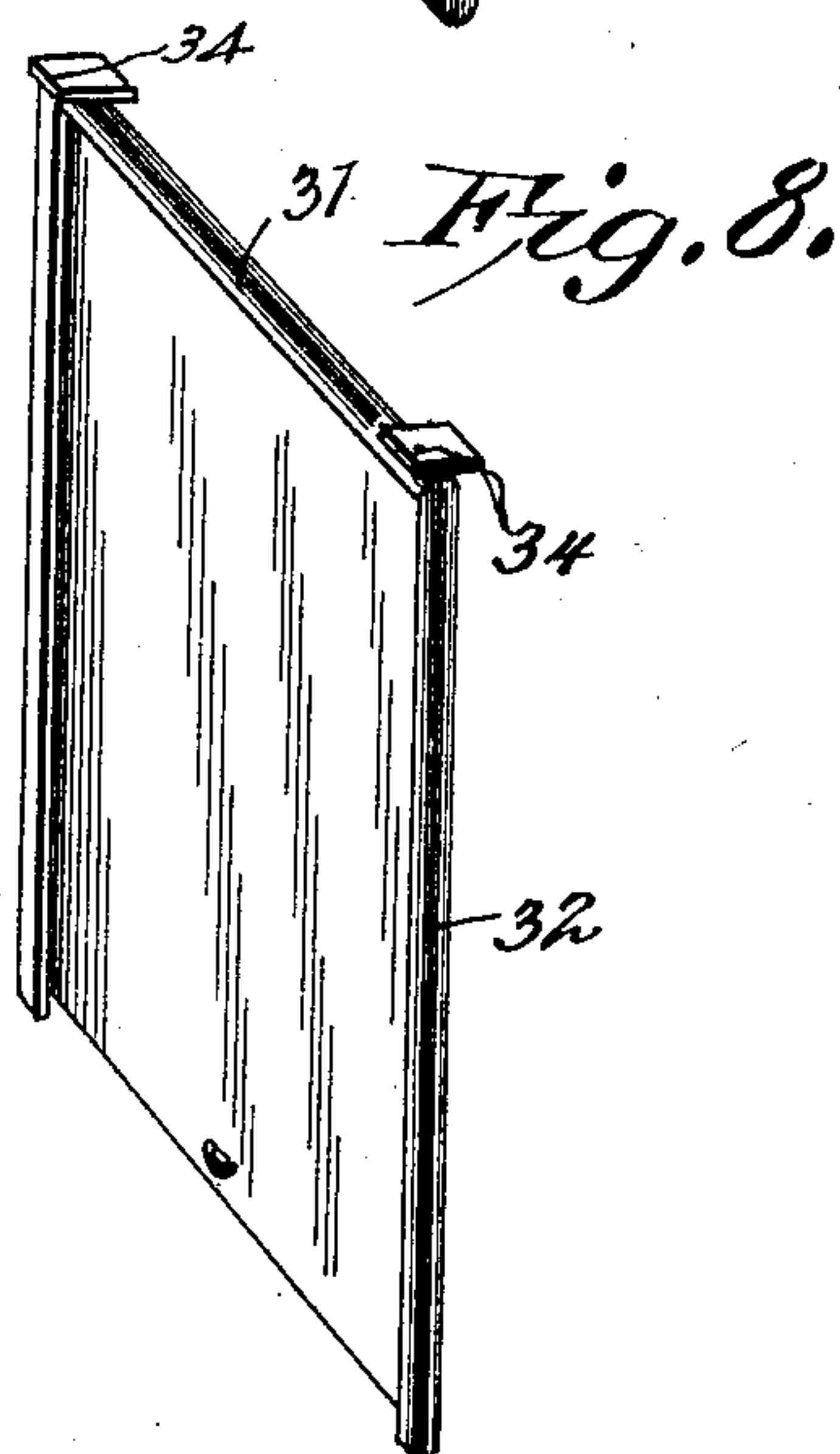
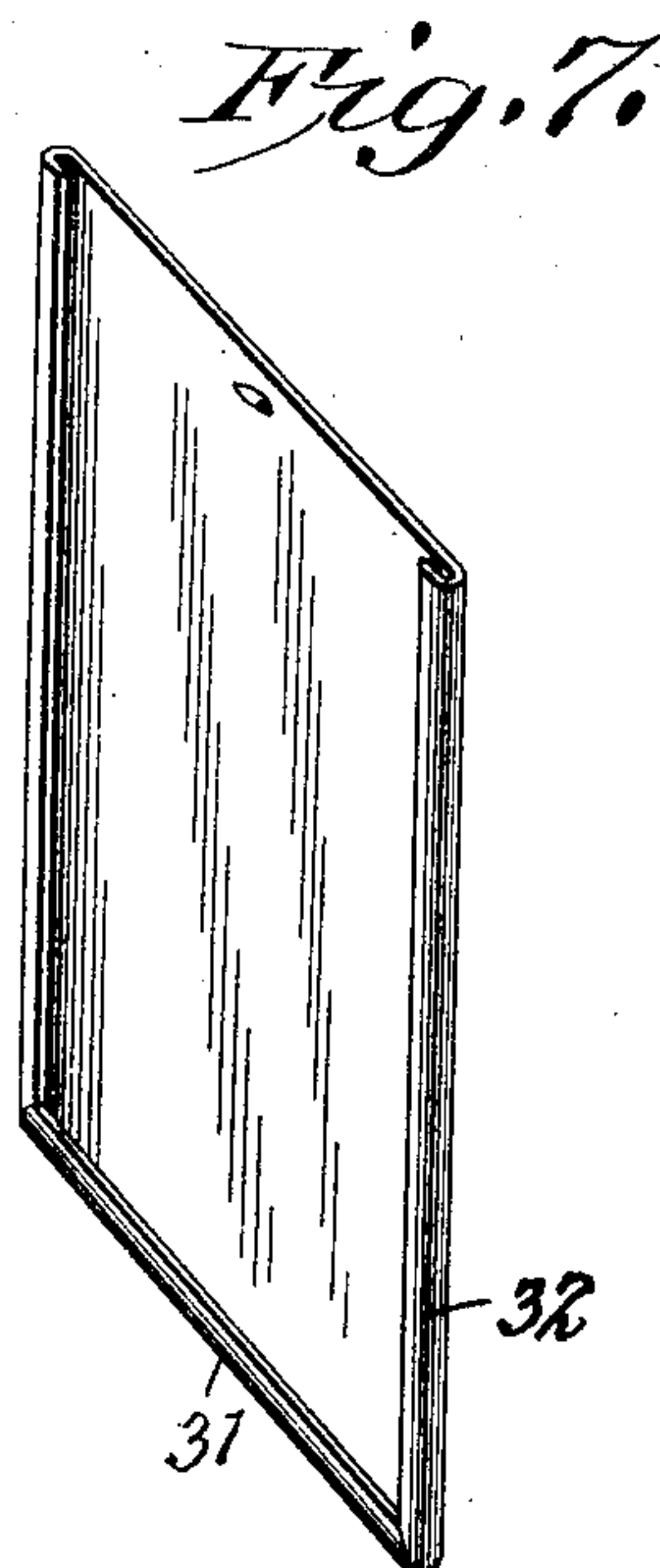
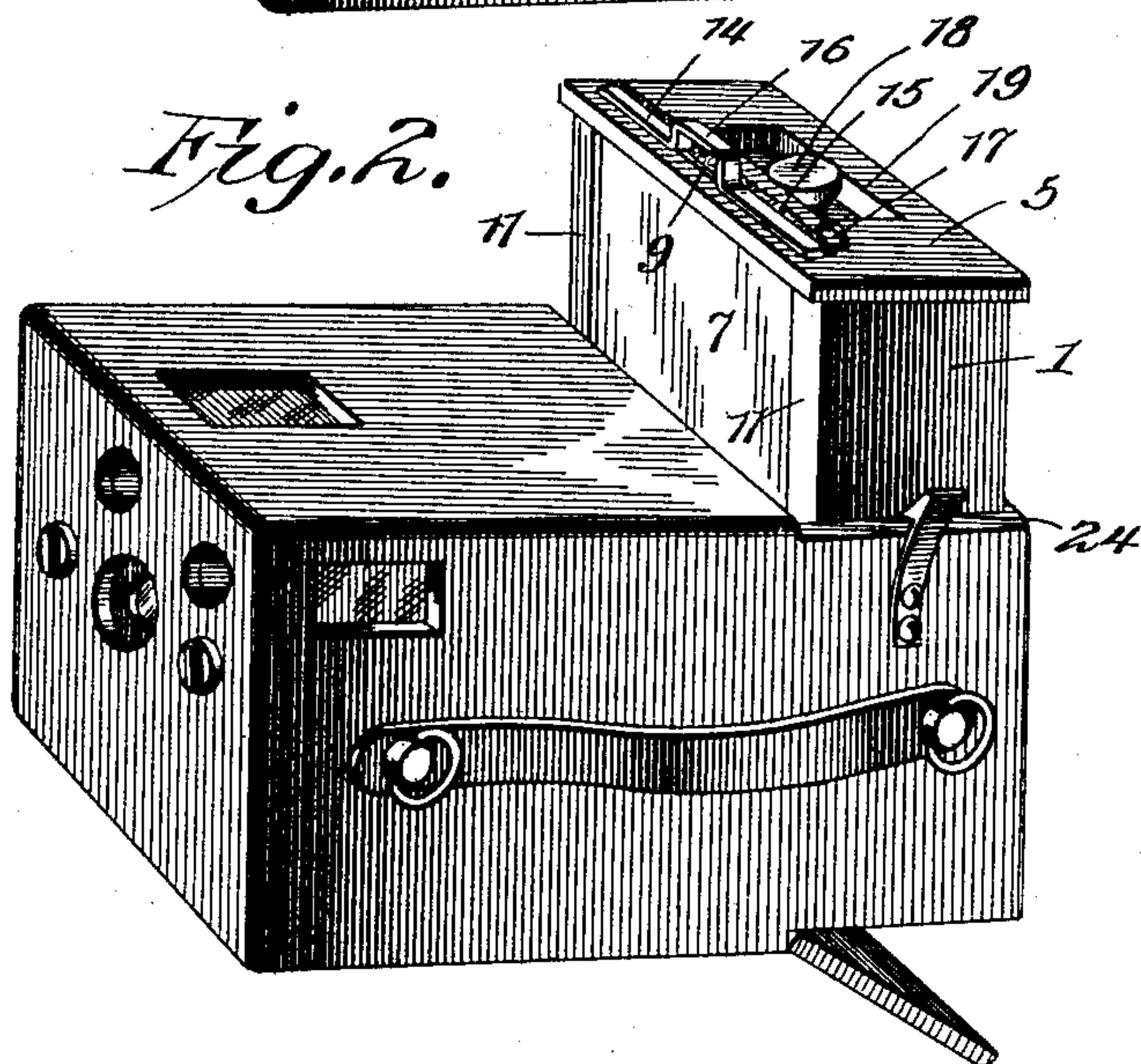
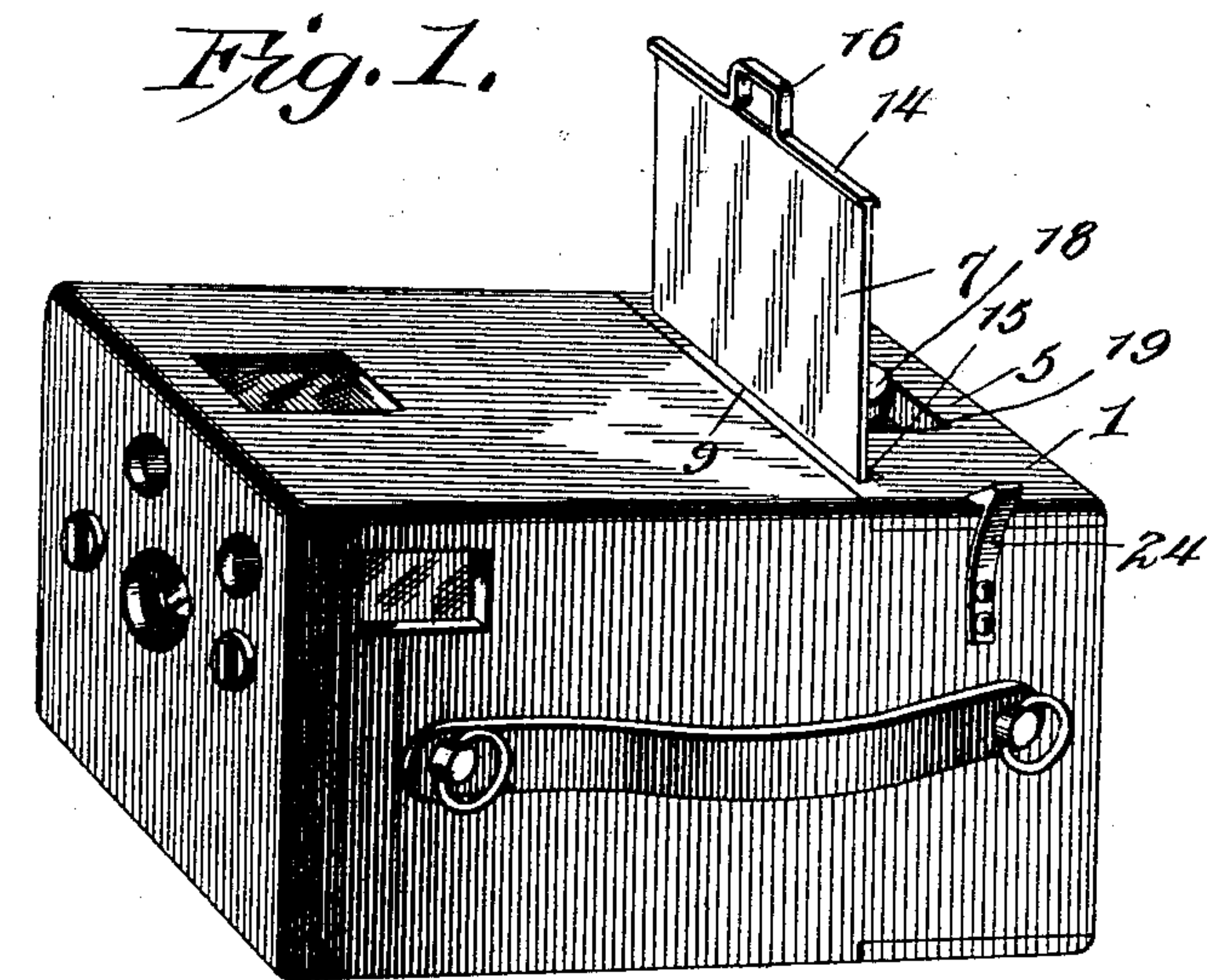


I. L. GREEN.
PHOTOGRAPHIC PLATE HOLDER.

(Application filed Feb. 13, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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I. L. GREEN.
PHOTOGRAPHIC PLATE HOLDER.

(Application filed Feb. 13, 1901.)

2 Sheets—Sheet 2.

(No Model.)

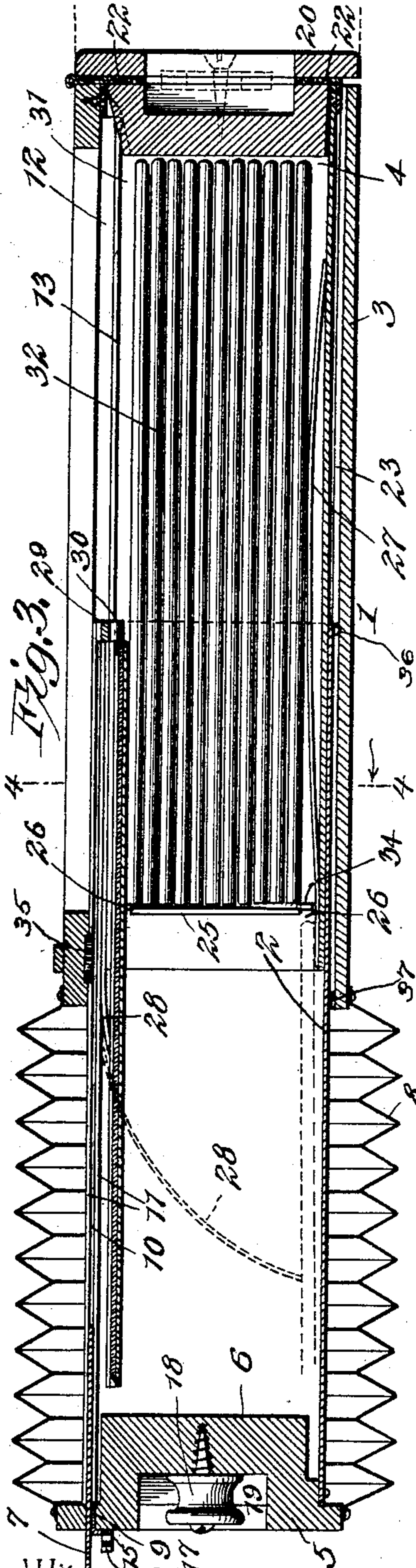


Fig. 3.

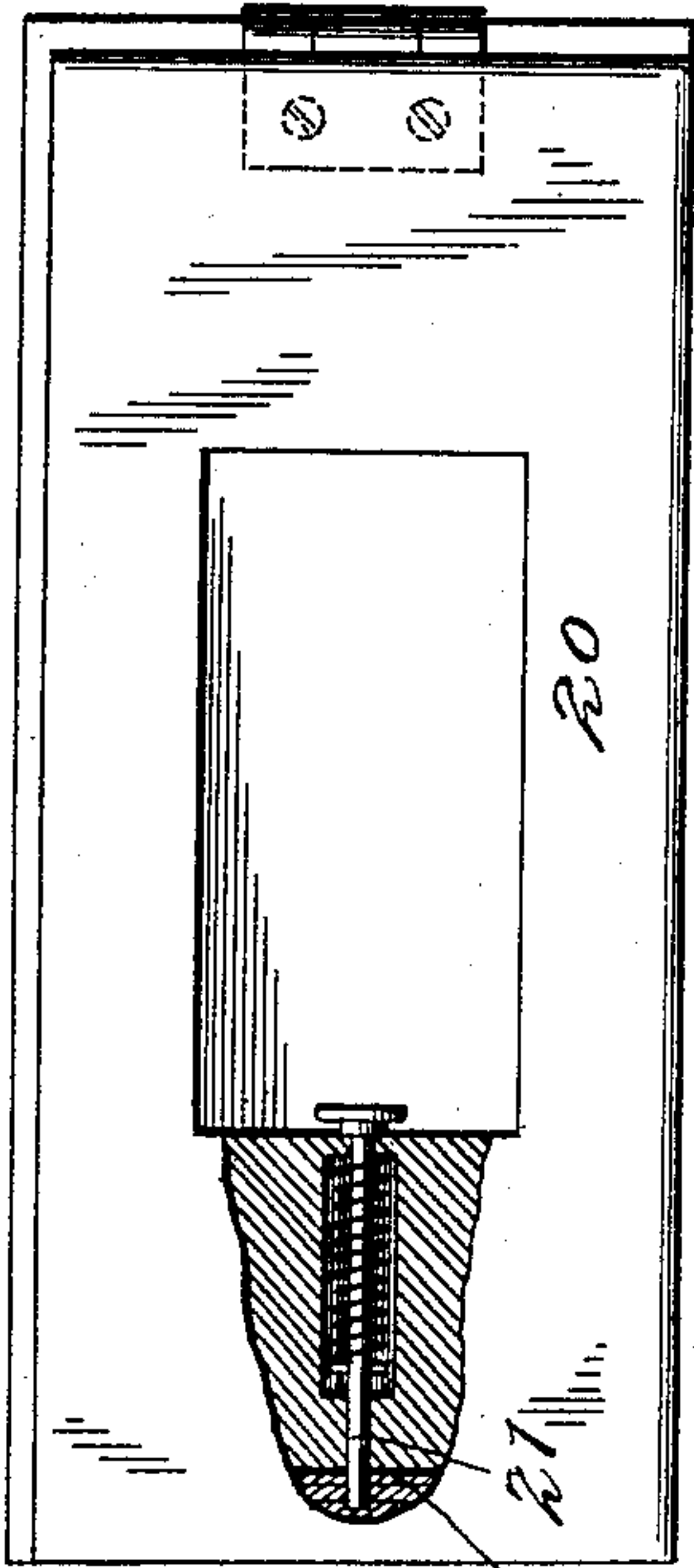


Fig. 4.

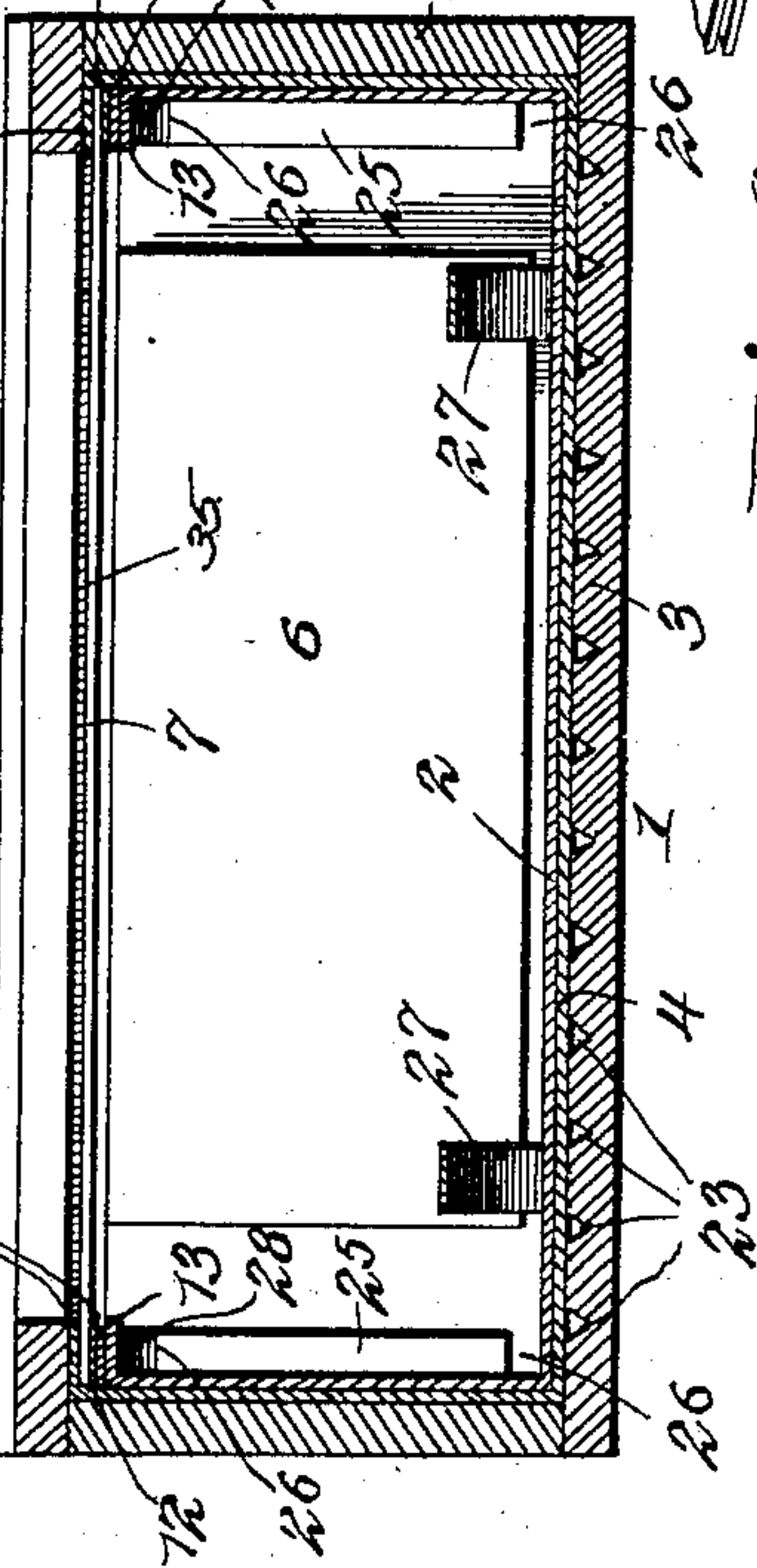


Fig. 5.

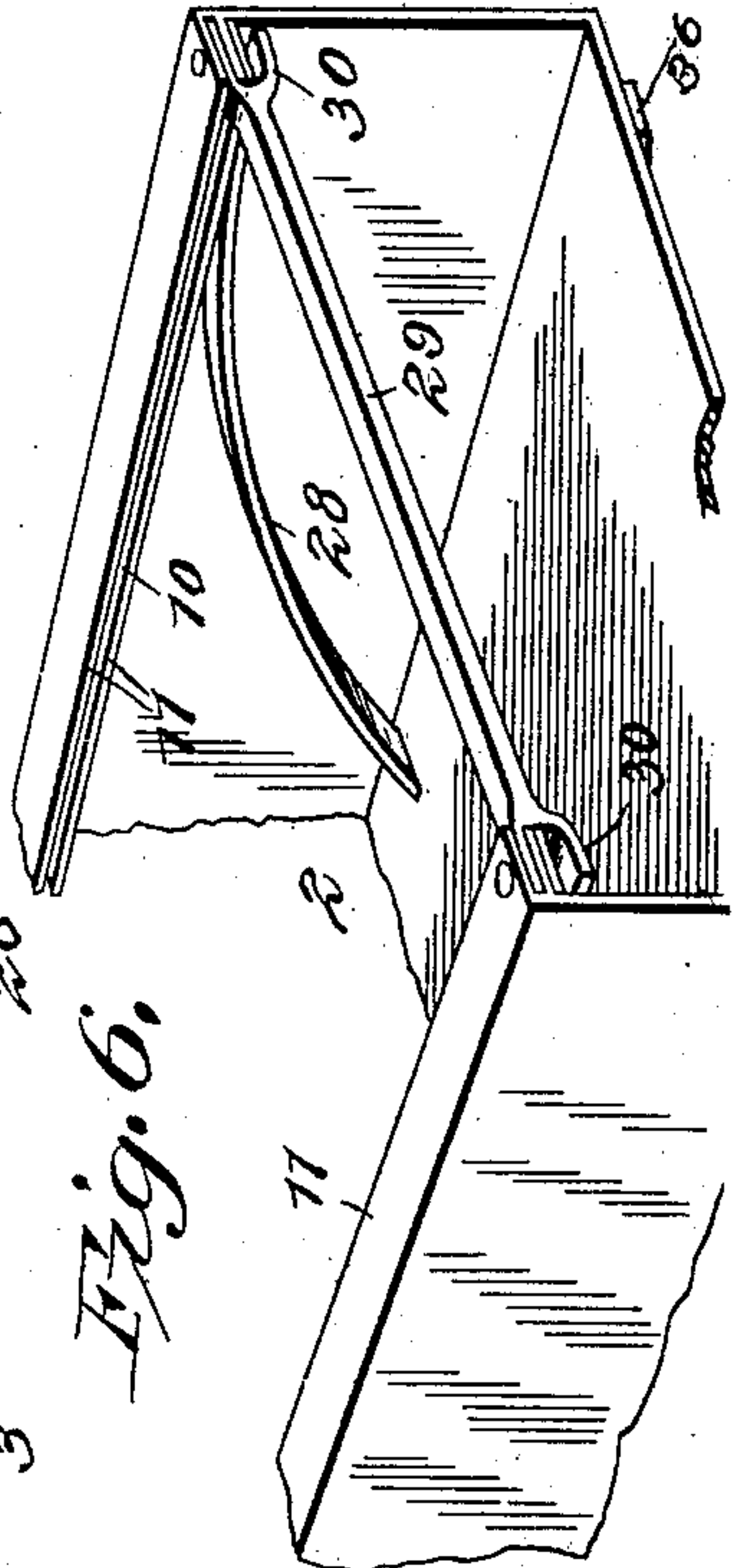


Fig. 6.

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UNITED STATES PATENT OFFICE.

IRA L. GREEN, OF WATERTOWN, NEW YORK.

PHOTOGRAPHIC-PLATE HOLDER.

SPECIFICATION forming part of Letters Patent No. 715,369, dated December 9, 1902.

Application filed February 13, 1901. Serial No. 47,156. (No model.)

To all whom it may concern:

Be it known that I, IRA L. GREEN, a citizen of the United States, residing at Watertown, in the county of Jefferson and State of New York, have invented a new and useful Photographic-Plate Holder, of which the following is a specification.

This invention relates to plate-holders for photographic cameras; and the object of the same is to provide a simple, effective, and positively-operating magazine attachment for application to any type of camera and having a plurality of plates therein which are caused to automatically change their position by an outward withdrawal and return movement of the improved attachment pursued subsequent to each exposure to thereby bring a new film or sensitized device into position for exposure, this latter replacing disposition being invariable and necessarily resulting from the operation of the attachment by the movement set forth in view of the construction of the several parts enforcing a change of position of the plates, and thereby overcoming any liability of taking two or more pictures on the same plate or film.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of a portable camera, showing the improved attachment applied thereto and the slide withdrawn for an exposure. Fig. 2 is a similar view showing the magazine-holder partially withdrawn. Fig. 3 is a longitudinal vertical section of the holder, showing a portion thereof in the operation of changing one of the plates and a bellows-inclosing attachment. Fig. 4 is a transverse vertical section on the line 4-4, Fig. 3. Fig. 5 is a sectional end elevation of the improved holder. Fig. 6 is a detail perspective view of a portion of the holder. Fig. 7 is a detail perspective view of a plate or film-holding frame forming part of the invention. Fig. 8 is a similar view of the last or locking plate or film-holding frame.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates the outer casing

or frame of the improved holder, which may be of any suitable length and width to suit the camera in which it is used and also to accommodate the size of the plates or films used therein and the general capacity. Within this casing or frame a telescopic-operating section 2 is mounted and has means in connection therewith for removing a used plate or film and its frame from in front of the unused stack of the same, which are held in the casing or frame 1, and arranging it in rear of said unused plates or films to thereby regularly shield the latter and operatively dispose the unused plates or films within the same focal range relatively to the lens of the camera. The casing or frame 1 and the section 2 are made up of a composition of wood and metal, constructed entirely of metal or having a leather covering on the same under either composition, and in the use of metal for this purpose aluminium or sheet-brass is preferred. A very efficient arrangement of materials is shown in the accompanying drawings, wherein the casing or frame 1 has an outer wood covering 3 and an inner sheet-metal lining 4, the one side of both parts being open to facilitate exposure of the film or plate and the section 2 formed of sheet metal and having an outer wooden head 5, with an inner pushing projection 6, which serves to dispose the frames carrying the films or plates in proper position in rear of the stack of the frames having unused films or plates therein in the operation of shifting such devices, as will be more fully hereinafter described. The open sides of the casing or frame and the section are opened and closed by a slide 7, or in cases where the bellows-covering (shown by Fig. 3) is used the slide may be dispensed with, as is obviously apparent and will be readily understood by those skilled in the art. The slide 7 is movable through a slot 9 in the head 5, and also in guide-grooves 10 in flanges 11 of the section 2 on opposite sides of the open face of said section and in guide-grooves 12, formed between intumed flanges 13 of the metal lining 4 of the casing or frame and the marginal structure of the latter surrounding the open side thereof. The slide is formed from a thin sheet-metal plate, and on the outer end thereof is a closing-strip 14 to cover the slot 9 in the head 5,

and adjacent to said slot is a felt or other analogous strip 15 for engagement with the said strip 14 to prevent the ingress of light-rays to the holder, the central portion of the metal strip 14 being formed with a loop 16 for conveniently grasping the same to operate the slide. To lock the slide closed into the holder or the section 2, a turn-button 17 is employed, which is located at one end of the outer portion of the head 5, near the slot 9, and in the center of the said head a knob 18 is fixed, and the head is recessed adjacent thereto, as at 19, to permit an operator to easily insert his fingers and grasp the knob, and thereby avoid material exterior projection of the knob. The frames containing the films or plates are inserted into or withdrawn from the holder through the end of the casing or frame 1 opposite that in which the section 2 has operation, and over the said casing or frame end which is thus left open for the purpose stated a hinged door 20 is applied and provided with a spring-catch 21, which is reached by means of an outer recess in the door. A felt or other shield 22 is secured to the inner side of the door to prevent ingress of light to the holder at this point. The door 20 is materially thickened at the center to give an inward extension thereto and form a close fitting with the end of the casing or frame 1 to prevent the frames carrying the films or plates from having too much longitudinal movement. The back of the casing or frame 1 is formed with a plurality of longitudinal grooves 23 for the admission of air to the bellows-covering 8 when the latter attachment is used, and thereby prevent the creation of suction when the section 2 is telescopically operated in shifting the frames carrying the plates or films, and thus permit the bellows-covering and said section to have unretarded movement, the said grooves being so located as not to admit light to the interior of the holder. To prevent the section 2 from accidentally slipping out of the casing or frame 1, the latter has a shouldered catch 24 attached thereto to engage the head end 5 of the said section, and, as shown by Figs. 1 and 2, a similar catch is to be applied to the camera-box to retain the entire holder in the latter.

Within the end of the casing or frame 1 in which the section works two inwardly-projecting flanges 25 are located and form stop means for the frames carrying the films or plates between the outermost and rearmost ones of said frames, the said flanges being secured to the metal lining 4 at opposite sides and having clearance-spaces 26 between the ends of the same and the adjacent parts of the holder, which are respectively the outer marginal structure of the casing 1 and the inner side of the back of the said metal lining 4. Against the inner portion of the back of the lining 4 a pair of flat pressure-springs 27 are secured at one end and free to move at their opposite ends, the said springs operating to force the plate or film frames toward

the open side of the casing into exposing position, and in the section 2 side springs 28 are also mounted and have their inner ends secured to the outer portions of the sides of said section close to the flanges 11 of the latter and normally curve rearward toward the back of the said section, the said springs 28 being drawn close against the flanges 11 when the section is pushed into the casing-frame 1 and assume the position shown by Fig. 6 when the said section is fully withdrawn to thereby force the extremity of the film or plate frame that may be drawn out with the said section adjacent the end of the casing toward the rear of said section and in line with the rear clearance-spaces 26, so that an inward return movement of the section will force the withdrawn film or plate frame in rear of the stack within the casing 1. Across the inner end of the outer portion of the section 2 is a bar 29, having inwardly-extended terminal drag projections 30 to bear against the opposite portions of the overturned flanged ends 31 of film or plate frames 32. (Clearly shown by Fig. 7.) The plate or film frames 32 are constructed of flat sheet metal, with the two side edges 33 and the one end 31 of each turned inward to form a seat to receive the plate or film, and the thickness thus produced at one end, as set forth, produces the necessary bearing for the terminal projections 30 of the bar 29, the inward or rearward extent of the said projections being proportionate to the movement desired to avoid striking or contacting with but one end 31, and thereby prevent the remaining frames 32 from being shifted and insure an accurate change of plate or film holder. The springs 27 are strong enough to force the frames 32 to the front, and the clearance-spaces 26 are of such width as to permit the passage therethrough of but one frame at a time, the flanges 25 forming stops to prevent longitudinal movement of all the frames in rear of the outermost one, as clearly shown by Fig. 3, and thus but one frame can be shifted at a single operation and accuracy result without the least uncertainty as to the position of the plates.

It is obvious that when the last frame comes to the front some means must be provided for preventing shifting thereof after exposure, and also to indicate to the operator when the whole charge or stack has been used. This is done by providing the last frame 32 with a pair of rearwardly-projecting lugs 34 at the end thereof near the flanges 25 and adjacent to each side edge, and when this last frame is pushed to the front the lugs will lock between the flanges 25 and the projections 30, the combined width of the lugs and thickness of the frame carrying the same being greater than the extent of the said front spaces 26, and any attempt to draw out the section 2 at such time will be obstructed, and thereby give the operator due notice that all the frames have been brought into exposing po-

sition. The holder will then be removed and recharged, and the same operation of automatic placement of the film or plate frames in position for exposure can be again carried on. A suitable light-excluding strip 35 also engages the slide 7, said strip performing an obviously useful function when the bellows is dispensed with. It is proposed to make the slide of metal of such thickness that it will not spring by the pressure of the said strip 35. The section 2 is prevented from being disconnected from the section or outer casing 1 by providing one end of said section 2 with lugs or projections 36, which are adapted to contact with stops 37 on the open end of the said casing, as clearly shown by Fig. 3.

It is proposed to use the improved holder with any kind or type of camera to which it may be applicable, and though the preferred form has been shown and described the invention is subject to a wide range of modification in the form, size, proportions, and minor details without departing from the principle of the invention.

Having thus described the invention, what is claimed as new is—

1. In a photographic-plate holder, the combination with a casing to receive a plurality of frames for holding sensitized surfaces, and a replacing-section having at its rear end a transverse bar provided at its terminals with downward-extending projections to engage with the frame, substantially as and for the purpose specified.

2. In a photographic-plate holder, the combination of a casing to receive a plurality of frames for holding sensitized surfaces, the last frame of the series being provided at one end with projections extending at right angles to the length of the frame, a replacing-section movable in the casing and provided at its end with a transversely-disposed bar having its terminals bifurcated to present downward-extending projections to engage with the frames to effect their shifting, and springs secured to the section adjacent to the ends of the bar and having their free ends extended downward to engage with the frames, substantially as and for the purpose specified.

3. The combination of a magazine-casing to receive a charge of frames for holding sensitized surfaces, said frames being provided with inwardly-projecting flanges, a replacing-section movable in the casing, a bar having its terminals horizontally bifurcated to present downward-extending projections to engage with the flanged ends of the frame, and a slide movable between the inwardly-projecting flanges, substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

IRA L. GREEN.

Witnesses:

J. A. SIMONDS,
FRED B. OLMSTEAD.