has a spring m for forcing the sensitized plate against the opposite retaining-strip. Lateral or longitudinal adjustments are made by loosening the nuts and moving the slotted plates j either toward or away from each other, and the strips k are then adjusted so that the sensitized plate will be held in the same position with respect to the lens as the ground-glass plate occupies. These strips k can also be adjusted so as to take up any aberration or defect in the lens. When it is desired to insert the sensitized plate beneath the holder, one edge is placed under the wide strip having the spring m , and said spring is compressed until the opposite edge of the plate will pass under the opposite strip, when it is thrown and held beneath the same. By this construction it will be observed that the sensitized plate can be readily attached and removed.

I have illustrated another form of plate-holder in which I still retain the essential features—to wit, the longitudinal or lateral movement of the strips k , central spring for holding the plate against the strips k , the vertical adjustment of said strips, and a spring in the wider strip; but in this modification I secure to the board I grooved pieces o , within which the ends of the transverse pieces o' will lie, these transverse pieces having upwardly-extended portions, through which bolts pass for securing the strips k thereon. Each of these transverse pieces o' are provided with rack-bars p , which pass beneath guides formed in the central frame P, which also carries a central pinion which engages with each of the rack-bars, the shaft of the pinion having a wheel for operating the same. One of the rack-bars is provided on its outer edge with notches with which a locking-dog q can engage. The spring l for holding the sensitized plate against the flanged strips k overlies the end of the wheel and pinion. By means of this construction the parts can be quickly adjusted by simply turning the hand-wheel so as to expand or contract the strips k . The spring l in this instance is hinged at one end, so that it can be turned to one side when it is desired to operate the hand-wheel. The board I can be turned to locate the plates either vertically or horizontally.

Having thus described my invention, I claim—

1. The combination, with a photographic camera having hinges or pintles secured to the rear edge on one side thereof, of a ground-glass plate-holder having on each edge sockets which are adapted to engage with the aforesaid pintles, so that the frame holding the ground-glass plate can be reversed, substantially as set forth.

2. The combination, with a photographic camera, the rear end of the box thereof being provided at one side with projecting pintles and at its upper portion with a spring-catch, of a

frame adapted to receive a ground-glass plate, said plate being secured in said frame to one side of the center thereof, said frame having sockets on each edge with which the pintles are adapted to engage and on its upper and lower edge with projecting pins with which the spring-catch b' engages, substantially as shown, and for the purpose set forth.

3. The combination, with a photographic-camera box, the rear frame of which is provided with marginal projecting strips and side pintles, of a frame for supporting the ground glass, said frame being adapted to be reversed and maintained in position and having sockets adapted to engage said pintles in either position, the glass in the reversible frame being located to one side of the center thereof, for the purpose set forth.

4. The combination, with the box of a photographic camera, of the rear frame B, having a rearwardly-projecting ledge at its base and a spring-catch upon its upper edge, together with pintles of a plate-holding frame having shutters, said frame being adapted to be reversed and maintained in position, and sockets for engaging said pintles in either position, substantially as shown, and for the purpose set forth.

5. The combination, with a rear frame B of a photographic camera having pintles, as described, of a sensitized-plate-holding frame reversible and formed of two parts hinged to each other, said parts having recesses in which the edges of a sensitized plate will lie, and a shutter hinged to one of said frames, said shutter being adapted to open into the camera-box to expose the plate, devices located at the side for opening and closing said shutter, together with sockets carried by said plate-holding frame for engaging said pintles in either of the positions to which the plate-holding frame may be adjusted, substantially as set forth.

6. The combination, with a photographic camera, a plate-holder, consisting of two frames hinged to each other, each frame carrying a shutter or shutters, of a partition-board secured between said frames and provided on each side with means for retaining plates, the frame D being reversible, substantially as set forth.

7. The combination of a frame D, made up of two sections, which are hinged to each other, each section being provided with a shutter, a recess for engaging with projecting pins b on the ledge B' , and also with pins d for engaging with the spring-catch b' , substantially as shown, and for the purpose set forth.

8. The combination, with a plate-holder for photographic cameras, a frame provided adjacent to the opening therein with strips secured to the frame and provided on their inner portions with grooves, of a shutter E, having inwardly-turned edges e' , which are adapted to lie within said grooves when the shutters are closed, and an operating-handle forming a means for connecting the shutters

to the frames, substantially as shown, and for the purpose set forth.

9. The combination, with a photographic camera, of a frame provided with a shutter, and operating-handle journaled in said frame and secured to the shutter, said handle carrying a grooved plate, which engages with the spring g , attached to the outer edge of the frame, so that the shutter will be held either opened or closed, substantially as and for the purpose set forth.

10. In combination with the frames D' and D^2 , one of said frames having a projecting ledge, while the opposite one is correspondingly recessed to provide overlapping joints, a central recess within which a sensitized plate will lie, and a hook for securing the sections, substantially as shown, and for the purpose set forth.

11. The combination, with the double frames D' and D^2 , hinged to each other and provided with shutters, of a deep-seated recess h' in one of the frames, corner-blocks h^2 , projecting above said recesses, and turn-buttons h^3 for retaining the sensitized plate, substantially as shown, and for the purpose set forth.

12. The combination, with the frames D' and D^2 , hinged to each other and provided with shutters, shutter-operating devices located at the side, each of said frames being provided interiorly with recesses h and h' , of a non-transparent partition I of greater thickness at its edges than either of said recesses, said partition being provided on opposite sides with means for holding sensitized plates thereon, substantially as set forth.

13. The combination, with the frames D' and D^2 , hinged to each other and provided with shutters, of a non-transparent partition I, adapted to be held between the same, and provided with adjustable means on each side of said board for securing sensitized plates thereto, substantially as shown, and for the purpose set forth.

14. The combination, with the plate I, having lateral or vertically adjustable slides with upturned edges, of transverse strips k , bent, as shown, and provided with slots, and means for adjusting the strips k upon the slides, substantially as set forth.

15. In combination with the partition I, having the lateral or longitudinal adjustable slides secured thereto, transverse strips k , secured to said slides, one of said strips carrying a spring against which the edge of the sensitized plate will abut, substantially as set forth.

16. In combination with the partition-board I, having on each side thereof adjustable slides, flanges adapted to lie over the sensitized plate, a central spring for forcing the sensitized plate against the projecting flanges, and a spring carried by one of the transverse strips having flanges, so as to force one edge of the sensitized plate against the opposite strip, substantially as shown, and for the purpose set forth.

17. In combination with the partition-board
I, slides secured thereto, said slides having
strips attached thereto, which project toward
each other, said strips being adjustable there-
5 on, rack-bars connected to said slides and
adapted to engage with a central pinion,
means for locking said slides, and a hand-
wheel for turning the pinion, so as to operate

both slides simultaneously, substantially as
shown, and for the purpose set forth. 10

In testimony whereof I affix my signature in
presence of two witnesses.

JOSEPH M. RHODES.

Witnesses:

JOHN B. MARTIN,
JOHN A. DUNCAN.