

No. 679,881.

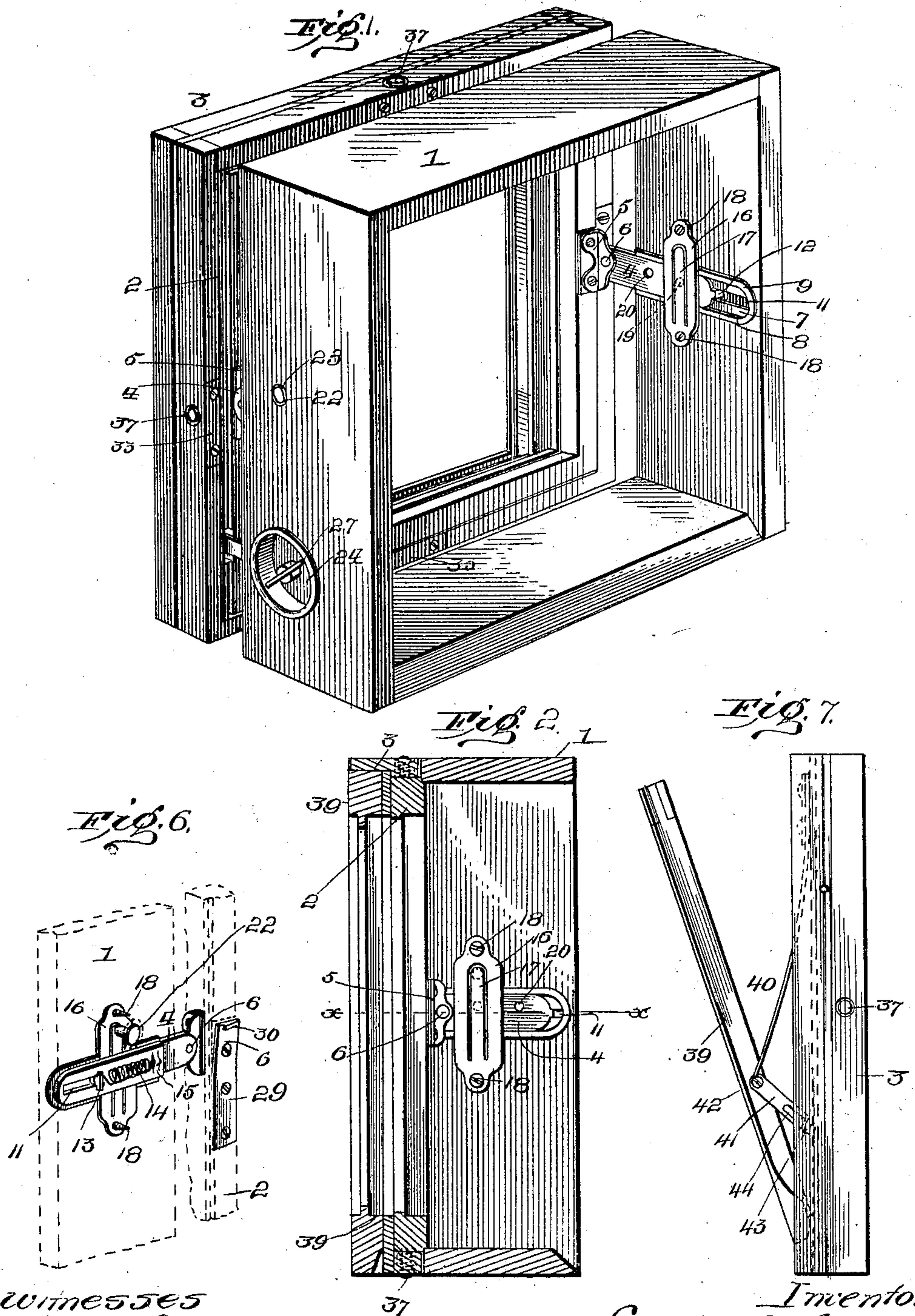
Patented Aug. 6, 1901.

E. R. BULLARD.
CAMERA.

(Application filed Nov. 7, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
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Inventor:
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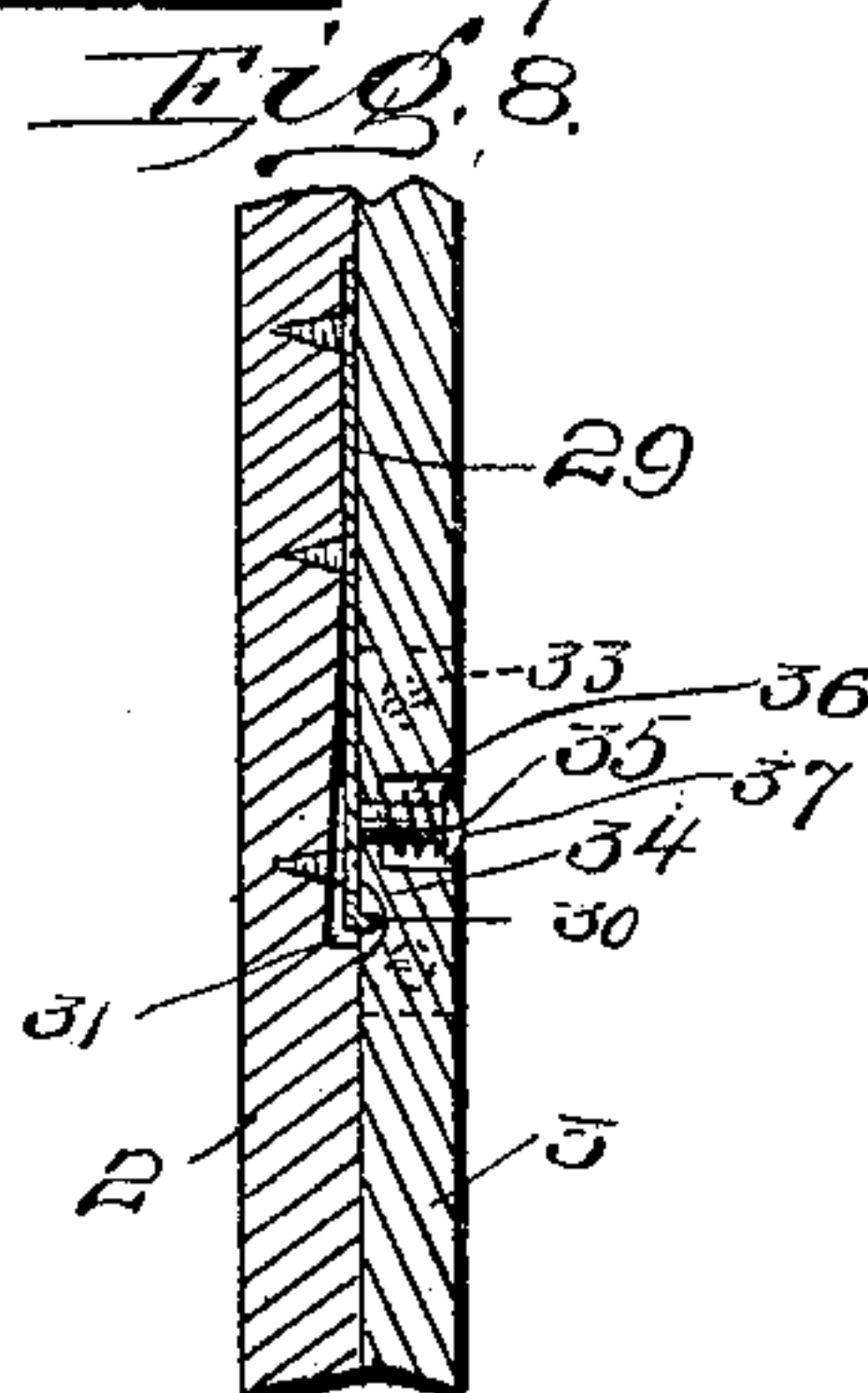
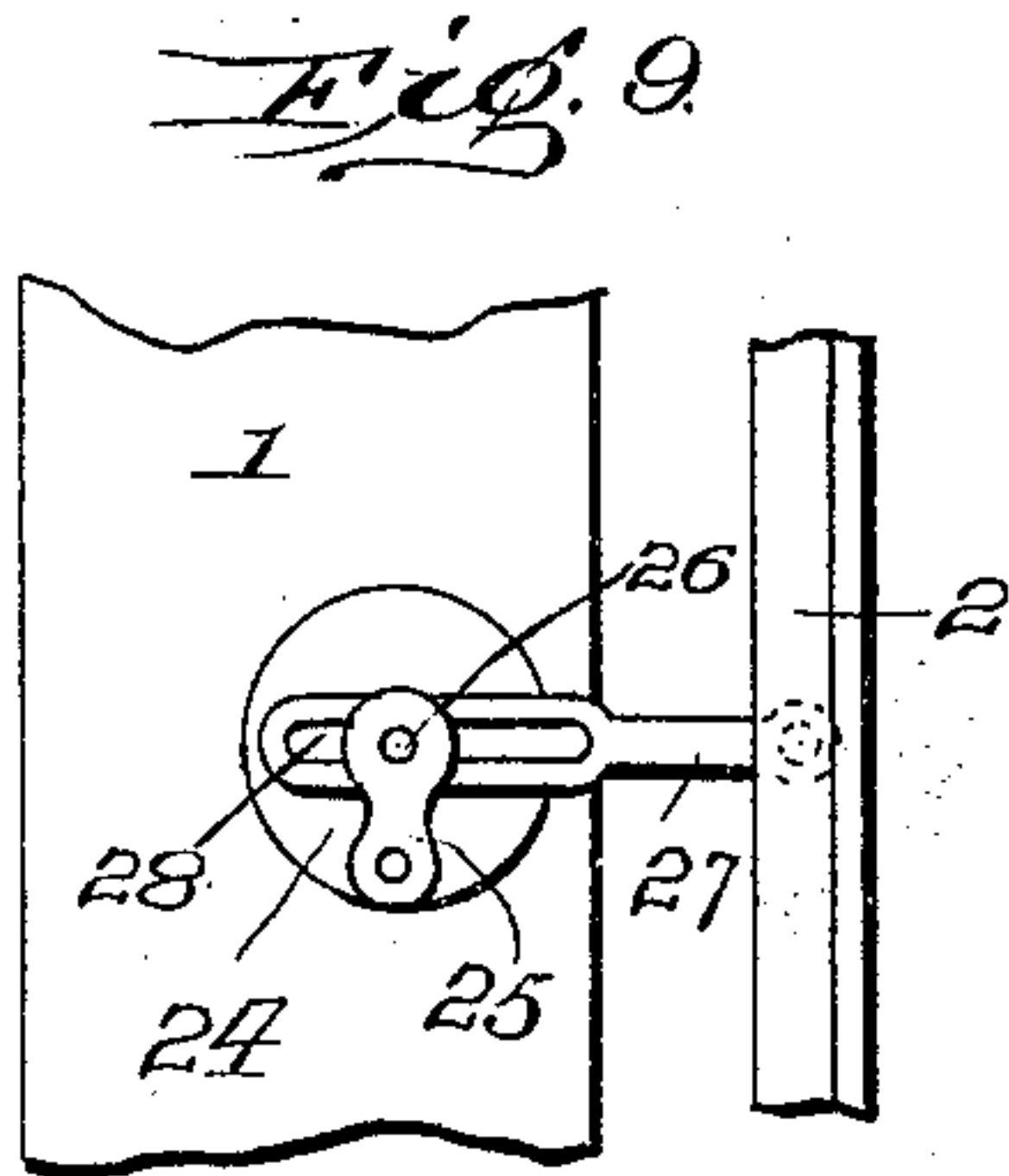
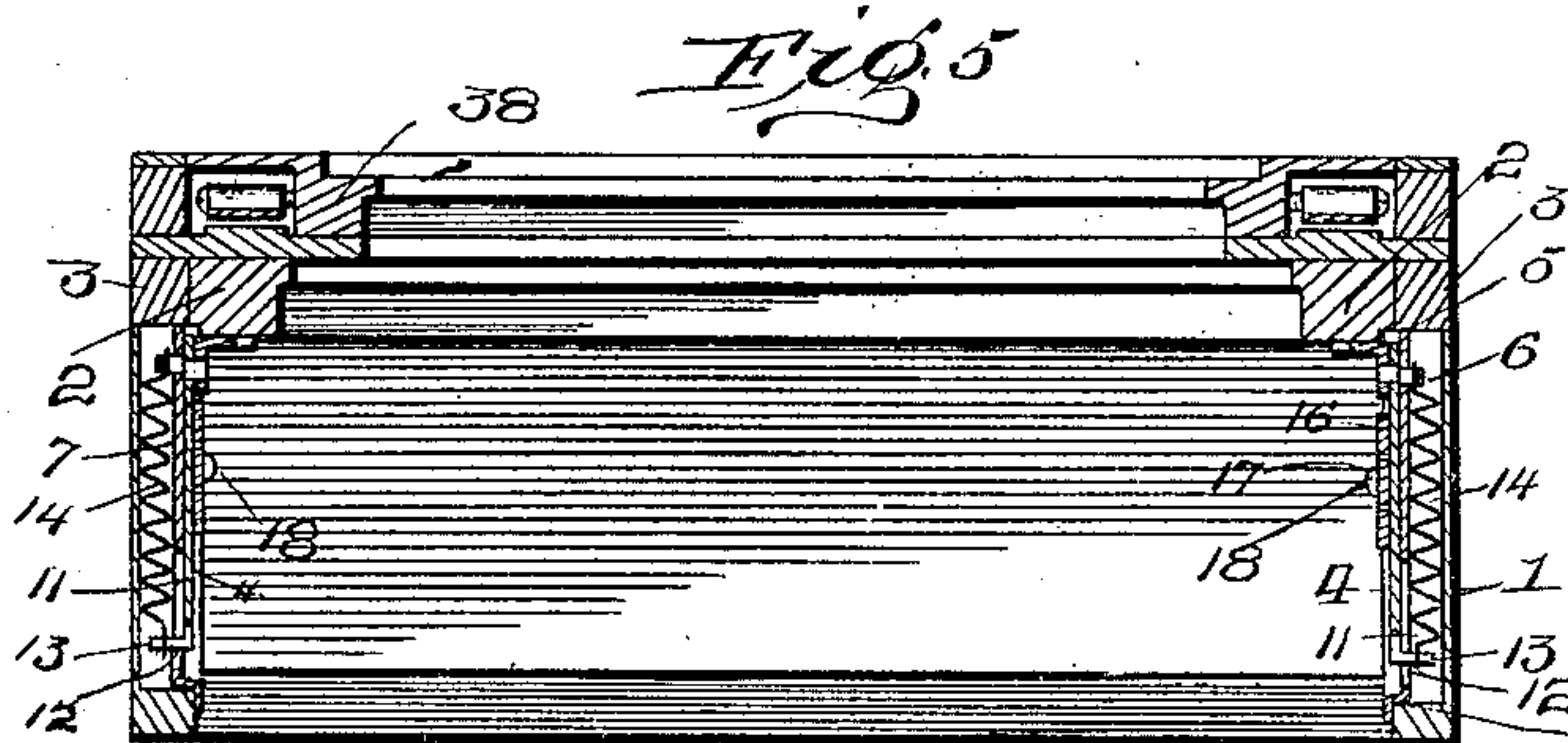
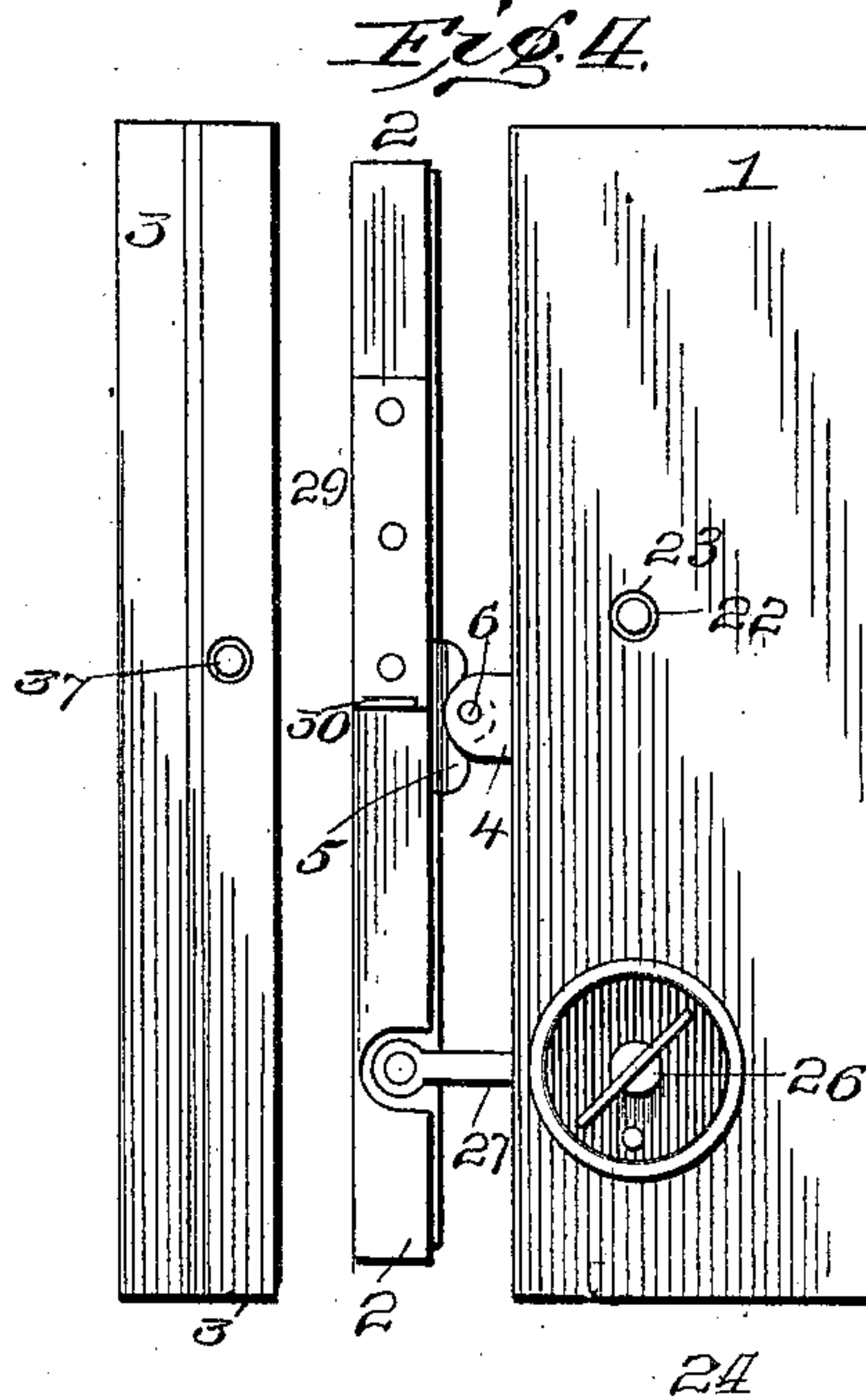
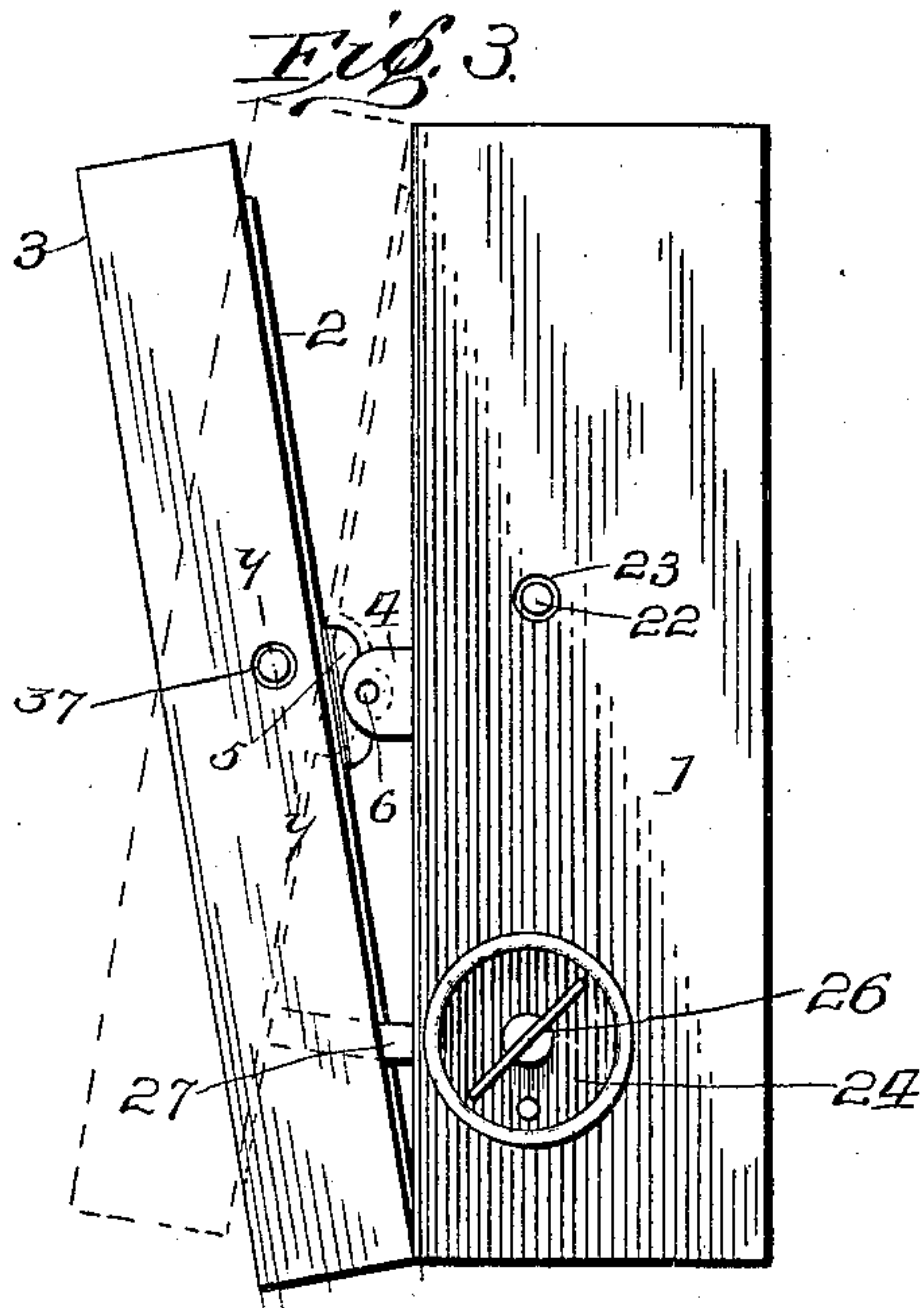
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

EDGAR R. BULLARD, OF SPRINGFIELD, MASSACHUSETTS.

CAMERA.

SPECIFICATION forming part of **Letters Patent No. 679,881**, dated August 6, 1901.

Application filed November 7, 1900. Serial No. 35,759. (No model.)

To all whom it may concern:

Be it known that I, EDGAR R. BULLARD, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Cameras, of which the following is a specification.

This invention relates to that class of cameras employing a bellows, the folding of which within a comparatively small case or box forming the main frame therefor to secure compactness is a consideration of first importance.

The object of the present invention is to provide a camera of this type with a swing-back frame which, though normally held within or against the rear of the camera-box, is capable of being advanced to an operative position sufficiently in the rear of the box to permit of adjustment to various inclinations, thus observing considerations of compactness in the size of the camera-box, and to accomplish the extension or advancement of the swing-back automatically upon the releasing of conveniently-operated latches.

A further object of the invention is to provide a reversible back that can be readily affixed to the camera simply by pressing the same upon the camera-box or its swing-back frame, the locking of the back taking place automatically and readily disengaging by a simple and convenient operation of the latches which hold it in locked position.

The invention consists in certain novel features in the arrangement and construction of parts, all as hereinafter fully set forth, and pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of the camera-box, showing the swing-back frame with attached reversible back and in extended or operative position. Fig. 2 is a vertical sectional view taken through the camera-box with the swing-back frame normally inclosed within the box and in reversible back. Fig. 3 is a side elevation showing the swing-back frame extended and secured at an incline to the camera-box, another position being shown in dotted lines. Fig. 4 is a side elevation showing the swing-back frame extended and the reversible back detached; Fig. 5, a horizontal section on line $x x$ of Fig. 2; Fig. 6, a rear perspec-

tive view of one of the sliding plates and its pivoted connection with the swing-back frame, the guide in which the plate operates, the spring for automatically extending the swing-back frame, the latch for locking the sliding plate in both its extended and closed positions in the guide, and the latch-releasing button, these parts being shown in their assembled positions and the camera-box and swing-back frame being indicated by dotted lines. Fig. 7 is a view in side elevation of the back, showing the plate-holder frame in position to receive a plate-holder. Fig. 8 is a sectional view of a portion of the swing-back, taken on the line $y y$ of Fig. 3; and Fig. 9 is a view showing a detail section of one of the connections between the swing-back frame and the reversible back.

Referring to the drawings, 1 designates the camera case or box, which is the usual shallow frame in which the bellows is folded and which is usually provided with a hinged cover at its front that forms when lowered to a horizontal position a projecting base, on which the lens and bellows are supported and adjusted. This box forms the rear of the camera when the bellows is extended and supports the bellows at the rear through a supplemental frame 2, which forms a swing-back, the same having a pivotal connection with the box for purposes of adjustment to various inclinations and includes the plate-holder frame 3, which is preferably a detachable reversible frame, constituting in itself what is termed in this art a "reversible" back. The frame 2 forms the end frame for the bellows and is rabbeted on the front face thereof to permit it to partially enter the box and also to lie against the rear face thereof, and thus forms a projecting frame for the reception of the reversible back frame 3, which bears against the rear face of the box and, together with said box, entirely incloses it.

The swing-back is of the type capable of adjustment to planes at right angles to either upward or downward inclinations, and to permit of such adjustment is pivoted on supports or bearings 4, which extend from the sides of the box and which preferably have a sliding movement thereon. In the present invention the slidable plates or supports 4 are pivotally secured to the frame 2 by rearwardly-project-

ing angle plates or connections 5, secured to the rear face of the said frame, one on each side, and having a trunnion or pivot-pin 6, which works within a perforation therefor in the rear end to the said bearing. A guide-plate 7, preferably stamped out of sheet metal and having a depression 8, in which the bearing-plate 4 has its sliding movement, and having surrounding flanges 9, is fitted over a recess 10, the said flanges resting on the face of the box, thereby permitting the depressed portion of the guide-plate to fit within said recesses to practically countersink the guide.

A slot 11 of a length equal to the sliding movement of the slidable bearing-plate 4 is formed in the guide-plate 7 and through which extends a lip or projection 12, formed on the front end of the plate 4, and upon this projection is formed a head 13, preferably in the general shape and arrangement shown, which being of a length greater than the width of the slot and arranged transversely thereto serves to retain the slidable plate within the guide 7, while its width being less than that of the slot permits it to be passed there-through when the said plate is turned at right angles thereto in the operation of assembling or disassembling. To the projection 12 is secured one end of a coil-spring 14, located within the recess, the head 13 also forming a means for retaining the spring on said projection. The other end of the spring is fixed and preferably by attachment to a loop 15, stamped from the guide 7 at its rear, as shown. The spring thus attached receives its tension when the slidable bearing-plate 4 is forced back to its normal position, and thus is normally kept under tension for the automatic projection of the said bearing to bring the swing-back quickly into operative position.

A metal plate 16, from the center of which is cut a tongue or latch 17, is secured to the box by screws 18 at each end and being brought to lie over the slidable bearing-plate 4 serves to hold the same within its guide and also forms the entire means for securing both slidable bearing-plate and guide to the box or case. The tongue or latch 17 is provided with a locking-pin 19, which enters perforations 20, formed in the bearing-plate 4 at such points thereon as will cause the said pin to be sprung automatically into the same to hold the said plates locked when brought to their normal or projected positions. The free end of the tongue or latch 17 projects beyond the bearing plate or guide and receives a releasing pressure through the agency of a push-pin 21, mounted in said box and operative from the exterior thereof, said pin having a press-button 22, fitting within an exterior recess 23 in the box and concealed by the covering with which cameras are provided. Upon simultaneously pressing the buttons of both sides the latch 17 will release the bearing-plates, which will automatically slide to their projected positions, and the pressure on the

buttons being instantly relieved the latch will lock the plate in that position. The operation of returning the swing-back to its normal position does not require that it be accomplished with the despatch of its projection, and is therefore forced back against the slight resistance offered by the springs 14, the buttons 22 being pressed to effect the unlocking of the slidable plates.

Within an opening on the right-hand side of the box is mounted a flanged clamping-plate 24, which is provided with a slot or central opening and carries a swinging arm or clamping member 25, similarly slotted. A clamping thumb-screw 26 works within the slot or opening in the clamping-plates, which are screw-threaded for the purpose, and clamps an arm 27, hinged to the swing-back frame, so as to secure the swing-back into the various positions into which it may be brought, the slot 28, through which the clamping-screw extends, holding the said locking-arms in clamping engagement and limiting the movement of the swing-back.

On the opposite outer sides of the swing-back frame are secured the spring-latches 29 for holding the reversible back locked thereon. The latch is formed of a flat strip of metal having one end turned up to form a lip or locking projection 30, which is inclined on its upper edge, so as to present the tapered end to the back when being applied. A recess 31 is formed in the sides of the frame to permit the main body of the latch to lie flush with the face of the frame, and said recess is of sufficient depth at the free or yielding end of the latch to permit the same to be depressed sufficiently to bring the top of the locking-lip 30 flush with the face of the frame. In applying the back 3 upon the swing-back frame 2 the engagement of the locking-lip 30 is made with plates 33, countersunk in the rear face of each side of the back, which engagement depresses the latch and permits it by virtue of its spring to assume its normal or extended position behind the said plates 33, which primarily are designed to retain the latch, a recess 34 being provided in the back behind each plate to receive the locking-lip of the latch. The reversible back is provided on its outer sides with push-pins 35, which bear upon the latches 29 and by means of which they are disengaged from the back. The pins are normally held entirely within the back frame by the coil-springs 36, which, together with the press-buttons 37, are each confined within a recess 38 and concealed by the covering of the back. It will thus be seen that the locking of the reversible back ensues automatically in the usual operation of applying the back to the frame 2.

The reversible back is provided with a plate-holding or ground-glass frame 39, which in the present instance is yieldably connected with the back by side springs 40, one end of each spring being connected firmly to the back

and the other end pivotally connected to the plate-holding frame. Side arms or plates 41 are pivotally connected to the plate-holding frame, preferably by the pin 42, by which the 5 springs are connected thereto, and also pivotally connected to the back, the pins 43 on the back having play within their respective slots 44, with which the said arms or plates are provided to permit of them assuming a 10 normal end-for-end position relative to the spring without the necessity for disconnections being made.

What I claim is—

1. A camera comprising a case, means 15 whereby the swing-back frame is movably connected with the case or box, means for releasing said swing-back frame, and means for projecting it automatically when released.

2. A camera comprising a case, one or more 20 slidable bearings mounted on the same, a swing-back frame pivoted to the slidable bearings, and means for releasing said bearings.

3. A camera comprising a case, one or more 25 slidable bearings, a swing-back frame pivoted to said slidable bearings, and means for locking the slidable bearings in their inner and outer positions.

4. A camera comprising a case, a swing-back frame, one or more slidable bearings to 30 which the swing-back frame is pivoted, one or more spring-latches extending across the slidable bearings, each having a pin adapted to interlock with its slidable bearings, and means for releasing the latches.

5. A camera comprising a case, one or more 35 slidable spring-bearings, a swing-back frame pivoted to the slidable spring-bearings, means for locking the slidable bearings in their inner and outer positions, and means for releasing said bearings. 40

6. A camera comprising a case having guides, a swing-back frame having angle-plates, slidable bearings supported in the guides, and pivots whereby the angle-plates 45 are hinged to the slidable bearings for adjustably connecting the swing-back frame to the case.

7. A camera comprising a case having 50 guide-plates each formed with a longitudinal slot, a swing-back frame, one or more slidable bearings to which the swing-back frame is pivoted, each formed with a tongue adapted to slide in its respective slot, a spring fixed

at one end and at the other end secured to said tongue, and means for locking and re- 55 leasing the said slidable bearings.

8. A camera comprising a case, a swing-back frame, one or more slidable bearings to which the swing-back frame is pivoted, a 60 spring-latch interlocking normally with each slidable bearing, and a push-pin for releasing each latch from the exterior of the case.

9. A camera comprising a case, a swing-back frame, one or more slidable bearings to which the swing-back frame is pivoted, a 65 spring for projecting each bearing, a spring-latch interlocking normally with each bearing, and a push-pin for releasing the latch of each from the exterior of the case.

10. A camera comprising a case, a swing- 70 back frame, one or more slidable bearings to which the swing-back frame is pivoted, having perforations, a spring-latch for each bearing, having a locking-pin adapted to engage said perforations, and a push-pin for releas- 75 ing the latch.

11. A camera comprising a case, a swing-back frame centrally pivoted to the case, a hinged arm having a slot and pivoted to the swing-back frame, a clamping-plate having 80 an arm, and a clamping-screw extending through the clamping-plate, through the slot of the hinged arm and through the clamping-arm.

12. A camera comprising a case, a swing- 85 back frame having latches, and a reversible back having spring-locking pins adapted to engage said latches.

13. A camera comprising a case, a swing-back frame having latches, a reversible back 90 having recesses and latch-retaining plates, and spring-locking pins mounted in the reversible back for releasing the latches from the retaining-plates.

14. A camera comprising a case, a swing- 95 back frame having latches provided with inclined lips, a reversible back having retaining-plates with which the lips are adapted to engage, and means for releasing the lips.

In testimony whereof I affix my signature, 100 in presence of two witnesses, this 1st day of November, 1900.

EDGAR R. BULLARD.

Witnesses:

HENRY H. BOWMAN,
D. P. BALLARD.