(No Model.)

2 Sheets—Sheet 1.

G. SHORKLEY.

PHOTOGRAPHIC CAMERA.

No. 438,494. Patented Oct. 14, 1890.

Fig: 1.

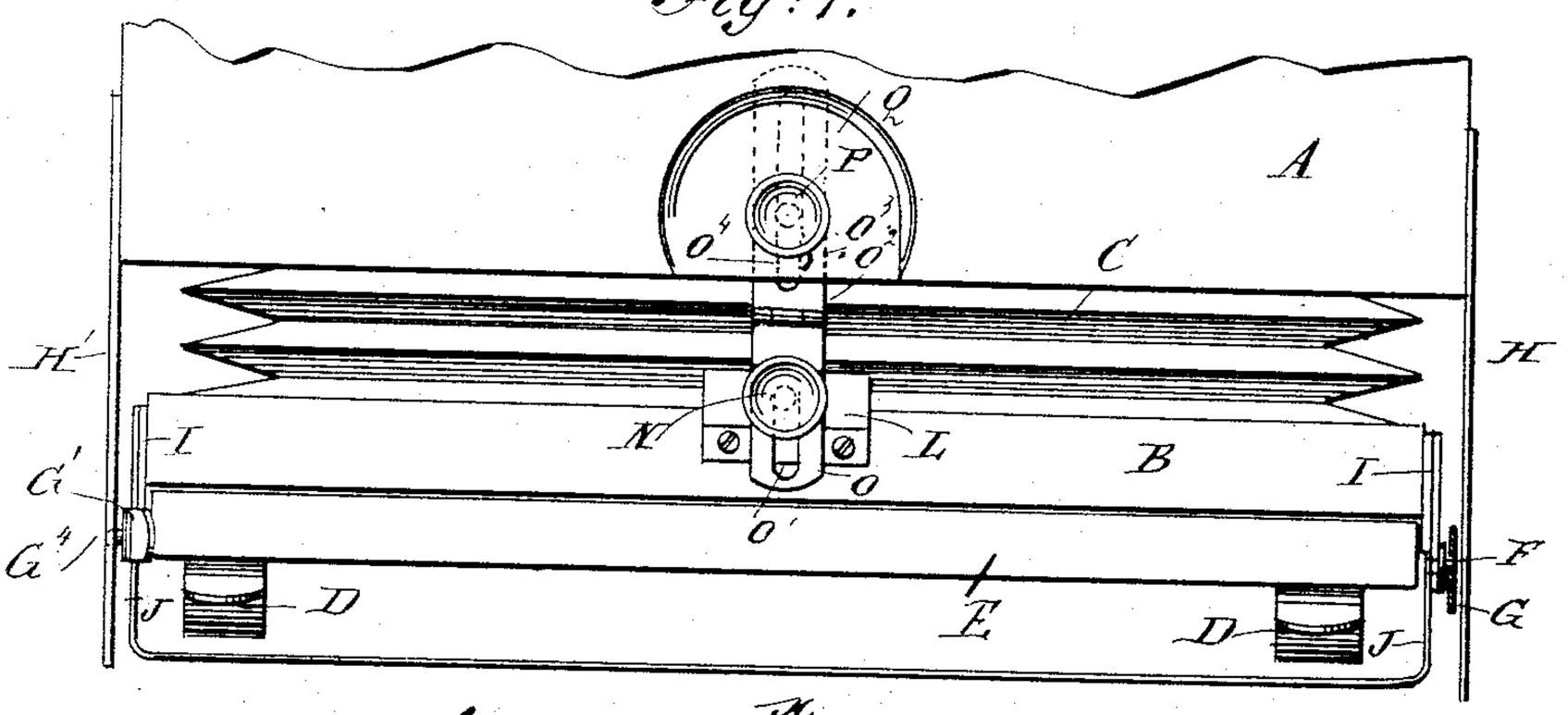
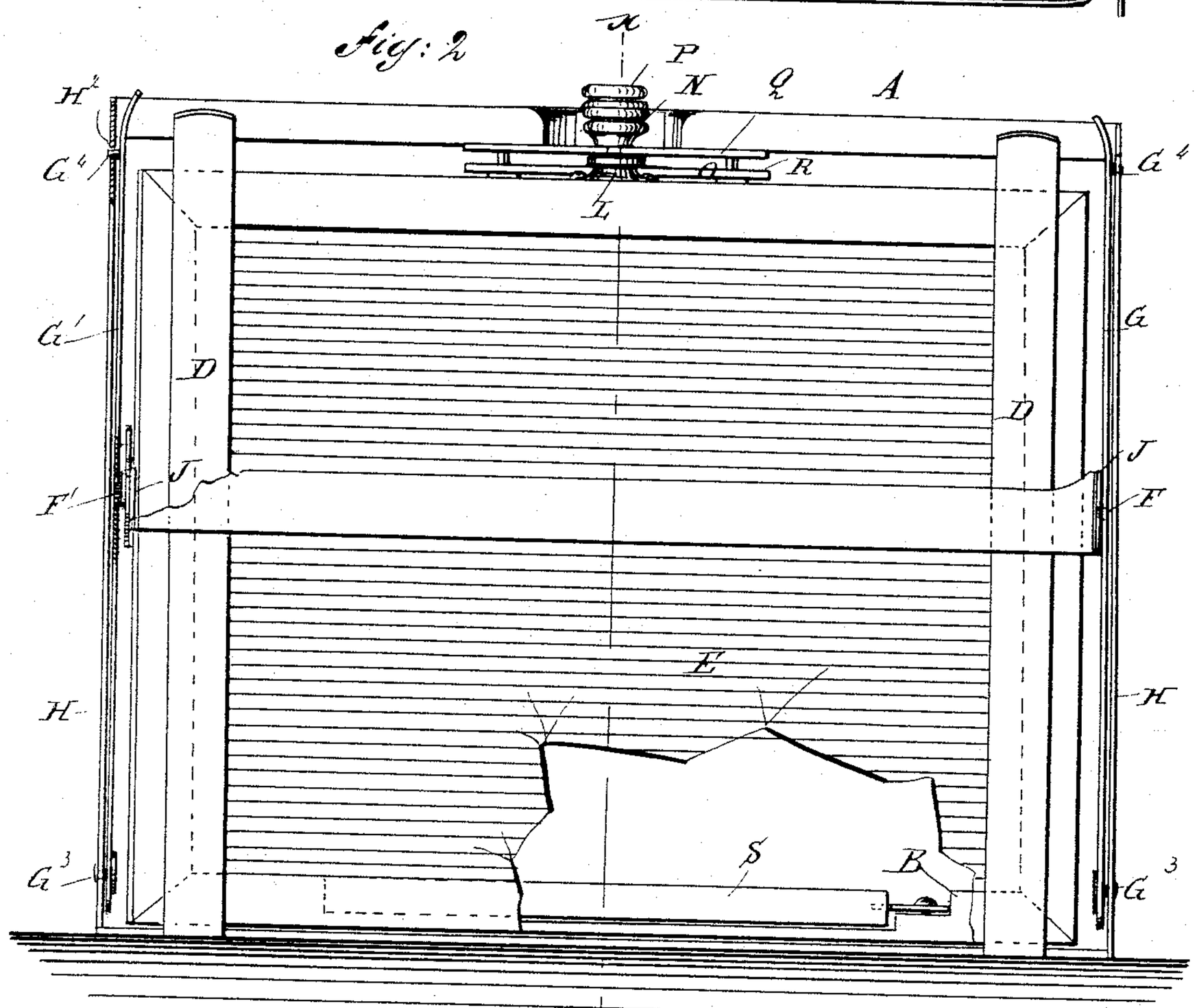


Fig: 2



WITNESSES:

Chas. Nida.

C. Bedgwick

INVENTOR:

G. Shorkley

BY

Munn & Co.

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(No Model.) 2 Sheets—Sheet 2.

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PHOTOGRAPHIC CAMERA.

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Fig. 3.

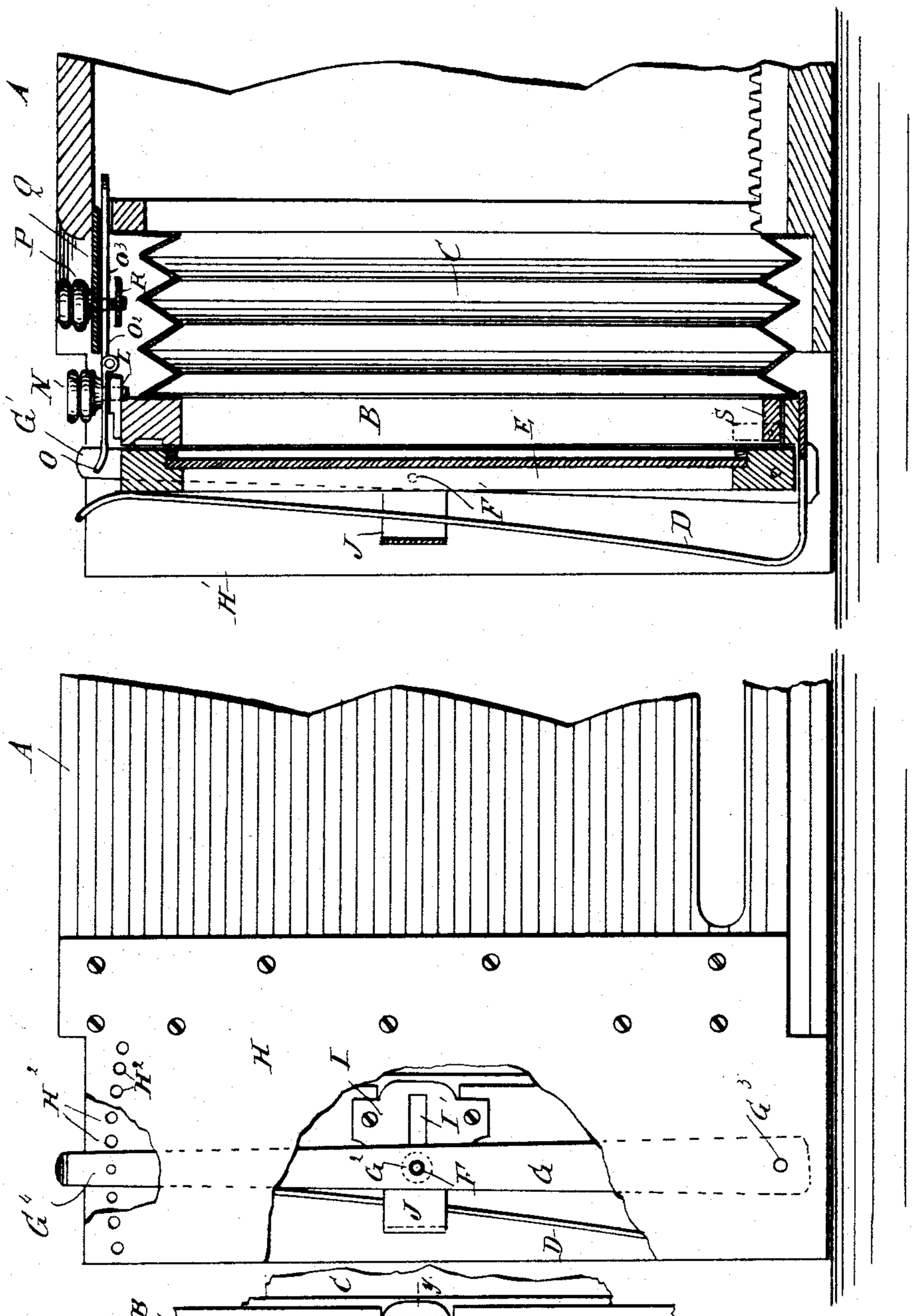

Fig. 4.

Fig. 5.

Fig. 6.

WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE SHORKLEY, OF NEW YORK, N. Y.

PHOTOGRAPHIC CAMERA.

SPECIFICATION forming part of Letters Patent No. 438,494, dated October 14, 1890.

Application filed November 25, 1889. Serial No. 331,456. (No model.)

To all whom it may concern:

Be it known that I, GEORGE SHORKLEY, of the city, county, and State of New York, have invented a new and Improved Photographic Camera, of which the following is a full, clear, and exact description.

The invention relates to photographic cameras, such as shown and described in the United States Letters Patent No. 409,874, granted to me August 27, 1889.

The object of the present invention is to provide a new and improved photographic camera, in which the swing-back is held adjustably in the camera-casing to move the dry-plate or film in proper position with regard to the object to be photographed.

The invention consists of a swing-back pivotally connected with the camera-casing.

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

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

Figure 1 is a plan view of the improvement. Fig. 2 is an end elevation of the same with parts broken out and parts in section. Fig. 3 is a sectional side elevation of the same on the line *x x* of Fig. 2. Fig. 4 is a side elevation of the same with parts broken out. Fig. 5 is a side elevation of one of the adjustable pivots of the swing-back, and Fig. 6 is a sectional plan view of the same on the line *y y* of Fig. 5.

In my former patent above referred to the swing-back is universally jointed to the camera-casing; but I find that for ordinary work the universal jointing of the swing-back to the camera is not as desirable as pivoting the swing-back to the casing, so as to permit it to only swing forward and backward. For this purpose the swing-back is pivoted, preferably, on its sides to arms held adjustable on the casing to set the swing-back at any desired angle to the sides of the casing, the pivots permitting its free vertical adjustment.

As shown in the drawings, the swing-back is pivoted on its sides; but it may be hinged on the top of the casing and the hinge made adjustable to set the swing-back at angles to the sides of the casing.

The camera-casing A, of any approved construction, supports in its rear end the swing-back B, connected in the usual manner with the bellows C. On the rear end of the swing-back B are arranged the usual springs D for supporting the ground glass E or the plate-holder or film in the usual manner. The swing-back B is preferably a rectangular frame, on the sides of which are held opposite each other pivots F and F′, engaging correspondingly-shaped apertures G^2, formed in the arms G and G′, respectively, pivotally connected at their ends at G^3 to extension sides H and H′, respectively secured on the rear end of the casing A.

Near the upper end of each pivoted arm G or G′ is secured a pin or projecting lug G^4, adapted to engage one of a series of apertures H^2, formed in the respective extension side H or H′. The series of apertures H^2 in each plate is arranged in the segment of a circle, the center of which is the pivot G^3 of the respective pivoted arm G or G′. The arms G and G′ are preferably made of spring metal, so as to press outward to engage with their pins or projections G^4 one of the apertures in the series of apertures H^2. As each arm G and G′ is independent of the other, said arms need not necessarily stand opposite each other—that is, the corresponding pins G^4 may engage apertures H^2 not located opposite each other.

As shown in Fig. 1, the arms G and G′ are directly opposite each other, and both stand in a vertical position, so as to support the swing-back B in a normal position. The swing-back thus stands at right angles to the sides of the camera-casing A. When the operator desires to move the swing-back B at angles to the sides of the camera-casing, one of the said arms G or G′ is pressed inward at its upper end, so as to disengage its pin G^4 from the respective aperture H^2, and then the operator can swing the pivoted arm forward or backward to engage another of the series of apertures H^2, while the opposite arm remains stationary. By this movement of one of the pivoted arms the swing-back B is thus set at angles to the sides of the casing. The pivots F and F′ on the sides of the swing-back B are held adjustable forward or backward, so as to engage the center of gravity of the swing-back, according to the weight of the ground

glass, the plate-holder, or film used on the swing-back. In order to make the pivots F and F′ adjustable, each side of the swing-back is provided with a guide I, in which is held to slide a longitudinal plate J, carrying the pivot F, which projects through a slot I′ in the guide I. The pivot F is in the form of a screw threaded into the plate J. A washer K is placed under the head of the pivot F, so that when the pivot is slackened the bar G can be moved inward or outward, the pivot F traveling in the groove or slot I′ of the guide. When the desired position is reached, the pivot-screw F is screwed up with its head against the washer K, so as to lock the plate J to the guide I, whereby the pivot F is secured on the swing-back B. As shown in the drawings, the two plates J on opposite sides of the swing-back B are connected with each other, so as to form a single U-shaped bar; but the connecting-piece may be dispensed with. After the swing-back B is adjusted in the rear of the casing A it may be desirable to lock it in place in the adjusted position, and for this purpose I provide a suitable lock, preferably of construction shown and presently to be described.

To the top of the swing-back B is secured a plate L, in which screws a bolt N, passing through a slot O′ in an arm O, extending horizontally and hinged at O^2 to a second arm O^3, having a longitudinal extending slot O^4, through which passes a bolt P, also passing through a plate Q, secured to the top of the camera-casing A and screwing in a transversely-extending bar R, passing under the arm O^3, and held to slide vertically on suitable pins in the top of the camera casing A. When the screw P is screwed up, the bar clamps the arm O^3 in place on the bar Q, and in a similar manner when the screw N is screwed up it clamps the arm O to the plate L, so that the swing-bar B is secured in place in whatever position it may be. When the screws N and P are loosened, the arms O and O^3 are free to slide longitudinally, and at the same time the arm O is free to swing up and down slightly, according to the swinging of the swing-back B on account of the hinged joint O^2.

In order to facilitate the movement of the swing-back, I provide the latter in its bottom with a weight S, preferably hinged at its ends, so as to swing it forward or backward to change the center of gravity of the swing-back, according to the weight supported on the swing-back in the form of the dry-plate or the film.

The operation is as follows: When the operator uses the camera, he loosens the screws N and P, so that the swing-back B is free to swing forward and backward on its pivots F and F′ on the pivoted arms G and G′, respectively. When the camera-casing is tilted, the swing-back will assume a vertical position, on account of being pivoted at its sides at F and F′. When the operator desires to place the swing-back B in an angular position in relation to the sides of the casing A, he moves either of the pivoted arms G or G′ in the manner previously described, so that the two pivots F and F′ are not directly opposite each other with regard to the sides of the casing A, so that the swing-back stands at an angle to the sides of the casing. When the desired position of the swing-back is obtained, the operator screws up the screws N and P, so that the arms O and O^3 are locked in place, thus holding the swing-back B in place and preventing any movement of the same. When both screws N and P are screwed up, the pivoted arms G and G′ may be dispensed with, as the swing-back then swings from the hinge O^2 when the casing-back is tilted. By slackening the screw P the swing-back can then be set at angles to the sides of the casing, as the arm O^2 then turns on the bolt P.

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 support pivoted in the camera-casing and adapted to be fastened thereto, of a weighted swing-back pivoted on the said support, substantially as shown and described.

2. In a photographic camera, the combination, with side plates fixed to the camera-casing and provided with apertures, of spring-arms supporting the swing-back and pivoted to the said sides, and a pin or lug projection from the said arms to engage the said apertures, substantially as shown and described.

3. In a photographic camera, the combination, with side plates fixed to the camera-casing and provided with apertures, of spring-arms supporting the swing-back and pivoted to the said sides, a pin or lug projecting from the said arms to engage the said apertures, and a swing-back pivoted to the said arms, substantially as shown and described.

4. In a photographic camera, the combination, with side plates fixed to the camera-casing and provided with apertures, of spring-arms supporting the swing-back and pivoted to the said sides, a pin or lug projecting from the said arms to engage the said apertures, and a swing-back having pivots held adjustable in the said arms, substantially as shown and described.

5. In a photographic camera, the combination, with a swing-back, of guides held on opposite sides of the said swing-back, and a bar carrying a pivot and held adjustable in the said guide, substantially as shown and described.

6. In a photographic camera, the combination, with a swing-back, of adjustable pivots held thereon, and arms pivoted on the camera-casing and adapted to receive the said pivots, substantially as shown and described.

GEO. SHORKLEY.

Witnesses:
THEO. G. HOSTER,
C. SEDGWICK.