

(No Model.)

2 Sheets—Sheet 1.

G. SHORKLEY.
PHOTOGRAPHIC CAMERA.

No. 409,874.

Patented Aug. 27, 1889.

Fig. 1.

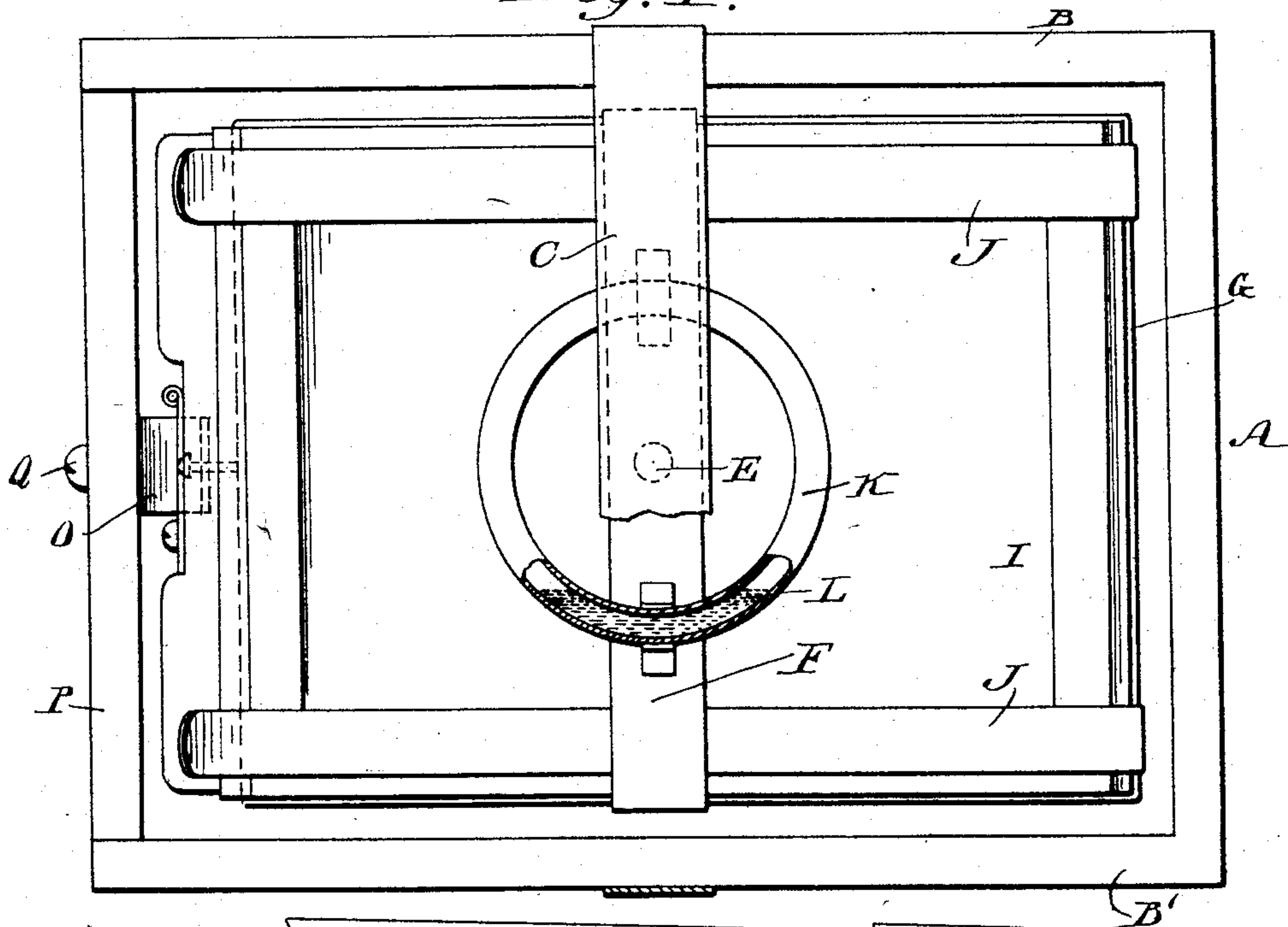
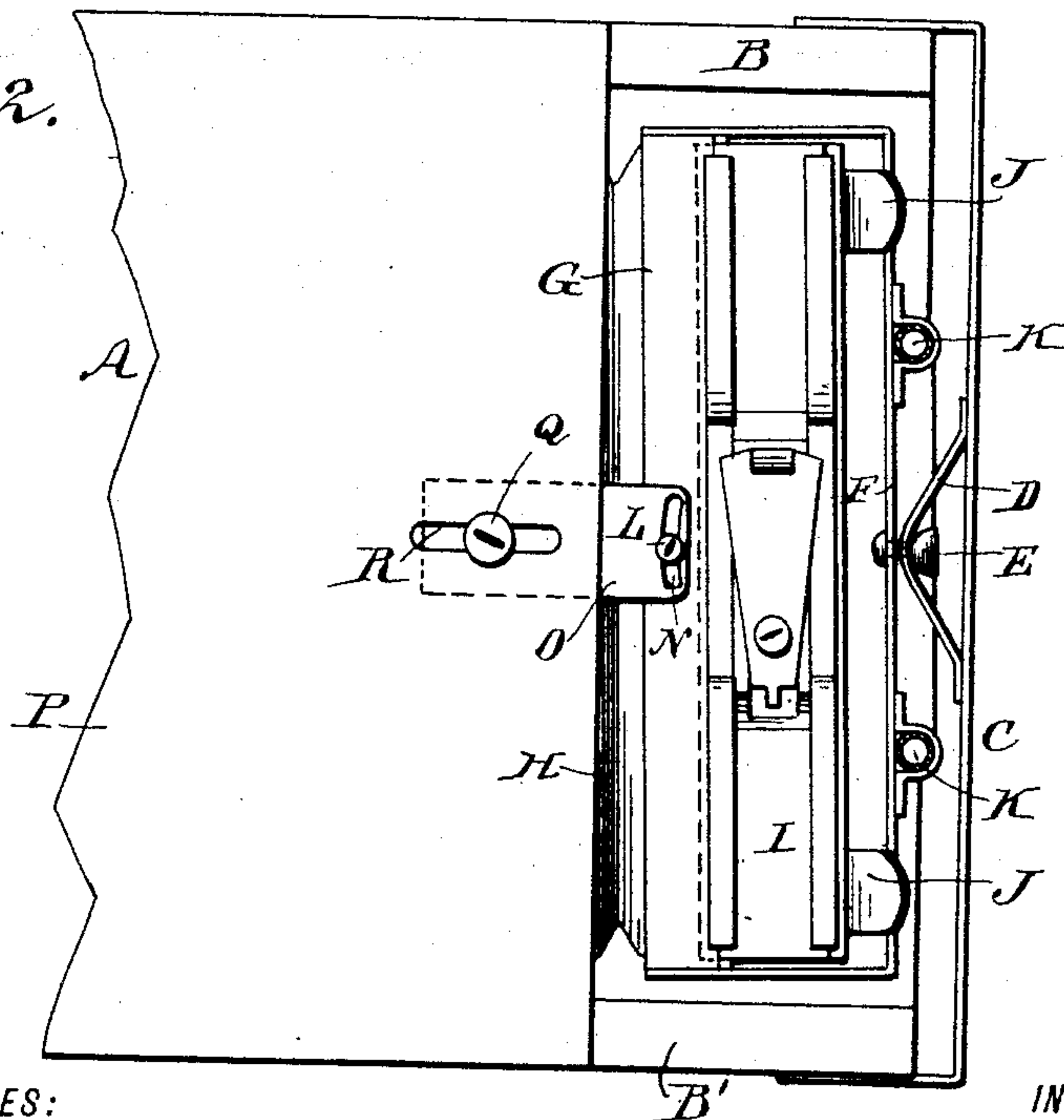


Fig. 2.



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BY

ATTORNEYS.

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Fig. 3.

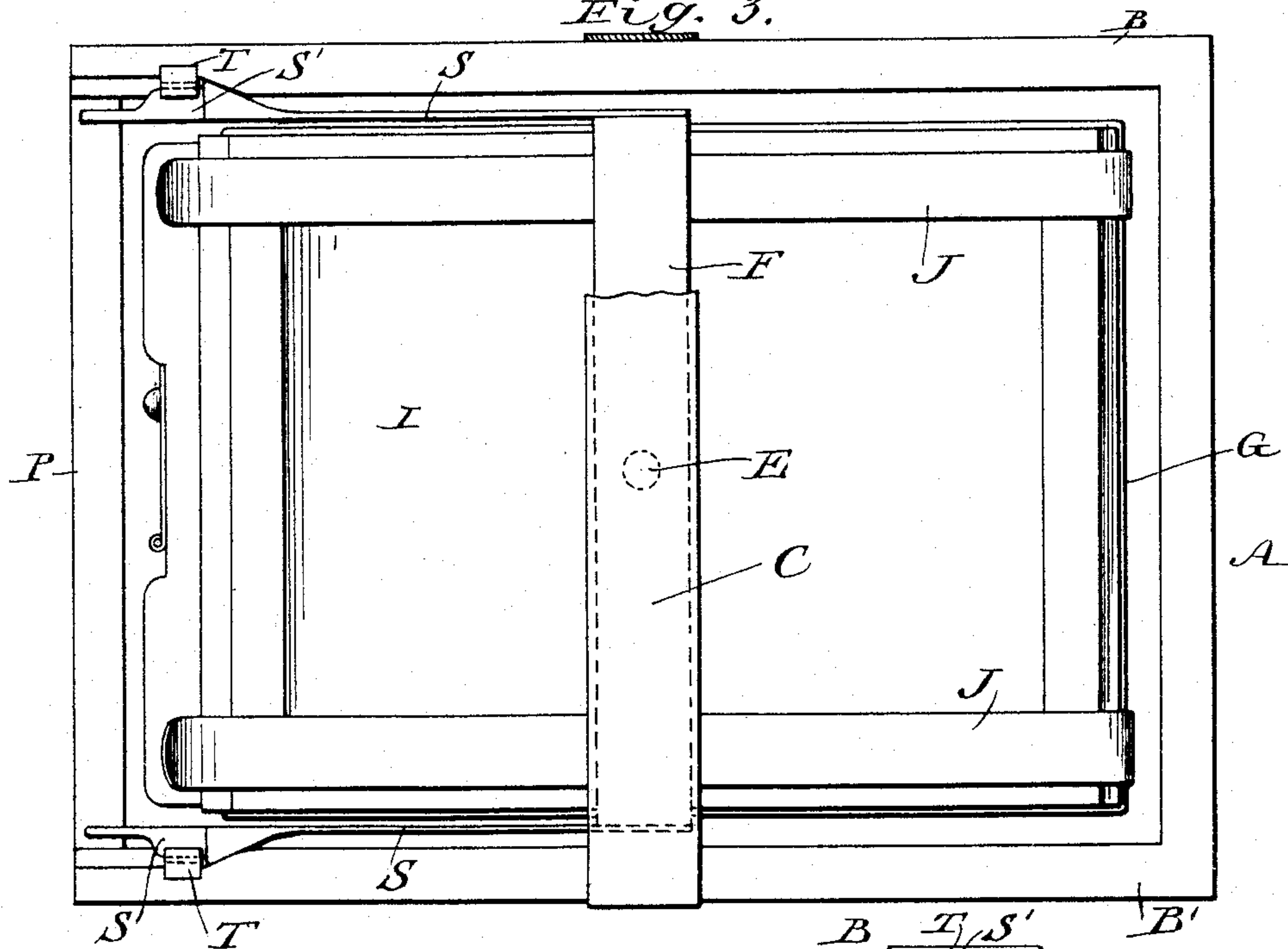
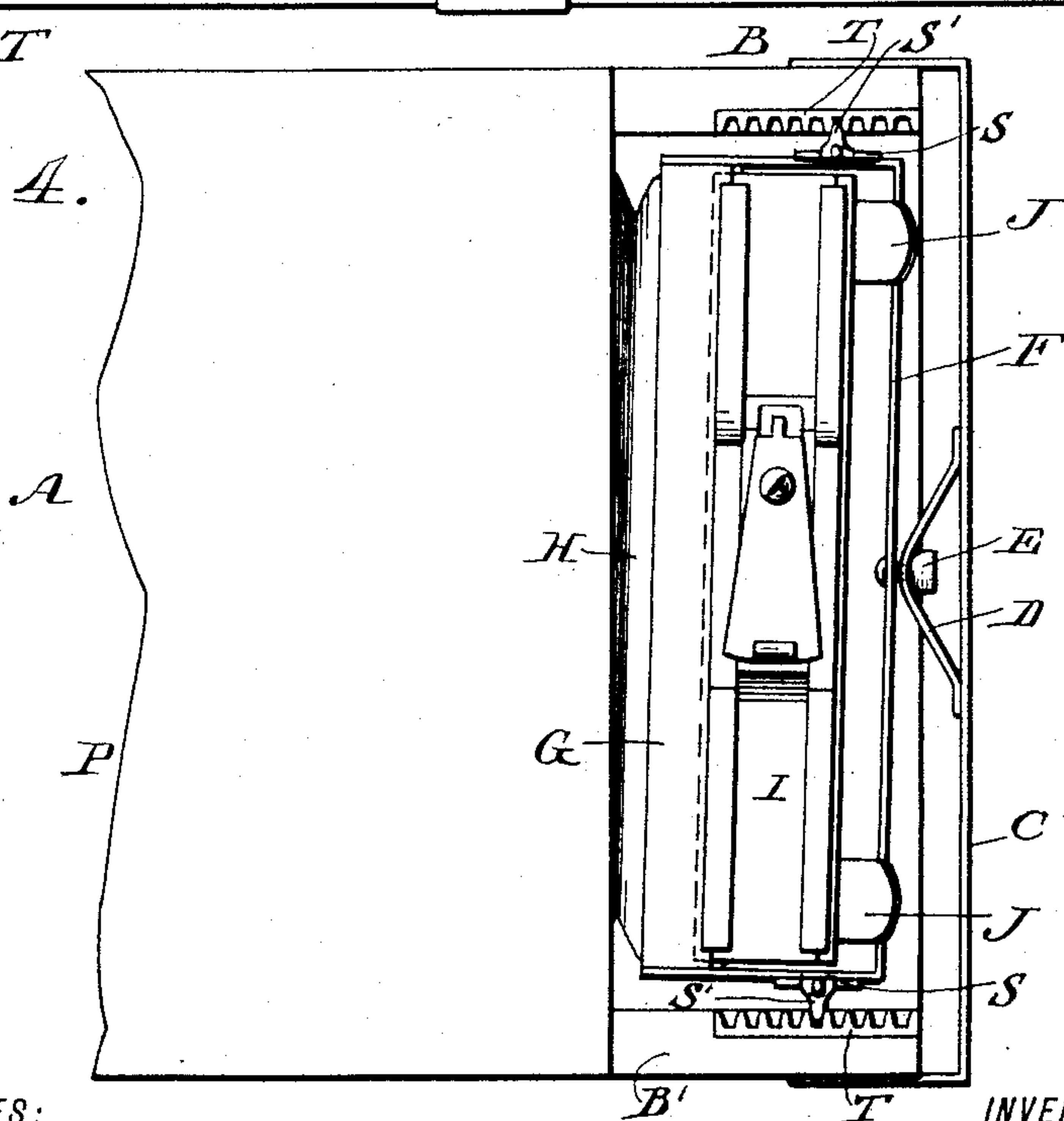


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE SHORKLEY, OF NEW YORK, N. Y.

PHOTOGRAPHIC CAMERA.

SPECIFICATION forming part of Letters Patent No. 409,874, dated August 27, 1889.

Application filed March 16, 1889. Serial No. 303,570. (No model.)

To all whom it may concern:

Be it known that I, GEORGE SHORKLEY, of New York, in the county and State of New York, have invented certain new and useful
5 Improvements in Photographic Cameras, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved swinging back especially
10 adapted for detective-cameras to hold the plate-holder always in a vertical position irrespective of the position of the camera-casing, so that the objects photographed—such as houses, for instance—always appear in a nat-
15 ural position on the dry-plate.

The invention consists of a swing-back and a universal joint connecting the said swing-back with the camera-casing.

The invention also consists of certain parts
20 and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

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

Figure 1 is an end elevation of a camera provided with the improvement, parts being in section. Fig. 2 is a side elevation of the
30 same with parts in section. Fig. 3 is an end view of a modified form of the improvement, and Fig. 4 is a side elevation of the same.

The camera-casing A, of any approved construction, is provided at its rear end at the
35 top and bottom B and B', respectively, with a vertical plate C, carrying in its middle a bracket D, supporting a universal joint E, connected with a vertical plate F, secured to the swing-back G, connected in the usual
40 manner with the bellows H and held in the rear end of the camera-casing. The universal joint E is located centrally, so as to be in line with the center of the lens in the front end of the camera-casing. The swing-back
45 G, on account of being universally jointed to the casing A, is free to swing in any direction.

On the vertical plate F, before mentioned, is arranged a circular tube K, the center of
50 which is in the universal joint E. This circular tube K contains a quantity of a loose material L, preferably mercury, which serves to throw

the swing-back G always into a vertical position irrespective of the position of the camera-casing A. The heavy liquid L in the tube K
55 always seeks its level by the laws of gravity, so that no matter in what position the camera-casing may be the swing-back G will stand vertically. The swing-back G supports the plate-holder I in the usual manner, the plate-
60 holder being locked in place by the springs J, held on the swing-back. The plate-holder is in front of the plate F and the universal joint E, so that the latter does not interfere in any manner with the insertion or removal
65 of the plate-holder I.

In order to lock the swing-back G in place, I provide it with a screw N, projecting from one side and passing through a slot O', formed in a plate O, extending from the middle of the
70 swing-back G forward to the inside of the side part P of the casing A, as is plainly shown in Fig. 2. The plate O is provided with a set-screw Q, projecting through a longitudinally-
75 extending slot R, formed in the side P of the casing A. When the said screws N and Q are loosened, the swing-back is free to assume its natural vertical position by the action of the heavy liquid in the circular tube K. The seg-
80 mental slot O' permits a forward and backward swinging motion of the swing-back G, and the plate O is free to move forward and backward, the set-screw Q traveling in the slot R. As soon as the desired position of the
85 swing-back is obtained, the set-screws N and Q may be tightened, thus holding the swing-back in a vertical position. It will be seen that as the universal joint E is in the center of the camera, in line with the center of the
90 lens, the dry-plate will always be in the correct position in regard to the lens, and as the dry-plate is always held in a vertical position by the action of the heavy liquid L a correct exposure can be made, the objects photo-
95 graphed not appearing distorted on the dry-plate. Thus it will be seen that an automatic swing-back is provided in the rear end of the camera.

In the modification shown in Figs. 3 and 4 I connect the swing-back G by the universal
100 joint E with the rear end of the camera; but instead of the circular tube K and the mercury L, I provide means for moving the swing-back G into the desired position by hand.

For this purpose I provide the vertical plate F at the top and bottom with sidewise-extending springs S, each provided at its outer end with a tooth adapted to engage a notched bar T, secured longitudinally in the top and bottom B and B' of the camera-casing. The extreme outer ends of the springs S are provided with convenient handles, of which the operator can take hold in order to press the springs inward, so as to disengage the same from the notched bars T, at the same time being able to turn the swing-back G in any desired direction, and then when he releases his pressure on the handles the lugs S' engage the notched bars T and lock the swing-back in the desired position. As the swing-back is hung on the universal joint E, the operator, by disengaging the lugs S' from the notched bars T, is enabled to swing the swing-back G into any desired position irrespective of the position of the casing A.

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

1. In a photographic camera, the combination, with a swing-back, of a universal joint connecting the said swing-back with the camera-casing, substantially as shown and described.

2. In a photographic camera, the combination, with a weighted swing-back, of a universal joint connecting the said swing-back with the camera-casing, substantially as shown and described.

3. In a photographic camera, the combination, with a swing-back universally jointed to the camera-casing, of a tube held on the said swing-back and containing a loose material which always seeks its level and throws the swing-back into a vertical position, substantially as shown and described.

4. In a photographic camera, the combination, with a swing-back adapted to support the plate-holder, of a universal joint held centrally on the said swing-back in the rear of the said plate-holder and universally jointing the said swing-back with the camera-casing, substantially as shown and described.

5. In a photographic camera, the combination, with a swing-back adapted to support the plate-holder, of a universal joint held centrally on the said swing-back in the rear of the said plate-holder and universally jointing the said swing-back with the camera-casing, and means, substantially as described, for automatically moving the said swing-back into a vertical position, as set forth.

6. In a photographic camera, the combination, with a swing-back adapted to receive a plate-holder, of a universal joint held centrally on the said swing-back in the rear of the said plate-holder and universally jointing the said swing-back to the camera-casing, a

circular tube held on the said swing-back concentric with the said universal joint, and a heavy liquid contained in the said circular tube, substantially as shown and described.

7. In a photographic camera, the combination, with a swing-back adapted to receive a plate-holder, of a universal joint held centrally on the said swing-back in the rear of the said plate-holder and universally jointing the said swing-back to the camera-casing, a circular tube held on the said swing-back concentric with the said universal joint, a heavy liquid contained in the said circular tube, and means, substantially as described, for locking the said swing-back in place after being automatically adjusted, as set forth.

8. In a photographic camera, the combination, with a swing-back adapted to receive the plate-holder, of a universal joint held centrally on the said swing-back and universally jointing the latter to the camera-casing, and a guide-plate held on the said swing-back for guiding the latter when seeking its normal position, substantially as shown and described.

9. In a photographic camera, the combination, with a swing-back adapted to receive the plate-holder, of a universal joint held centrally on the said swing-back and universally jointing the latter to the camera-casing, a guide-plate held on the said swing-back for guiding the latter when seeking its normal position, and means, substantially as shown and described, for locking the said guide-plate onto the said swing-back and the camera-casing, as set forth.

10. In a photographic camera, the combination, with a camera-casing, of a swing-back held in the rear of the said camera-casing and a universal joint for connecting the said swing-back with the said camera-casing, substantially as shown and described.

11. In a photographic camera, the combination, with a camera-casing, of a swing-back held in the rear of the said camera-casing, a universal joint for connecting the said swing-back with the said camera-casing, and means, substantially as described, for adjusting the said swing-back on the rear end of the said casing, as set forth.

12. In a photographic camera, the combination, with a camera-casing, of a swing-back held in the rear of the said camera-casing, a universal joint for connecting the said swing-back with the said camera-casing, means, substantially as described, for adjusting the said swing-back on the rear end of the said casing, and a locking device for fastening the said swing-back in place after being adjusted, as set forth.

GEO. SHORKLEY.

Witnesses:

THEO. G. HOSTER,
C. SEDGWICK.