

(No Model.)

3 Sheets—Sheet 1.

J. E. BLACKMORE.
PHOTOGRAPHIC CAMERA.

No. 435,342.

Patented Aug. 26, 1890.

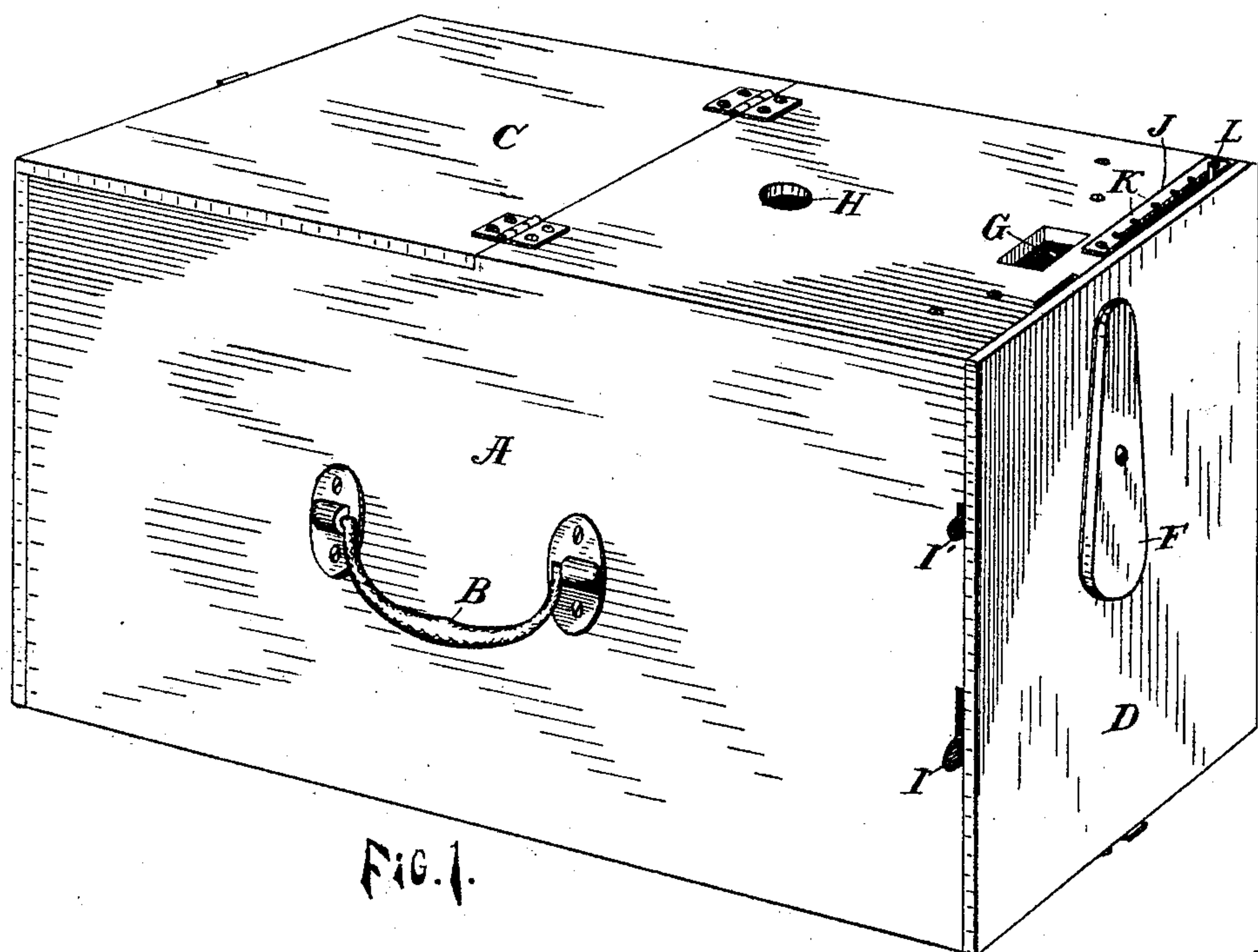
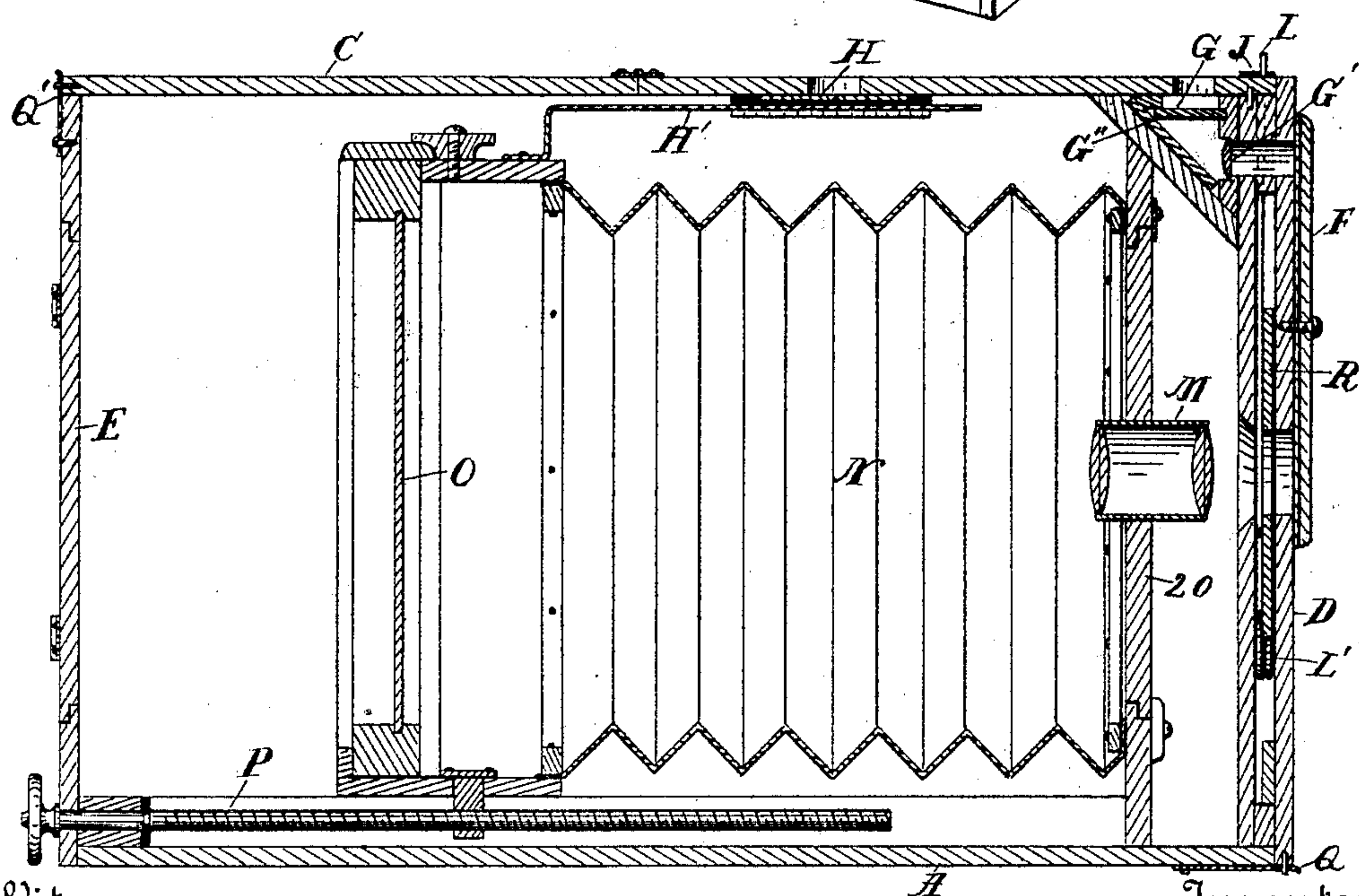


FIG. 1.



Witnesses

Claude D. Duchauau.
Geo. B. Lissou.

FIG. 2

Inventor

James E. Blackmore

By *his* Attorneys

Moulton & Rogers,

(No Model.)

3 Sheets—Sheet 2.

J. E. BLACKMORE.
PHOTOGRAPHIC CAMERA.

No. 435,342.

Patented Aug. 26, 1890.

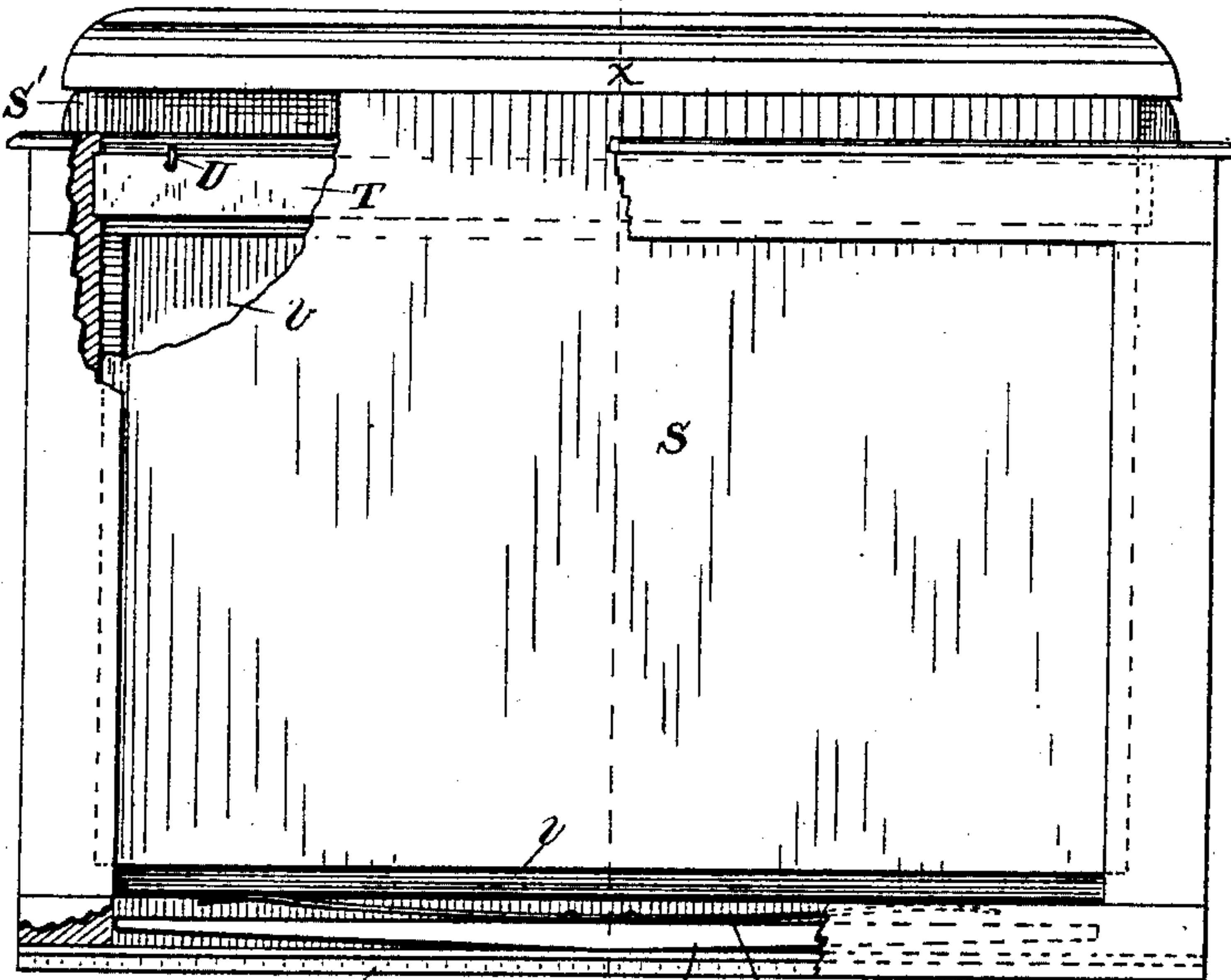


FIG. 3.

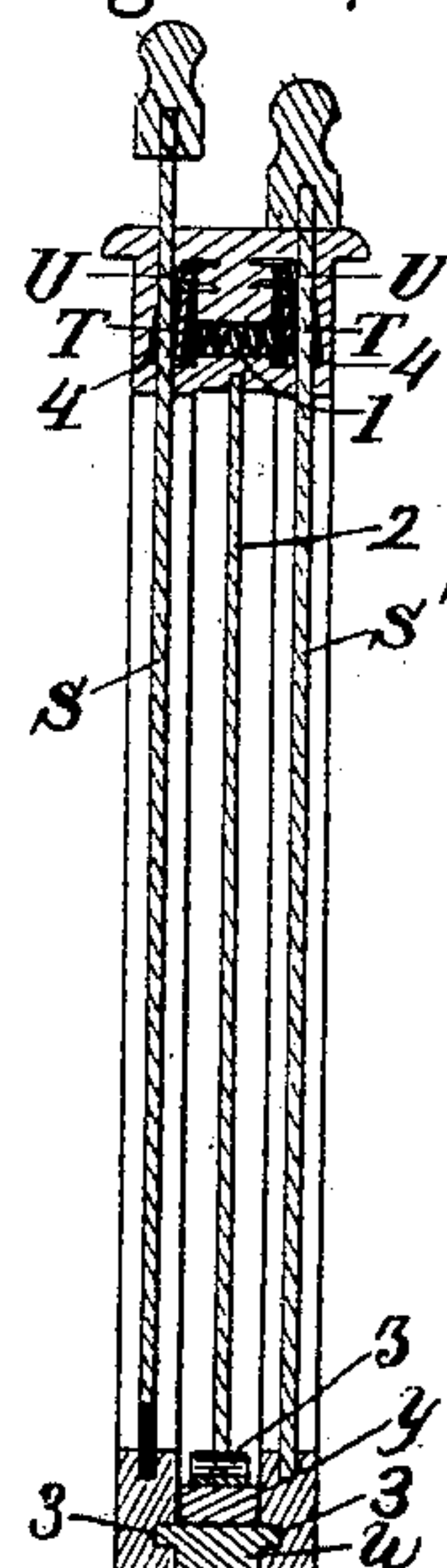


FIG. 4.

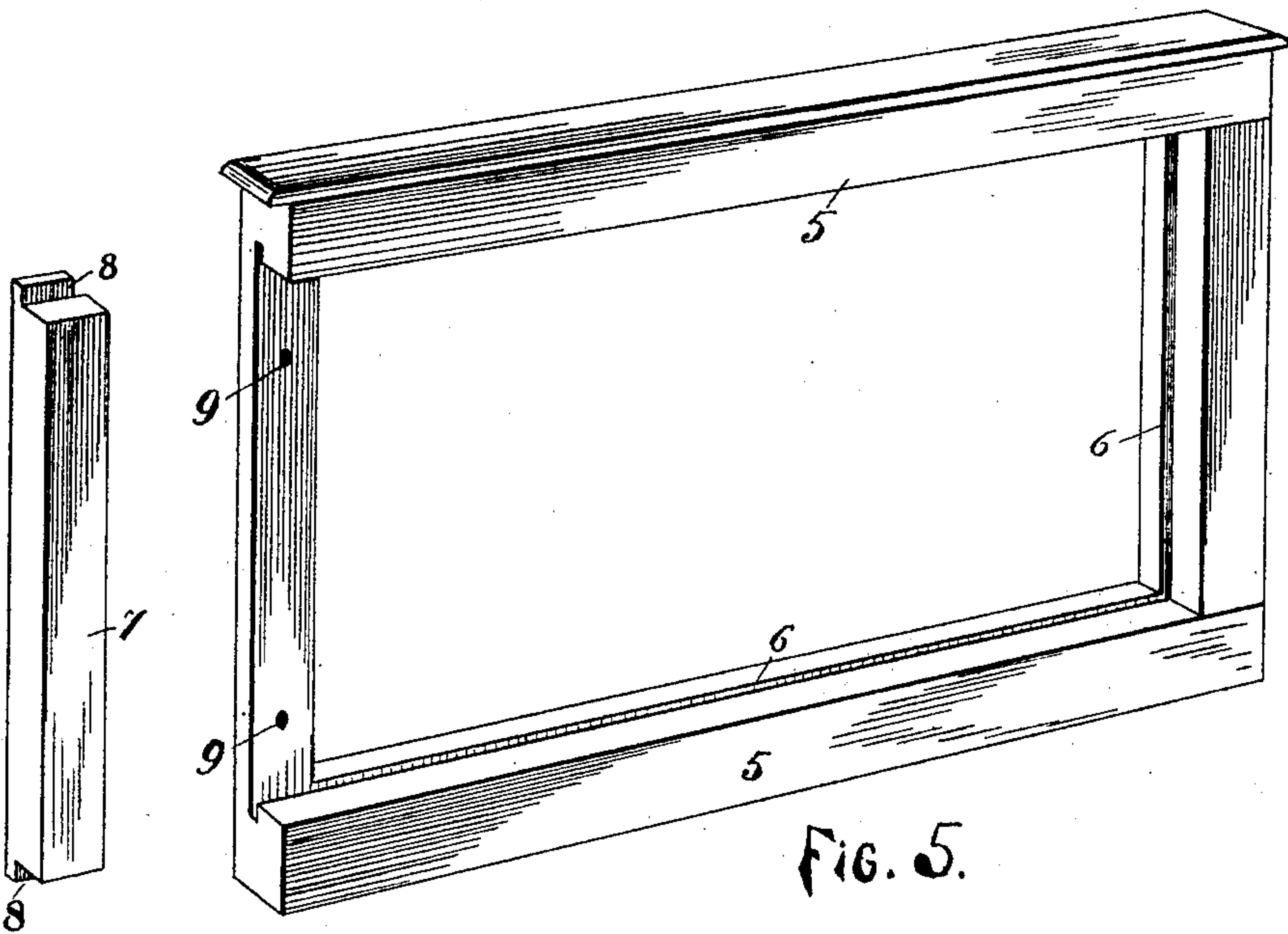


FIG. 5.

Witnesses

Charles R. Buchanan.
Geo. D. Lissom.

Inventor

James E. Blackmore

By his Attorneys

Moulton & Rogers.

(No Model.)

3 Sheets—Sheet 3.

J. E. BLACKMORE.
PHOTOGRAPHIC CAMERA.

No. 435,342.

Patented Aug. 26, 1890.

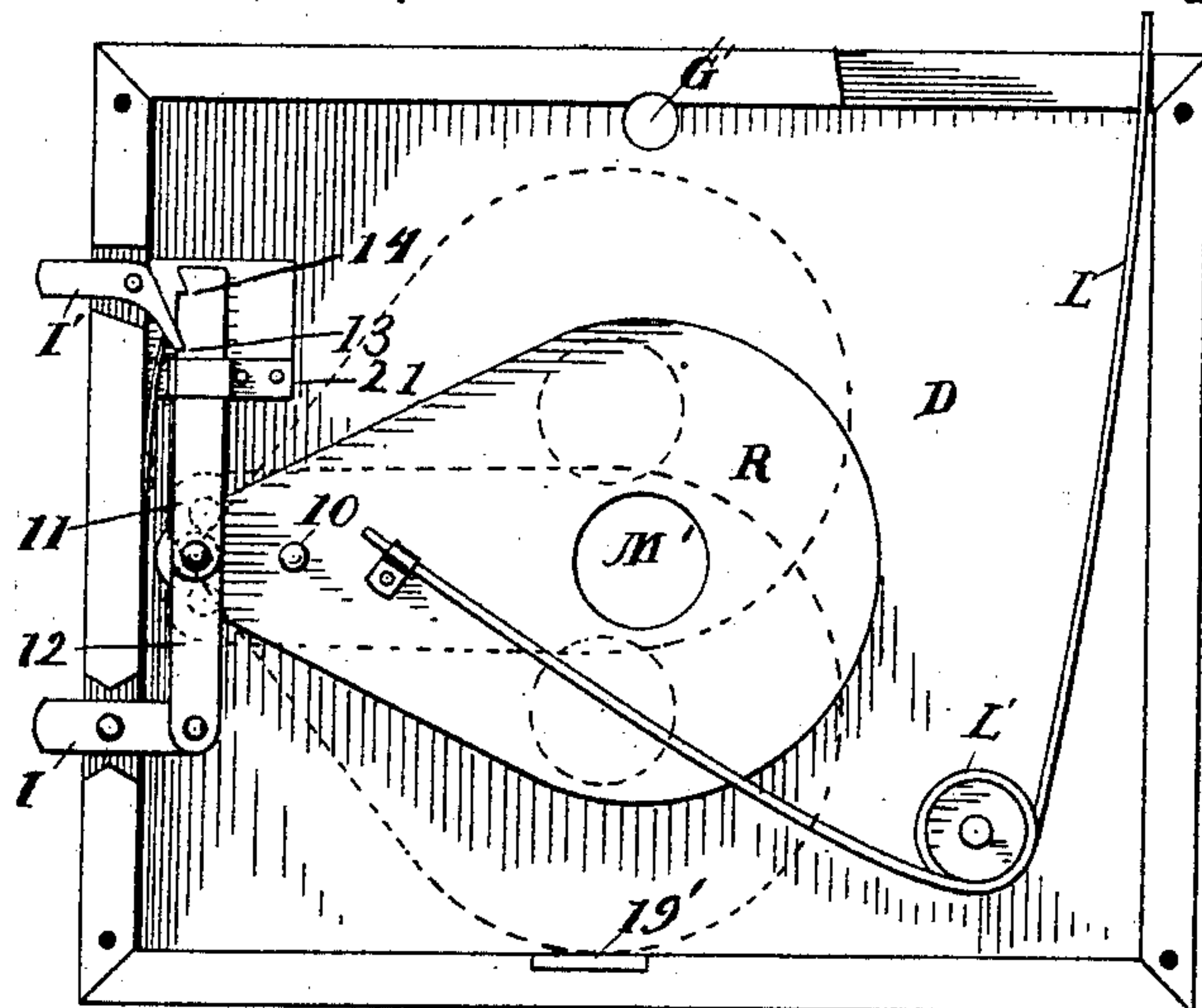


FIG. 6.

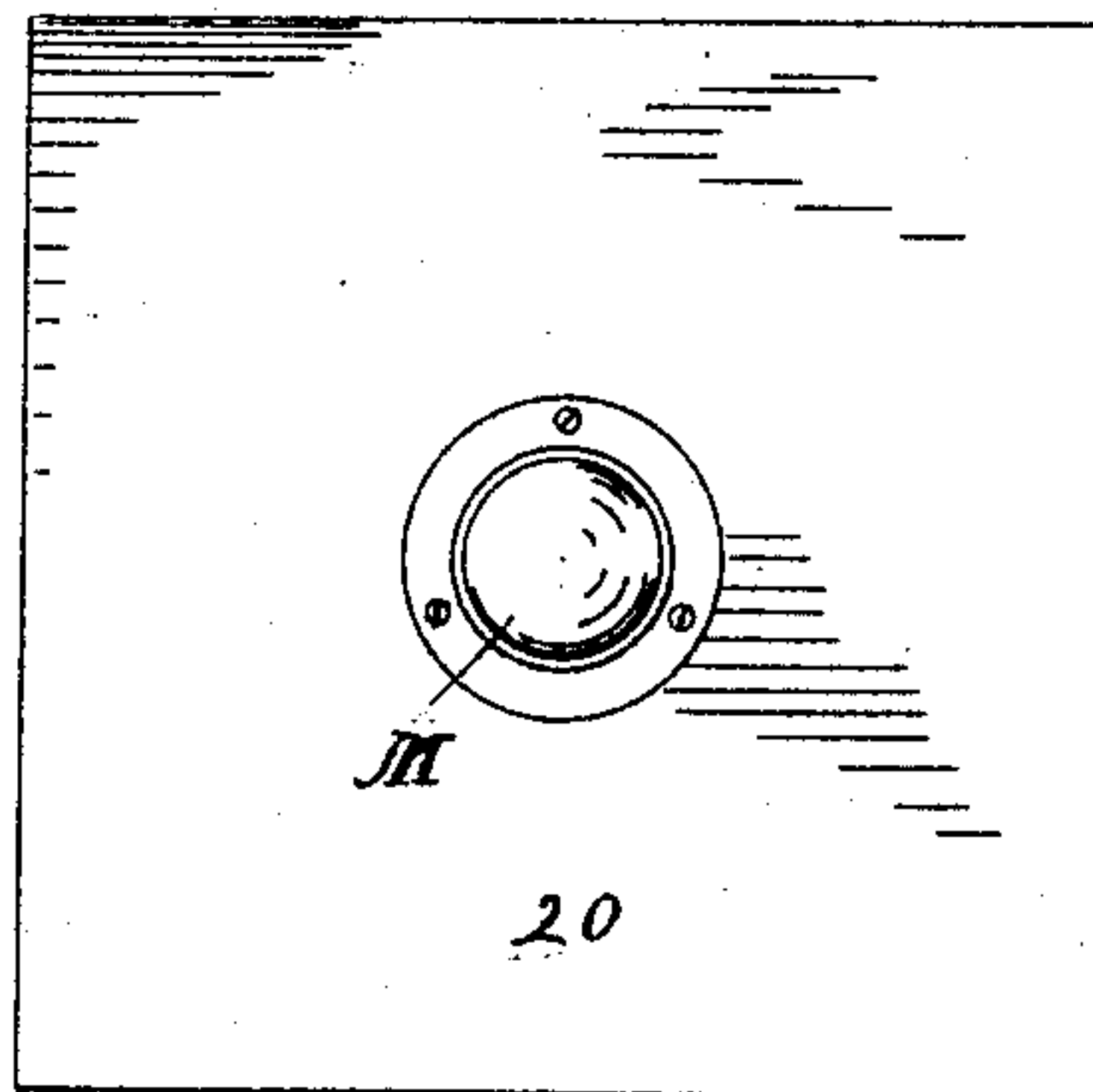


FIG. 8.

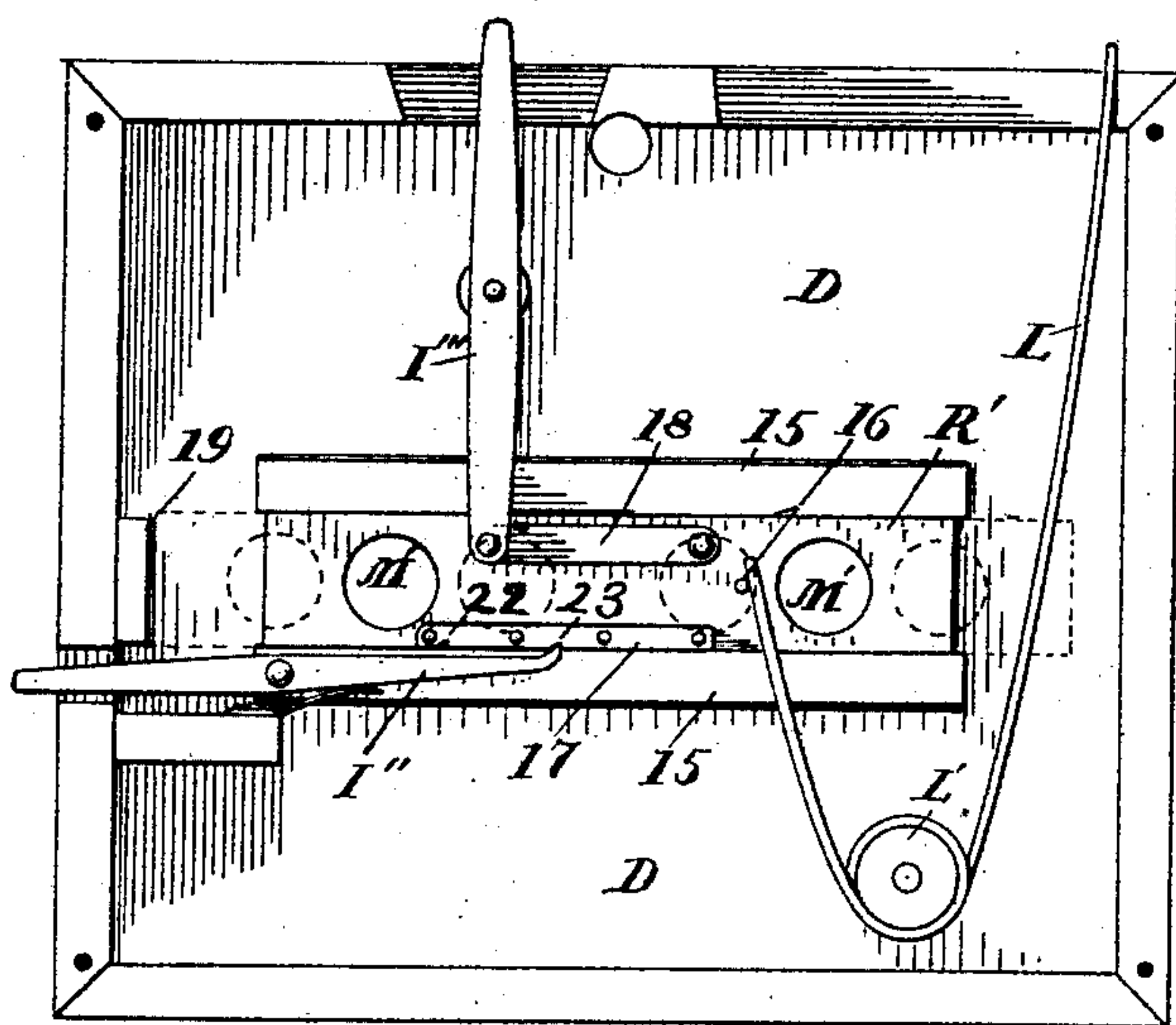


FIG. 7.

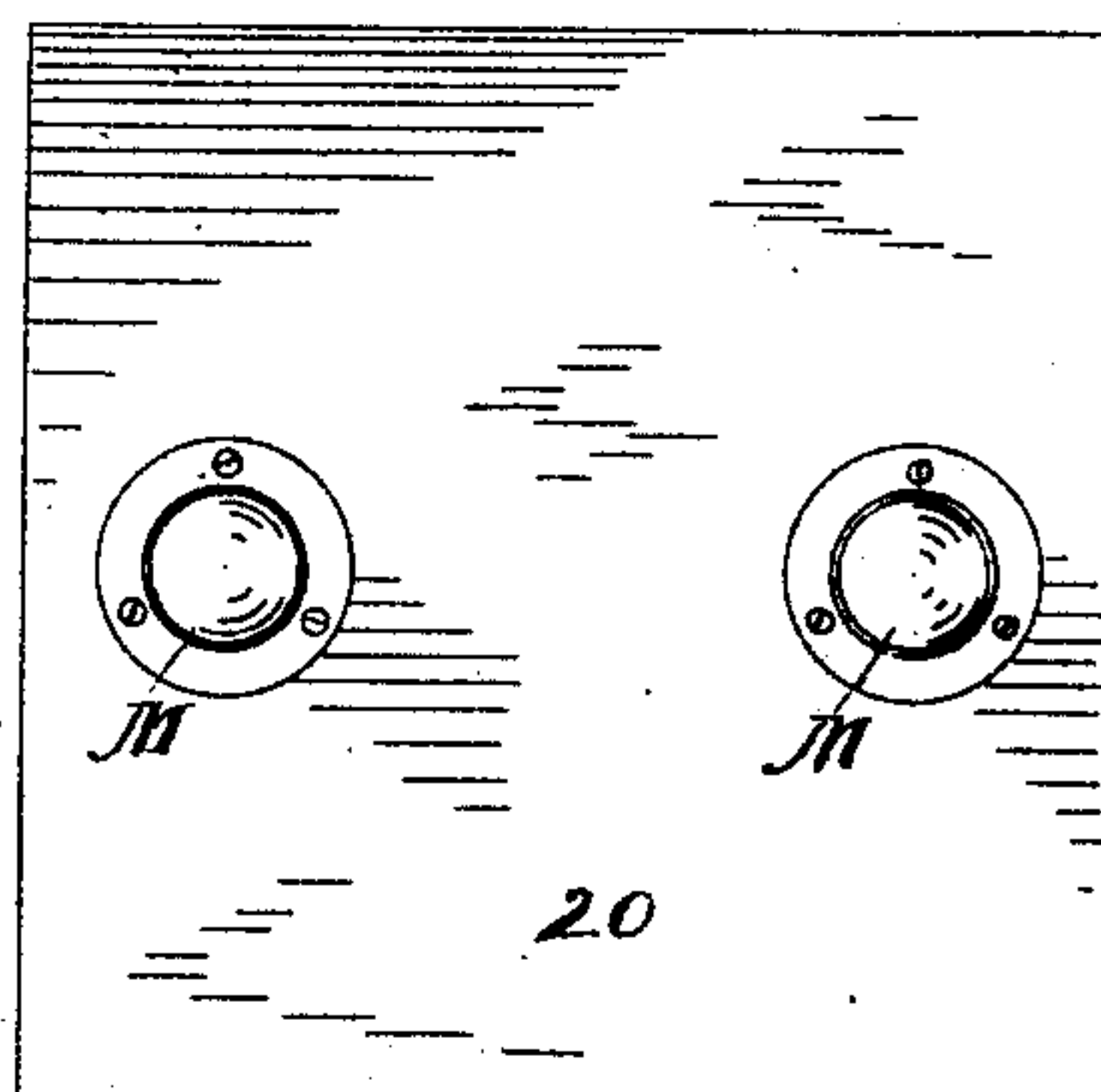


FIG. 9.

Witnesses

Claude D. Duchauau.
Geo. B. Larson.

Inventor

James E. Blackmore

By his Attorneys

Moulton & Rogers.

UNITED STATES PATENT OFFICE.

JAMES E. BLACKMORE, OF GRAND RAPIDS, MICHIGAN.

PHOTOGRAPHIC CAMERA.

SPECIFICATION forming part of Letters Patent No. 435,342, dated August 26, 1890.

Application filed August 26, 1889. Serial No. 322,029. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. BLACKMORE, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Photographic Cameras; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in photographic cameras, and more particularly to that class adapted to making instantaneous-view work without removing the camera proper from its outer casing or box in which it is transported.

The objects of my invention are to provide said camera with sundry improved conveniences and devices, as will appear in what follows.

In the accompanying drawings, Figure 1 is a perspective of a device embodying my invention; Fig. 2, a longitudinal vertical section of the same; Fig. 3, an elevation of the plate-holder, with parts broken away; Fig. 4, a vertical section of the same on the line $x x$ of Fig. 3; Fig. 5, a perspective of the ground-glass frame; Fig. 6, a detail of shutter for single objective, and Fig. 7 the same of shutter for stereoscopic objective; Fig. 8, a panel 20 with single objective, and Fig. 9 the same with double objective.

A is the outer casing or box provided with a handle B for carrying the same, a door C for inserting and removing the ground-glass and plate-holders, a door E in its rear end for observing the image upon the ground glass, a detachable front D, having an oblong cap F pivoted to the same near its middle, and serving to close and open the openings in said front opposite to objective M, and finder-lens G', and also with an instantaneous shutter, hereinafter described.

20 is a removable panel having an objective M at its center, Fig. 8, and for which a similar panel having a double objective for stereoscopic work may be substituted, Fig. 9.

O represents the ground glass, and P the focus-screw.

H' is a strip of metal, which can be observed through the glass plate H. Said strip

moves to and from the objective with the ground glass O, and has marks indicating the proper positions of the same to focus objects at various distances.

G is a finder consisting of a ground glass, upon which is projected an upright image corresponding to the one on the ground glass O by means of the lens G' and mirror G''. By observing this image on the finder the image on O can be determined.

The shutter for a single objective consists of a fan-shaped plate R, arranged within a suitable chamber in the front D, having an opening M' in the middle of its broader part and pivoted near its outer end to vibrate, as shown by dotted lines. Said shutter is forced downward by a spring L, which is turned around the post L' near its middle having one arm attached to said shutter and the other engaging with notches K in the plate J to adjust its tension and determine the speed of the shutter. To the narrow end of said shutter R is pivoted the bars 11 and 12, the latter having the lever I projecting from the edge of the front, by means of which the shutter can be set and the former sliding through the guide 21 and provided with notches 13 and 14, engaging with the latch I', which also projects outside the edge of the front D. The notch 13 engages the latch I' when the opening M' is opposite the objective, and the notch 14 when the shutter is set ready for exposure.

19' is a buffer to break the shock when the shutter R falls.

For the double or stereoscopic objectives, I provide a front D, having a chamber, within which is a rectangular slide R', having openings M' M' corresponding to the objectives, arranged to move between parallel ways 15 and forced to the left by a spring L, one arm of which engages with the notches K for the purpose before cited.

18 is a bar pivoted to said slide at one end and at the other to a lever I'', extending beyond and projecting from the edge of the front D, by means of which the shutter can be moved to the right and set for use.

I'' is a latch projecting from the edge of the front and engaging with notches 22 and 23 in the plate 17 on the slide R'.

19 is a rubber buffer to break the shock of the shutter.

In the plate-holder S S' are the slides that are withdrawn to expose the plate.

T are the light-valves, arranged in suitable chambers and having hinges U U at their upper edges, and swing outward by the spring 1 to close the slide-opening.

4 4 are grooves into which the lower edges of the valves strike to insure exclusion of all the light.

2 is the diaphragm which separates the plates.

W is a slide, having tongues 3 3 engaging with grooves in the holder. Y is a bar oppositely tapering from the middle, and having attached a spring Z, which presses against the edges of the plates V. By removing this slide, bar, and spring the plates can be removed from or inserted in the plate-holder. When the plates are in position, the bar Y is first inserted, and its tapered ends serve as wedges to compress the spring as the slide W is replaced.

The ground-glass frame 5 is of the usual rectangular form, and provided on the inner surface of its respective sides with a groove or chamber 6 and a detachable portion 7, having tenons 8 engaged with said groove and secured in place by screws inserted in holes 9. By removing said screws and the part 7 the ground glass can be readily removed from the grooves 6 or placed therein and secured by replacing the detachable part 7.

What I claim is as follows:

1. In a camera, an outer case inclosing the operating parts of a camera, and provided with a detachable front having a pivoted cap F, a chamber inclosing a spring-actuated shutter, the notched plate J, having notches engaging the spring of said shutter, a finder consisting of a lens G', a mirror G'', and a ground glass G, a focus-gage H', a top door C, and a rear door E, substantially as described.

2. In combination with the case A, inclosing the operating parts of a camera, a detachable front panel, having a chamber inclosing a shutter R, pivoted in said chamber, having

the opening M', actuated by the spring L, and having the bars 11 and 12, and the lever I and latch projecting from the edge of said panel, substantially as described.

3. In a camera, a case inclosing the operating parts, said case having a front provided with a movable shutter, a spring for actuating said shutter, one end of which spring projects outside of said case and engages a notched plate, a pivoted lever connected to said shutter for adjusting the same, and a pivoted latch engaging a notched plate attached to said shutter for holding and releasing the latter, said lever and latch also extending outside said case, substantially as described.

4. In a camera, in combination with a plate-holder having an opening at one side to insert or remove the plates, a slide W, closing said opening having tongues 3 3 engaging with grooves in the holder, and a spring between said holder and the bar Y, having the spring Z attached, substantially as described.

5. In a camera, in combination with a plate-holder having an opening at one side to insert or remove the plates, a slide having tongues 3 3, engaging with grooves in the holder, and a spring between said slide and the plates S S', said spring adapted to be compressed by the slide when in place, substantially as described.

6. In a camera, a ground-glass frame having the groove 6 and the detachable part 7, substantially as described.

7. In a camera, a ground-glass frame having the groove 6 in the inner surface of three sides, and a removable part 7 in the fourth side provided with screws, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES E. BLACKMORE.

Witnesses:

LUTHER V. MOULTON,
JOSIAH W. SHERWOOD.