

No. 754,872.

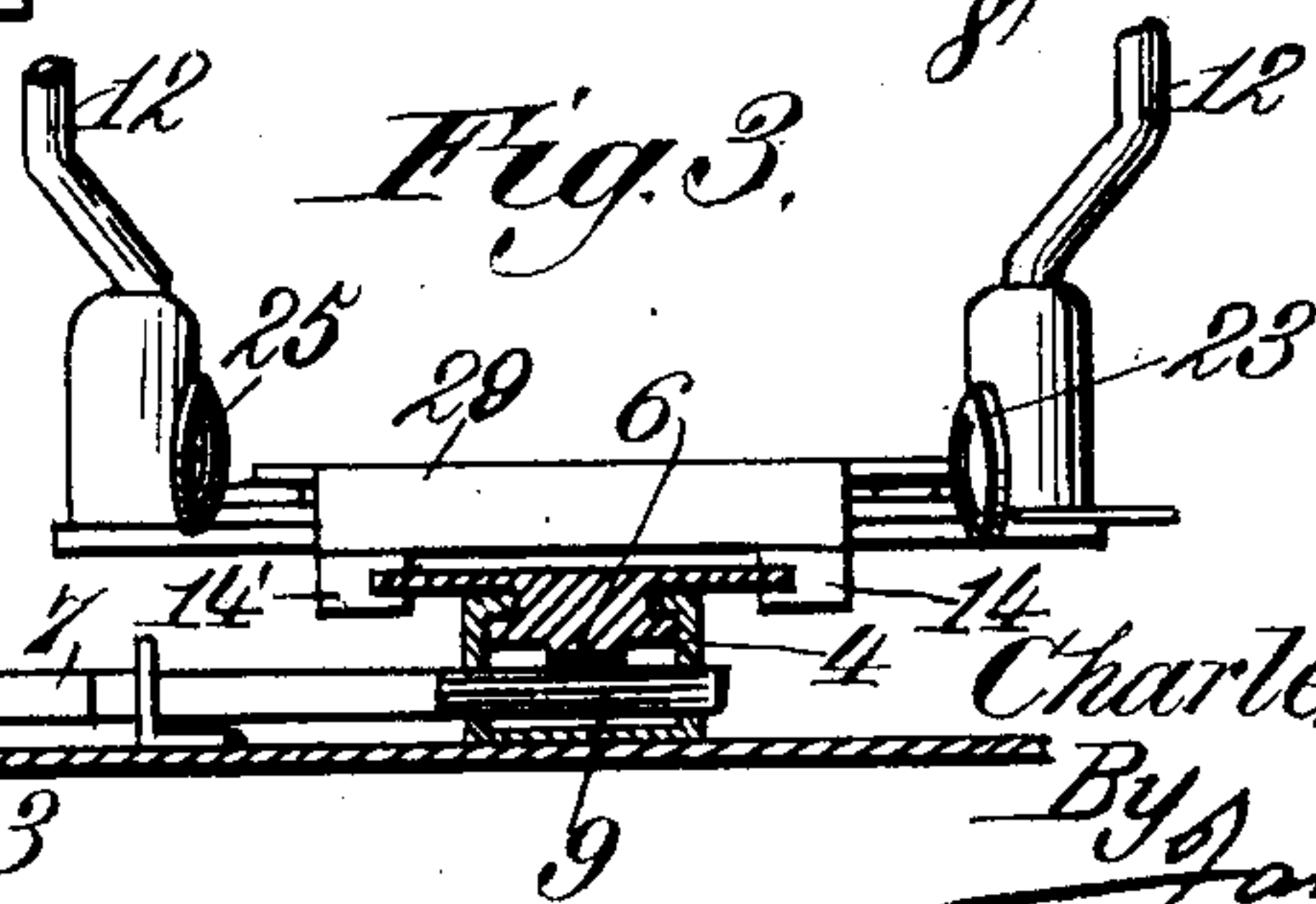
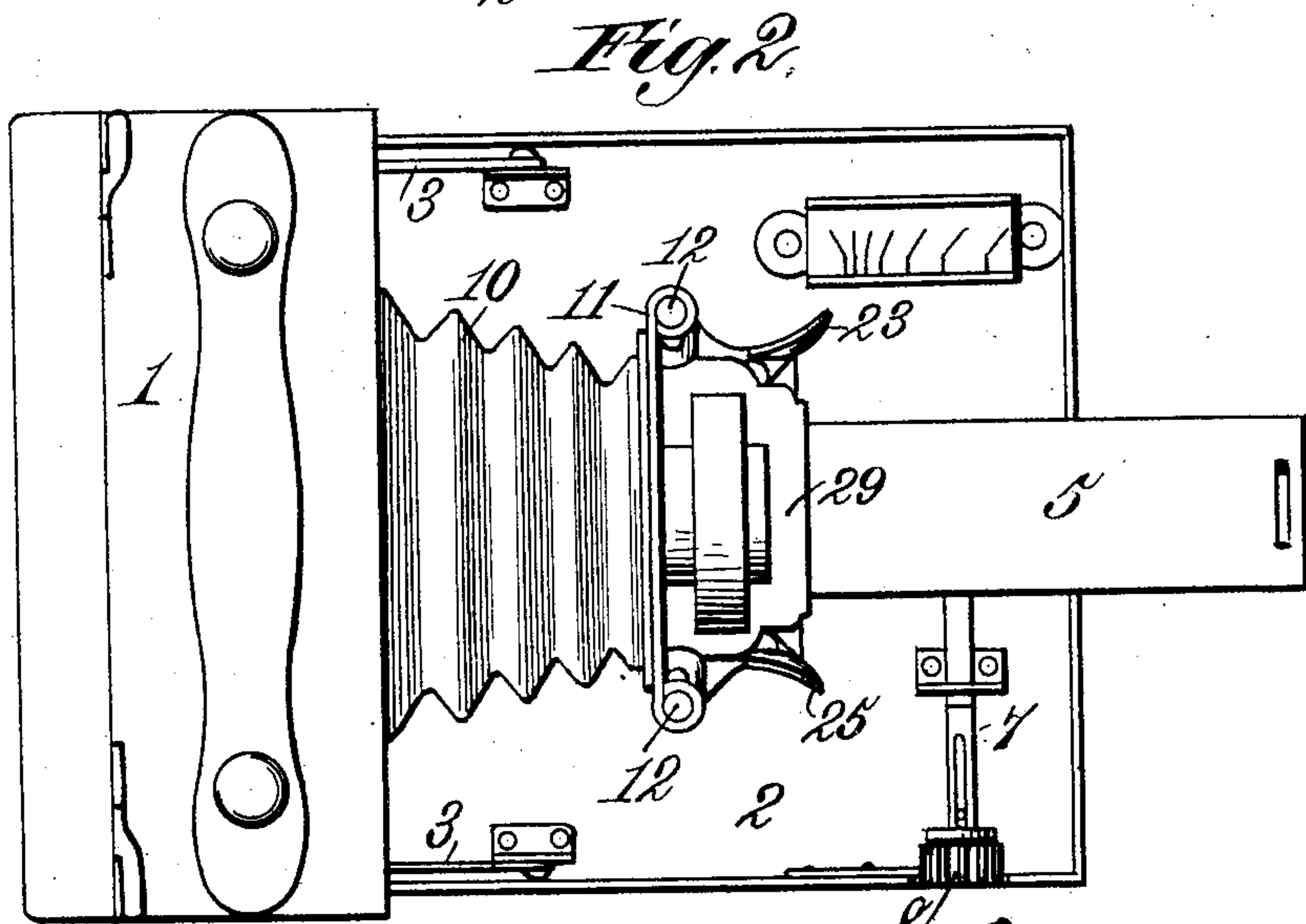
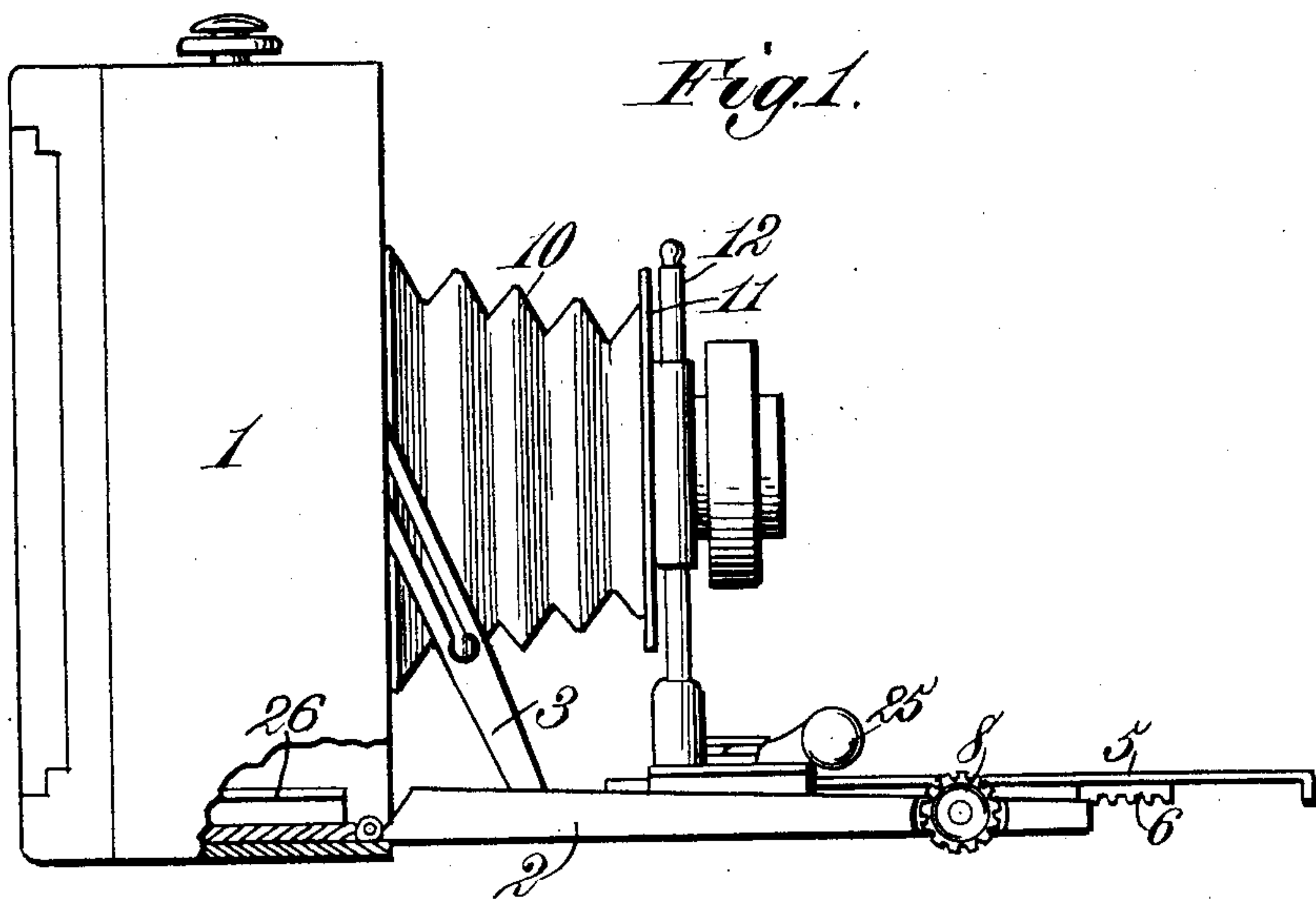
PATENTED MAR. 15, 1904.

C. E. HUTCHINGS.  
LENS CARRIAGE SECURING MEANS.

APPLICATION FILED APR. 9, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:  
Robert Swatt.

James L. Norris, Jr.

Inventor:  
Charles E. Hutchings.

By James L. Norris,  
Att'y

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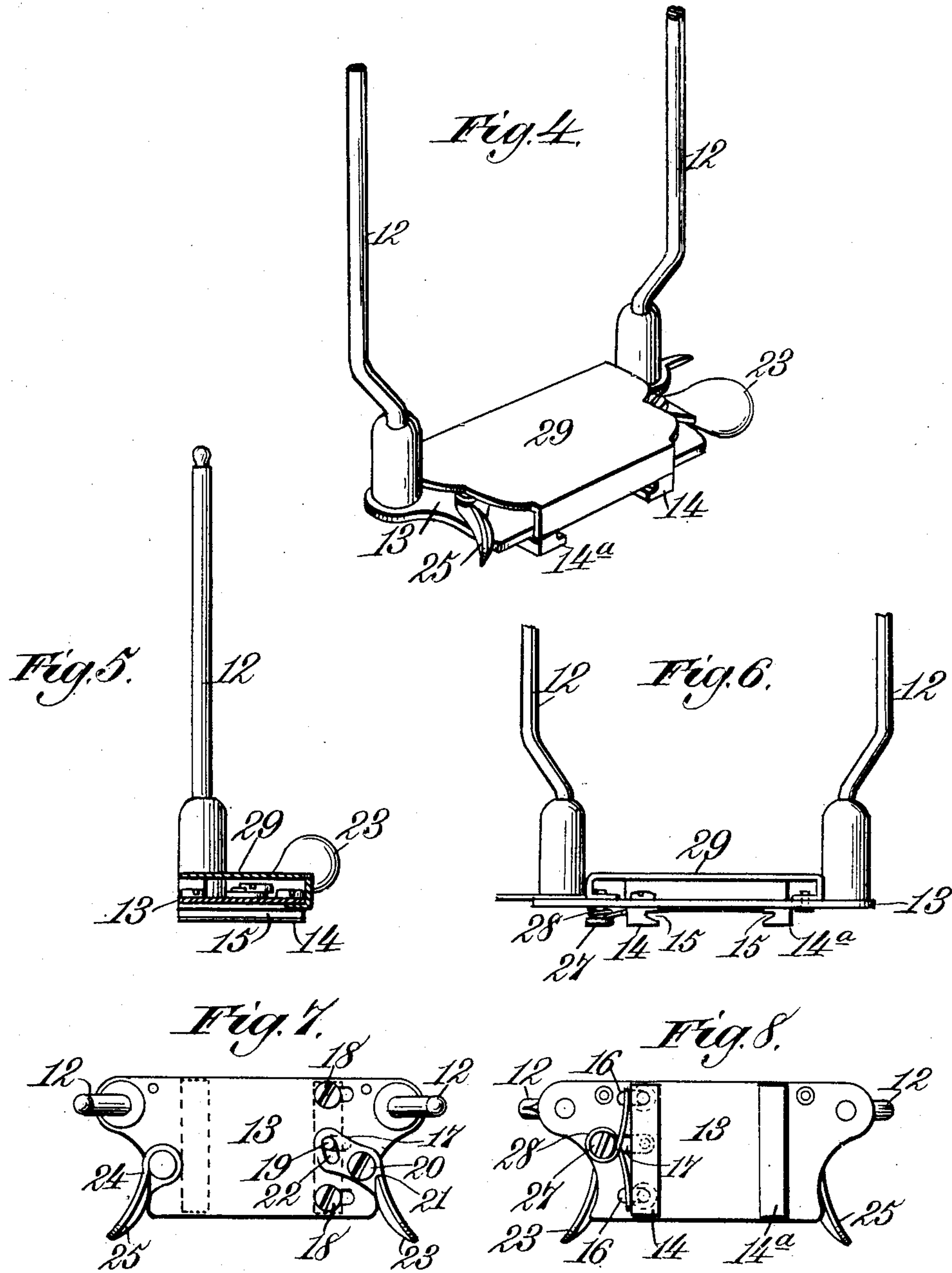
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2 SHEETS—SHEET 2.



Witnesses.  
*Robert Everett,*  
*James L. Norris, Jr.*

Inventor:  
*Charles E. Hutchings.*  
By *James L. Norris,*  
*Att'y.*



# UNITED STATES PATENT OFFICE.

CHARLES E. HUTCHINGS, OF ROCHESTER, NEW YORK, ASSIGNOR, BY  
MESNE ASSIGNMENTS, TO ROCHESTER OPTICAL COMPANY, OF  
ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

## LENS-CARRIAGE-SECURING MEANS.

SPECIFICATION forming part of Letters Patent No. 754,872, dated March 15, 1904.

Application filed April 9, 1903. Serial No. 151,895. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES E. HUTCHINGS, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented new and useful Improvements in Lens - Carriage - Securing Means, of which the following is a specification.

This invention relates to photographic cameras, and especially to bellows and other extension cameras; and it has for its object to provide improved means for adjustably securing the lens-carriage in place on the runway; and to this end it consists in the construction, combination, and arrangement of parts hereinafter described, and particularly pointed out in the claims following the description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a view in side elevation of a camera equipped with my improved device. Fig. 2 is a top plan view thereof. Fig. 3 is a transverse sectional view taken on the line 3 3 of Fig. 2. Fig. 4 is a detail perspective view of the lens-carriage. Fig. 5 is a longitudinal sectional view thereof. Fig. 6 is a front elevation of the same. Fig. 7 is a top plan view, and Fig. 8 is a bottom plan view, of the lens-carriage.

Referring to the drawings, the numeral 1 indicates the camera box or casing, and 2 the bed thereof, said bed being hinged at its rear edge to the forward lower edge of the camera-box and is provided with locking means 3 for locking the bed in its lowered position. Said bed is normally folded up into a vertical position and operates to form a closure for the front of the camera-box; but when the camera is to be placed in readiness for use the bed is swung down into a horizontal position and is locked in such position by the locking mechanism 3, before referred to, which may be of any usual or suitable construction.

Attached to the bed 2 is a guide 4, on which is longitudinally movable a runway 5, which is provided on its under side with a rack 6.

Journalled in bearings on the bed 2 is a shaft 7, one end of which is provided with a knurled knob 8, and its other end has fixed thereon a pinion 9, which is in engagement with the rack 6, whereby when the shaft 7 is turned in one direction or the other the runway 5 is moved in or out on the guide 4.

The numeral 10 indicates the bellows, to the forward end of which is attached the lens-plate 11, and said lens-plate is mounted on standards 12, which are fitted at their lower ends in the lens-carriage, comprising a plate 13, having attached to its under side two parallel metallic strips 14 and 14<sup>a</sup>, which are grooved on their inner or adjacent edges, as at 15, to engage the opposite edges of the runway 5. The grooved strip 14<sup>a</sup> is fixed or attached immovably to the under side of the plate 13, while the grooved strip 14 is adjustably attached to said plate in the following manner: Formed in the plate 13 over the strip 14 are three elongated parallel slots 16 and 17, said slots extending longitudinally relatively to said plate. Passing through the two outer slots 16 are headed screws 18, which pass loosely through said slots and are screwed into the strip 14, whereby said strip is capable of having a limited movement toward and from the adjacent edge of the runway 5.

Formed with or attached to the strip 14 is an upwardly-projecting stud or pin 19, which passes through the central slot 17 and projects above the upper face of the plate 13. Pivoted intermediate its ends by means of a pivot pin or screw 20 is a cam-lever 21, one end of which is provided with an elongated inclined slot 22, forming, in effect, a cam, and the upper end of the stud or pin 19 projects into or through said slot. The other end of the cam-lever is enlarged and bent up into a vertical position to form a finger-hold 23. To the opposite end of the plate 13 is rigidly attached an arm 24, having an enlarged and upturned portion 25, forming a support or rest for the thumb of the operator. As usual in cameras of this type, when the camera is not in use the lens-carriage is run back off the runway 5 into the



camera-box 1, and for this purpose a short runway 26 is attached to the bottom of the interior of the camera-box in alinement with the runway 5, upon which short runway the lens-carriage is moved when the camera is to be folded up.

Attached to the under side of the plate 13 is a pin or stud 27, about which is coiled a spring 28, the ends of which bear against the outer side of the strip 14, near the ends of the latter, and operate to force said strip inwardly into engagement with the adjacent edge of the runway 5.

In practice I prefer to attach a cover-plate 29 of any suitable or preferred construction to the upper side of the plate 13 to protect the moving parts of the locking mechanism and also to give to the device a finished appearance.

The operation of my improved device is as follows: When the camera is to be put in readiness for use, the bed 2 is lowered to a horizontal position and locked in such position by the locking mechanism 3, before referred to, and the operator then places his thumb upon the support or rest 25 and his forefinger upon the finger-hold 23, and by compressing his finger and thumb toward each other the cam-lever 21 is turned upon the fulcrum and operates, through the medium of the stud or pin 19, to move the strip 14 away from and out of engagement with the adjacent edge of the runway 5, whereupon the lens-carriage may be freely moved from off of the short runway 26 onto the runway 5 and may be moved to any desired position on said last-named runway. After it has been moved to the desired position the operator removes his thumb and finger from the cam-lever and the support or rest 25, whereupon the spring 28 immediately forces the grooved strip 14 into engagement with the adjacent edge of the runway and causes the two strips 14 and 14<sup>a</sup> to tightly embrace or clamp the runway between them, thereby rigidly and securely locking the carriage in its adjusted position. After this has been accomplished the operator can by turning the shaft 7 and through the medium of the rack and pinion effect a very fine, close, and accurate adjustment of the lens-carriage to obtain the proper focus.

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

1. In a camera, the combination with the camera-bed, and a runway thereon, of a lens-carriage adjustably mounted on the runway and comprising a plate provided on its under side with two parallel grooved strips which embrace the sides of the runway, one of said strips being fixed and the other movable toward and from the adjacent edge of the runway, a spring arranged to normally hold the movable strip in engagement with the runway,

a stud on the plate, and a cam-lever pivoted to said plate and engaging said stud for moving the said strip out of the engagement with the runway, substantially as described.

2. In a camera, the combination with the camera-bed, and a runway thereon, of a lens-carriage adjustably mounted on the runway and comprising a plate provided on its under side with two parallel grooved strips which embrace the sides of the runway, one of said strips being fixed and the other movable toward and from the adjacent edge of the runway, a spring arranged to normally hold the movable strip in engagement with the runway, a stud fixed on the plate and projecting through a slot in said plate, and a slotted cam-lever pivoted to said plate and embracing said stud for moving the said strip out of engagement with the runway, substantially as described.

3. In a camera, the combination with the camera-bed and a runway thereon, of a lens-carriage adjustably mounted on the runway and comprising a plate provided on its under side with two parallel grooved strips which embrace the sides of the runway, one of said strips being fixed and the other movable toward and from the adjacent edge of the runway, a spring arranged to normally hold the movable strip in engagement with the runway, headed screws passing through slots in the said plate and screwed into the said movable strip, a stud on the plate, a slotted cam-lever pivoted to the plate and embracing said stud for moving the movable strip out of engagement with the runway, substantially as and for the purpose specified.

4. In a camera, the combination with the camera-bed and a runway thereon, of a lens-carriage adjustably mounted on the runway and comprising a plate provided on its under side with two parallel grooved strips which embrace the sides of the runway, one of said strips being fixed and the other movable toward and from the adjacent edge of the runway, a spring arranged to normally hold the movable strip in engagement with the runway, a stud on the plate, a slotted cam-lever pivoted to the plate and embracing said stud for moving the movable strip out of engagement with the runway, said lever at its free end being provided with a finger-hold, and an arm fixed on the plate and provided with a thumb-rest, substantially as described.

5. In a camera, the combination with the camera-bed and a runway thereon, of a lens-carriage adjustably mounted on the runway and comprising a plate provided on its under side with two parallel grooved strips which embrace the sides of the runway, one of said strips being fixed and the other movable toward and from the adjacent edge of the runway, a projection on the under side of the plate, a spring coiled intermediate its ends

about said projection and bearing at its free  
ends against the movable strip to normally  
hold the latter in engagement with the edge  
of the runway, and a lever for moving said  
5 strip out of engagement with the runway,  
substantially as and for the purpose described.

In testimony whereof I have hereunto set

my hand in presence of two subscribing wit-  
nesses.

CHAS. E. HUTCHINGS.

Witnesses:

JOHN A. ROBERTSON,  
MINNA STULL.