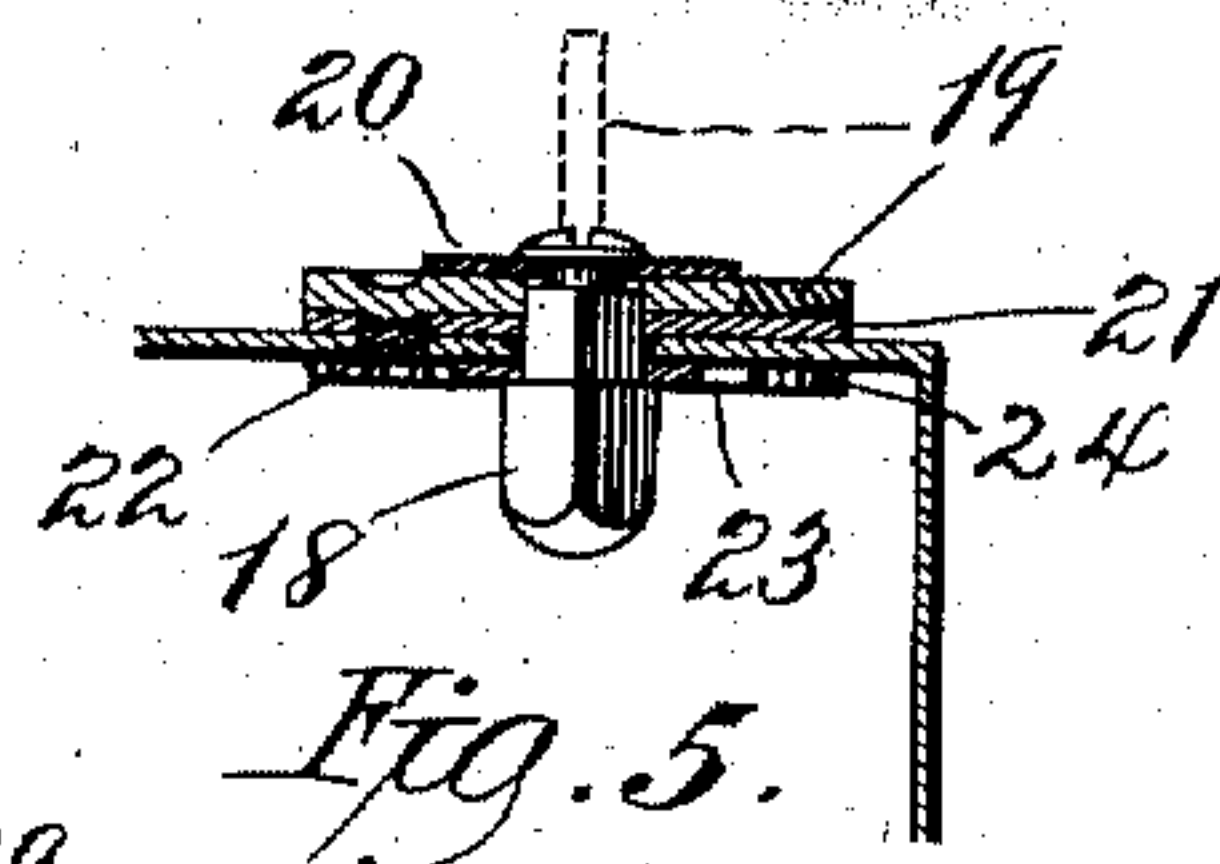
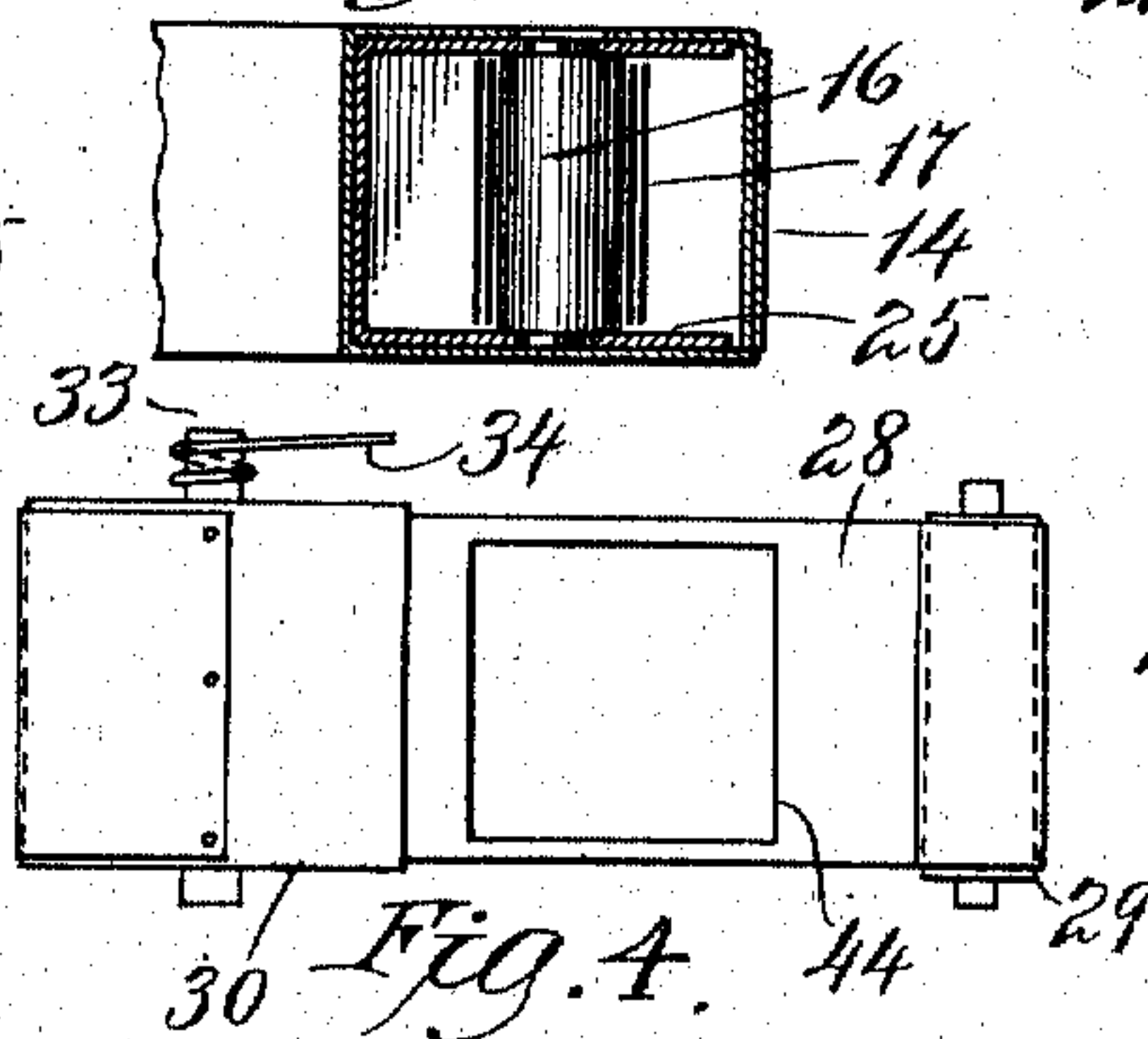
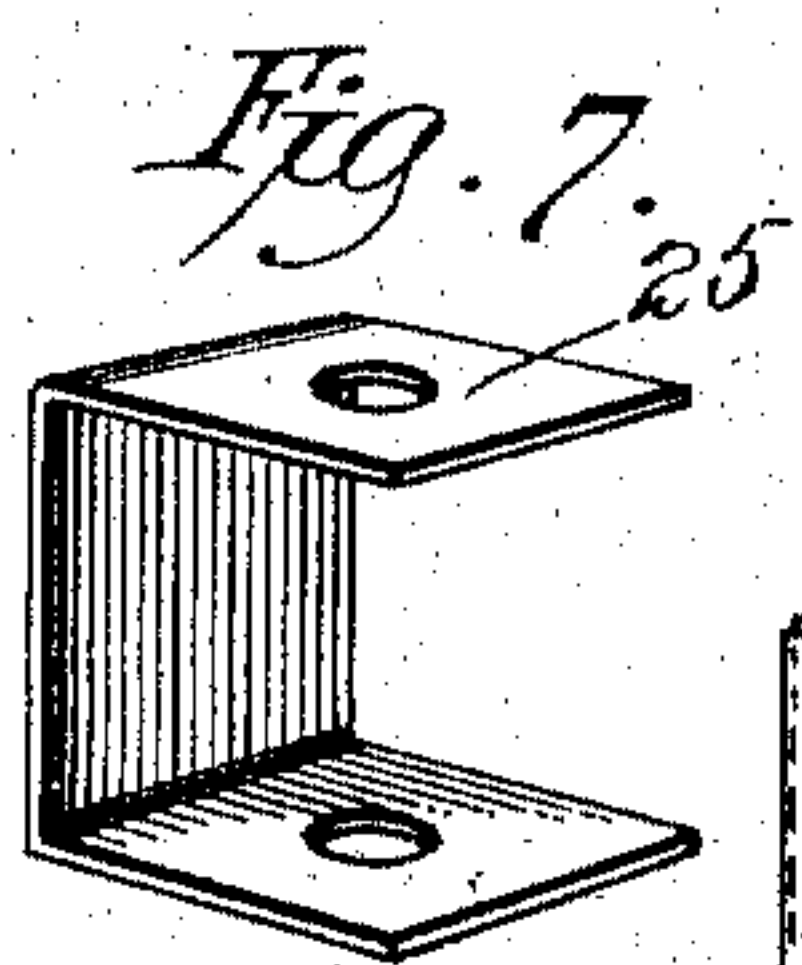
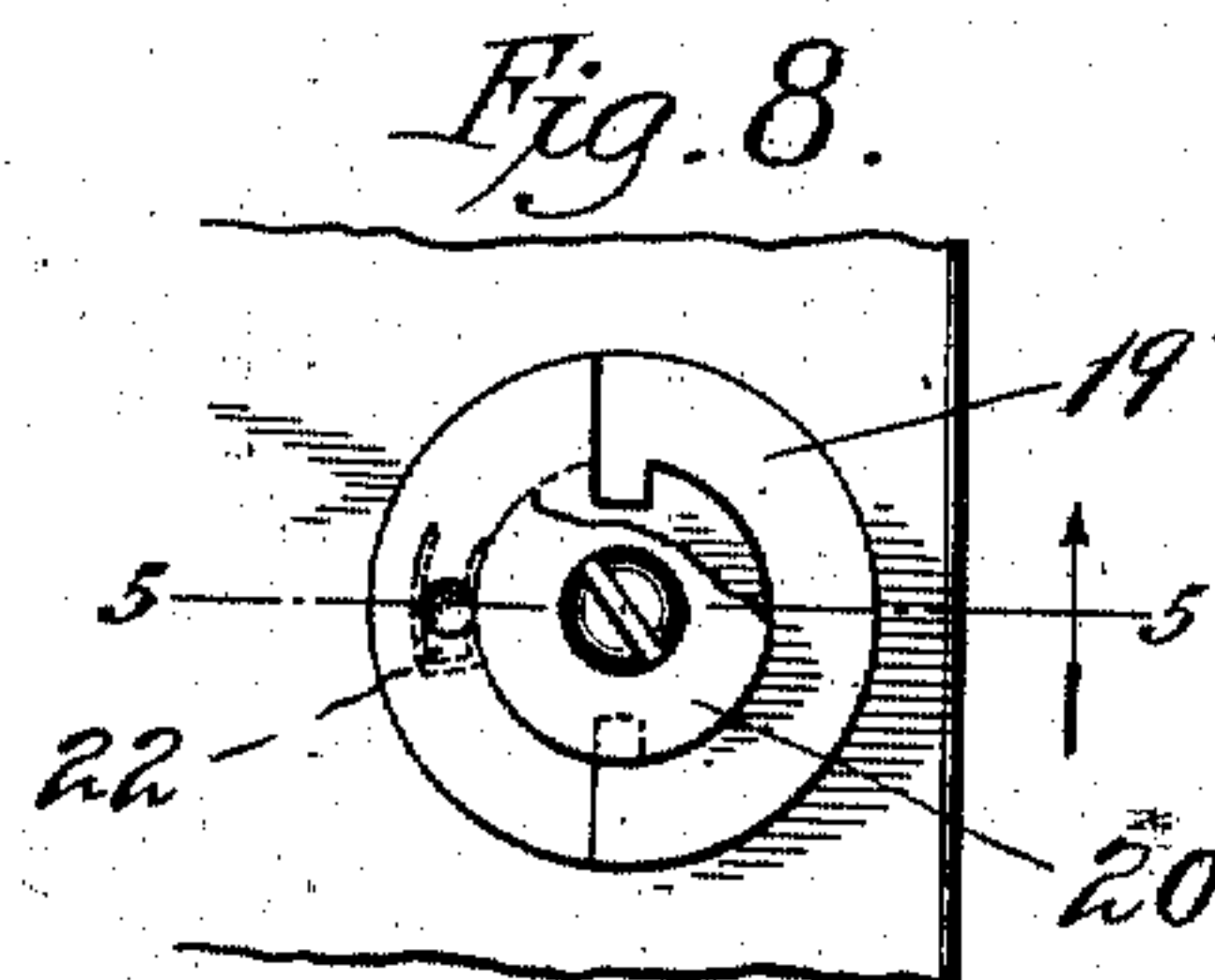
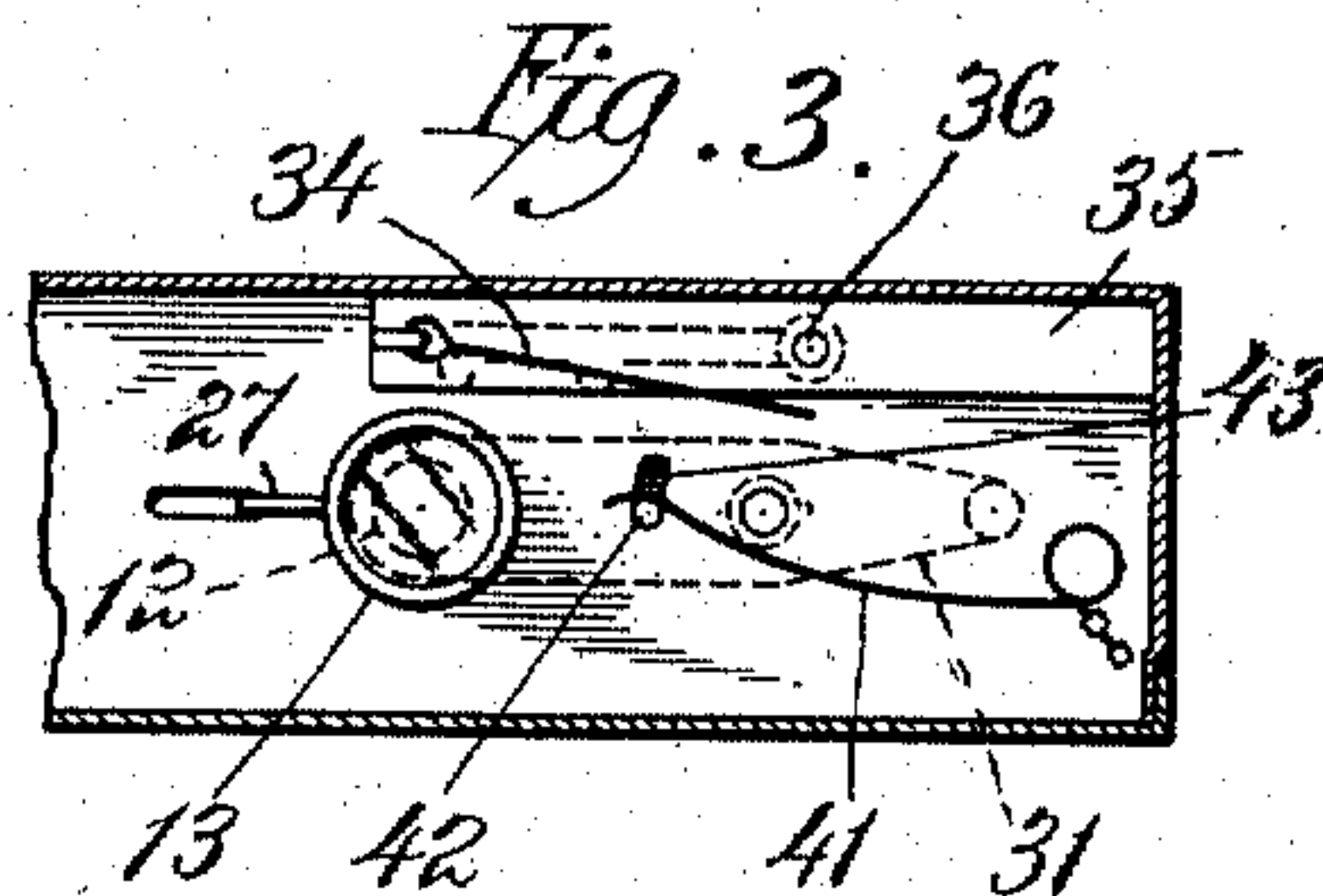
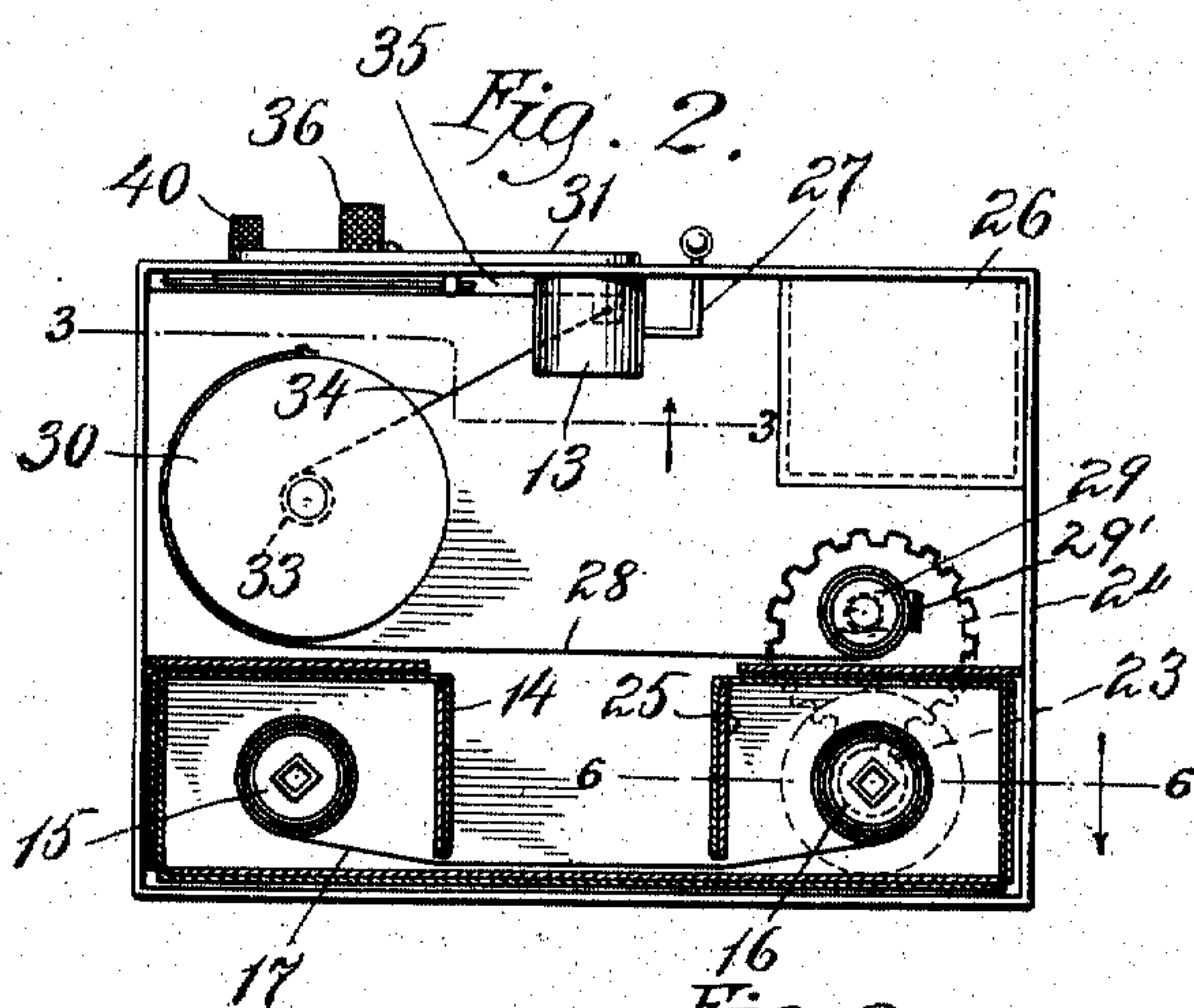
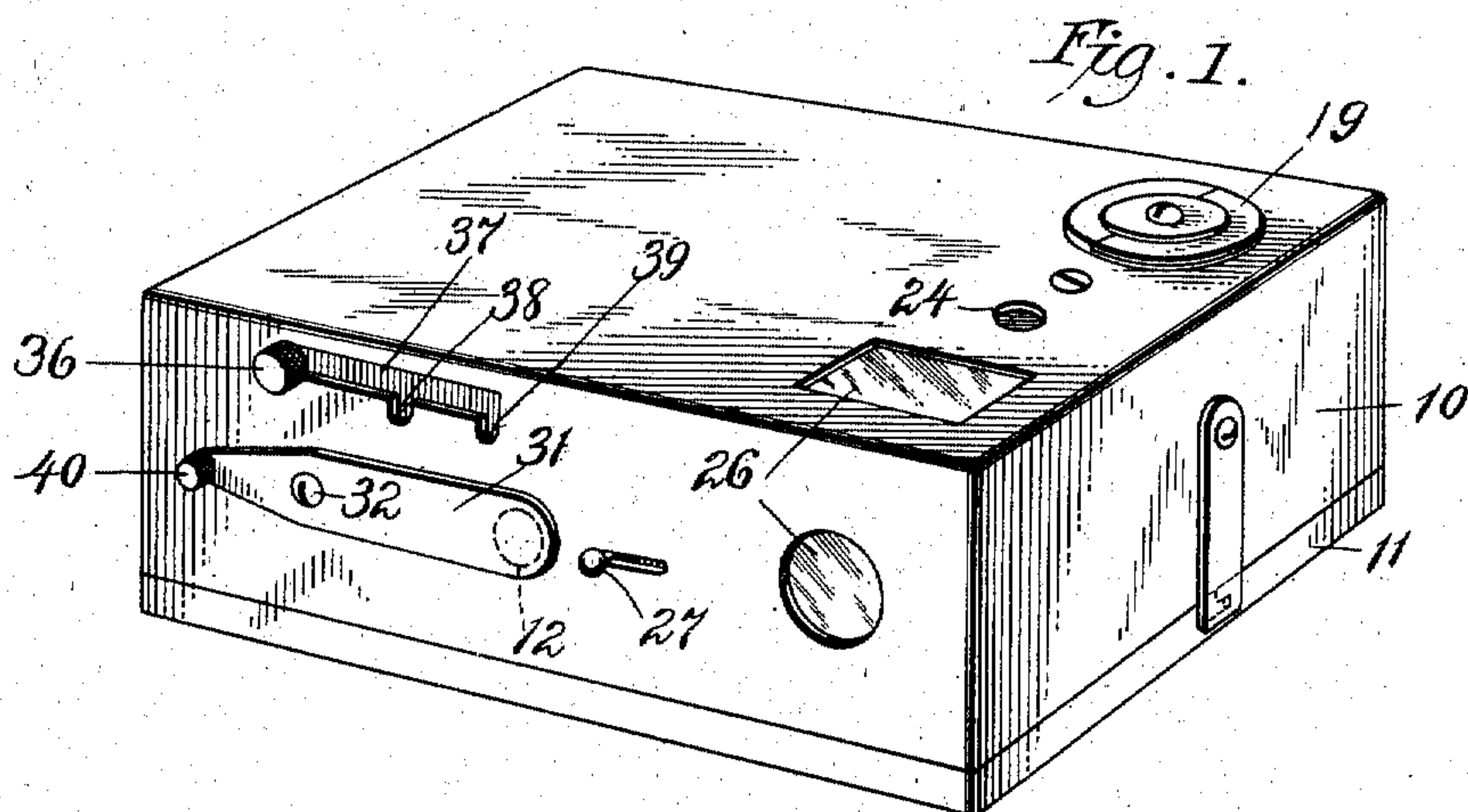


M. NIÉLL.
CAMERA.

APPLICATION FILED AUG. 19, 1909.

982,849.

Patented Jan. 31, 1911.



Witnesses:
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UNITED STATES PATENT OFFICE.

MAGNUS NIÉLL, OF NEW YORK, N. Y.

CAMERA.

982,849.

Specification of Letters Patent.

Patented Jan. 31, 1911.

Application filed August 19, 1909. Serial No. 513,596.

To all whom it may concern:

Be it known that I, MAGNUS NIÉLL, a subject of the King of Sweden, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Cameras, of which the following is a specification.

This invention relates to the shutter mechanism of cameras, and especially those of small size where simplicity and compactness of mechanism are of relatively high importance.

My invention aims to enhance these and other desirable qualities in the shutter mechanism, and it consists in the features of improvement now to be described and claimed.

Figure 1 of the accompanying drawings represents in perspective a preferred embodiment of the invention. Fig. 2 represents a plan view looking from below, with the cover removed, parts being in section. Fig. 3 represents a section on the line 3—3 of Fig. 2 showing a rear view of the shutter parts mounted on the front wall of the camera. Fig. 4 represents a rear view of the primary or curtain shutter. Fig. 5 represents a vertical section of the film-winder. Fig. 6 represents a vertical section of one end of the roll-holder, on line 6—6 of Fig. 2. Fig. 7 represents a perspective view of a part of said holder. Fig. 8 represents a top-plan view of the film-winder, partly broken away.

10 is the body of the camera-box having a removable cover 11 and an exposure-opening 12 in its front wall equipped with the usual lens, 13 being the lens-tube. In a compartment at the rear of the camera-box is removably mounted a roll-holder 14 having rollers 15, 16 on which the sensitive element or film 17 is mounted, the take-up roller 16 being fitted for engagement with the squared arbor 18 of the film-winder, the latter having a pivoted bail 19. To prevent reverse rotation of the arbor 18 a plate 21 is provided with a pawl 22 adapted to enter a suitable opening in the top wall of the camera box. Said arbor is also provided with a single tooth trip wheel 23 for engaging a toothed counter wheel 24, said wheels 23 and 24 being placed in any suitable or preferred location.

The body of the roll-holder 14 may be made of stiff paper, and the rollers 15, 16 journaled in metal frames 25.

26 is a finder.

Any suitable form of adjustable light stop may be employed. I have accordingly made no attempt to illustrate the same other than to conventionally indicate the operating handle 27.

In the shutter-mechanism as here represented are embodied an internal primary curtain-shutter 28 with its ends attached respectively to the usual spring-roller or drum 29 mounted in suitable bearings 29', similar to frames 25, secured in position in any suitable manner and draw-roller or drum 30 of relatively large diameter, said drum being mounted between the top and bottom walls of the camera box and located in any suitable position to direct the curtain 28 between the lens and the film. An external secondary plate-shutter 31 is pivoted at 32 on the front wall of the camera and normally covering the exposure-opening 12. These two shutters may be worked separately as in time exposure, and are also adapted to cooperate in instantaneous exposure.

The draw-roller 30 has a pulley 33 of relatively small diameter on which is wound one end of a cord 34 whose other end connects with a setting-slide 35 said slide being mounted on the inner face of the front wall of the camera. Said slide is mounted to have an up and down movement and is provided with a knob or projection 36 extending through a slot 37 in the front wall of the camera, and the neck of said knob is adapted to reside in either of two notches 38, 39, for time and instantaneous exposure respectively, when knob 36 is engaged by the operator to draw slide 35 toward the right as viewed in Fig. 1, the knob then entering either notch by a downward movement.

40 is a knob or projection on the end of plate 31 opposite the shutter-acting end, for manually rocking this plate or shutter, and it will be noted that pivot 32 is nearer to this knob than to the center of the exposure opening, whereby a small manual movement results in a larger exposing movement.

41 (Fig. 3) is a spring secured at one end to the inner face of the front wall of the camera box, the free end thereof engaging a pin 42 which projects from the shutter-plate 31 through a slot 43 in the front wall, for yieldingly holding the shutter-plate in its

normal position covering the exposure-opening.

The notch 39 is so located with relation to plate 31 that when the knob 36 is inserted in said notch, a rocking movement of plate 31 will cause the latter to engage said knob 36 and raise it out of engagement with the notch.

44 is the slit or aperture in the shutter-curtain 28, which exposes the film in passing between the latter and the lens when shutter 31 is open.

To set the primary shutter for an instantaneous exposure, knob 36 is manually engaged to draw slide 35 its full stroke, and is lodged in the notch 39, whereby the aperture 44 in curtain 28 is drawn clear across from one side of the lens-field to the other, knob 36 acting as a catch to hold the parts in this position. The exposure is then made by manually rocking the secondary shutter 31 to uncover the exposure opening 12 and causing said shutter 31 to engage knob 36 and dislodge it from notch 39, whereupon the spring in roller 29 returns the primary shutter parts to their original position and the aperture 44 in curtain 28 makes the exposure in passing across the lens-field while shutter 31 is open. The latter may then be released.

For a time exposure, the knob 36 is moved into the notch 38, which brings aperture 44 central with the lens-field as seen in Figs. 2 and 4, and the exposure is then made by manually opening and closing the shutter 31, after which the knob 36 is manually dislodged from notch 38, and the spring-roller 29 returns the primary shutter parts to their original position.

The invention admits of changes in specific structure without departing from its principle.

I claim:—

1. The combination with a camera box having an exposure-opening, of an external manually-operable shutter plate pivoted to the front camera wall and normally covering said opening, and a spring mounted within the camera and having a connection with the plate through said wall for holding the plate in its normal position.

2. In a camera shutter mechanism, the combination of a spring-retracted primary shutter, manually-operable means for setting said shutter for an exposure, and a secondary manually-operable pivoted shutter mounted to swing into engagement with said setting means to release the primary shutter.

3. The combination with a camera box having an exposure opening, of a spring retracted primary shutter working behind said opening, a pivoted secondary shutter working in front of said opening, and a setting device for said primary shutter adapted to intercept the path of movement of said sec-

ondary shutter, whereby said setting device is released by the movement of said secondary shutter.

4. The combination of a camera box having a wall formed with a slot provided with a notch, a slide supported by said wall and having a manually operable setting-knob projecting through said slot and adapted to enter the notch, and a spring-retracted shutter mounted within the camera and connected with said slide.

5. In a camera shutter mechanism, the combination with the camera-box formed with a slot provided with a notch, of a spring-roller and a draw-roller, the latter having a pulley, a shutter-curtain whose ends are attached to the respective rollers, a setting slide adjacent said slot, a cord attaching said slide to the draw-roller pulley, and a manually-operable setting-knob projecting through said slot and adapted to enter said notch.

6. In a camera shutter mechanism, the combination with the camera-box having its front wall formed with a slot provided with two adjacent notches, one for time and the other for instantaneous exposures, a slide supported by said wall and having a manually operable setting-knob adapted to enter either of said notches, a shutter-curtain whose ends are attached respectively to a spring-roller and a draw-roller, and a cord connecting said slide with the draw-roller.

7. In a camera shutter mechanism, the combination with the camera box having an exposure opening, said box having a slot provided with a notch, of a shutter-curtain mounted on rollers one of which is spring-retracted, a setting-slide adapted to wind the shutter off the spring-roller and onto the other roller for an exposure, said slide having a manually operable setting projection which engages said notch to act as a catch, and a movable secondary shutter, said projection being adapted to intercept the path of movement of said secondary shutter whereby the shutter-curtain is released when said secondary shutter uncovers the exposure opening.

8. In a camera shutter mechanism, the combination with the camera box formed with a slot in its front wall provided with a notch, and having an exposure opening, a spring-retracted primary shutter having a setting-slide which carries a knob projecting through the slot and adapted to enter the notch, and a secondary pivoted and spring-retracted manually-operable shutter adapted to move past said notch to dislodge said knob when said secondary shutter is rocked to uncover the exposure opening.

9. The combination with a camera box having an exposure opening and formed with a slot in its front wall provided with two adjacent notches, one for time and the other

for instantaneous exposure, a slide having a
manual setting-member extending through
the slot and adapted to enter either notch, a
spring-retracted primary shutter working
5 behind said exposure opening and connected
with the slide, and a pivoted manually-op-
erable spring-retracted secondary shutter
working in front of said exposure-opening
and adapted to move past said instantaneous
10 notch to dislodge said setting-member when

said secondary shutter is rocked to uncover
the exposure opening.

In testimony whereof I have hereunto set
my hand in the presence of two subscribing
witnesses, this 17th day of August, 1909.

MAGNUS NIÉLL.

Witnesses:

R. M. PIERSON,
F. E. NARES.