

No. 656,507.

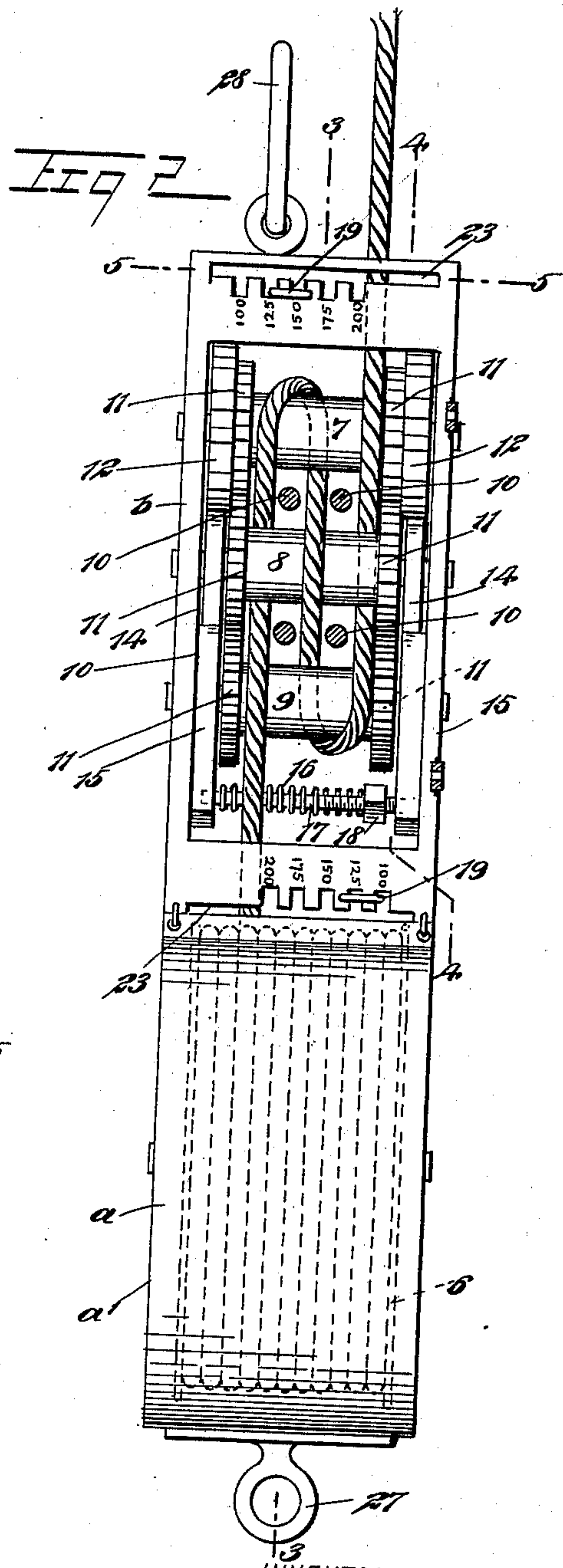
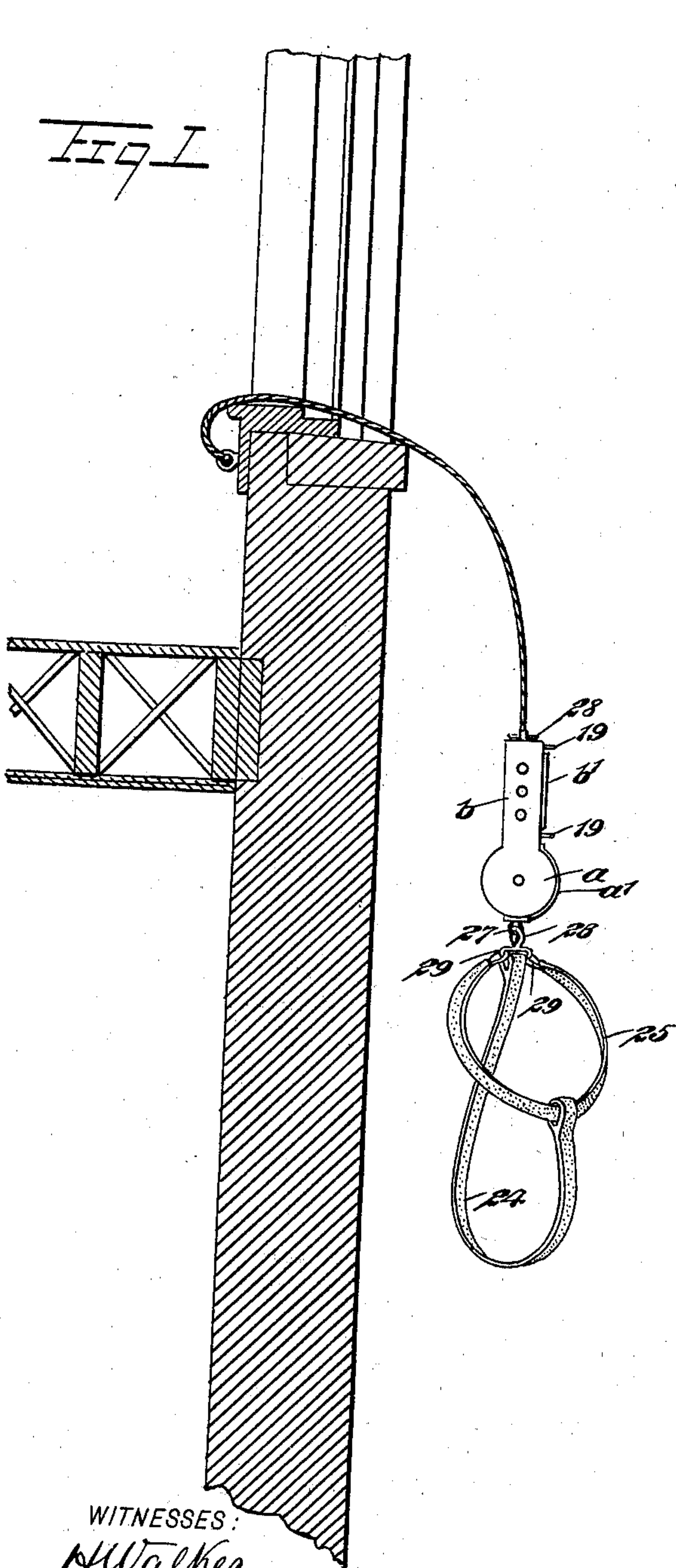
T. T. BROWN.  
FIRE ESCAPE.

Patented Aug. 21, 1900.

(No Model.)

(Application filed Nov. 27, 1899.)

2 Sheets—Sheet 1.



WITNESSES:  
*H. Walker*  
*J. B. Davis*

INVENTOR  
*Thomas T. Brown*  
BY *Mumford*  
ATTORNEYS.

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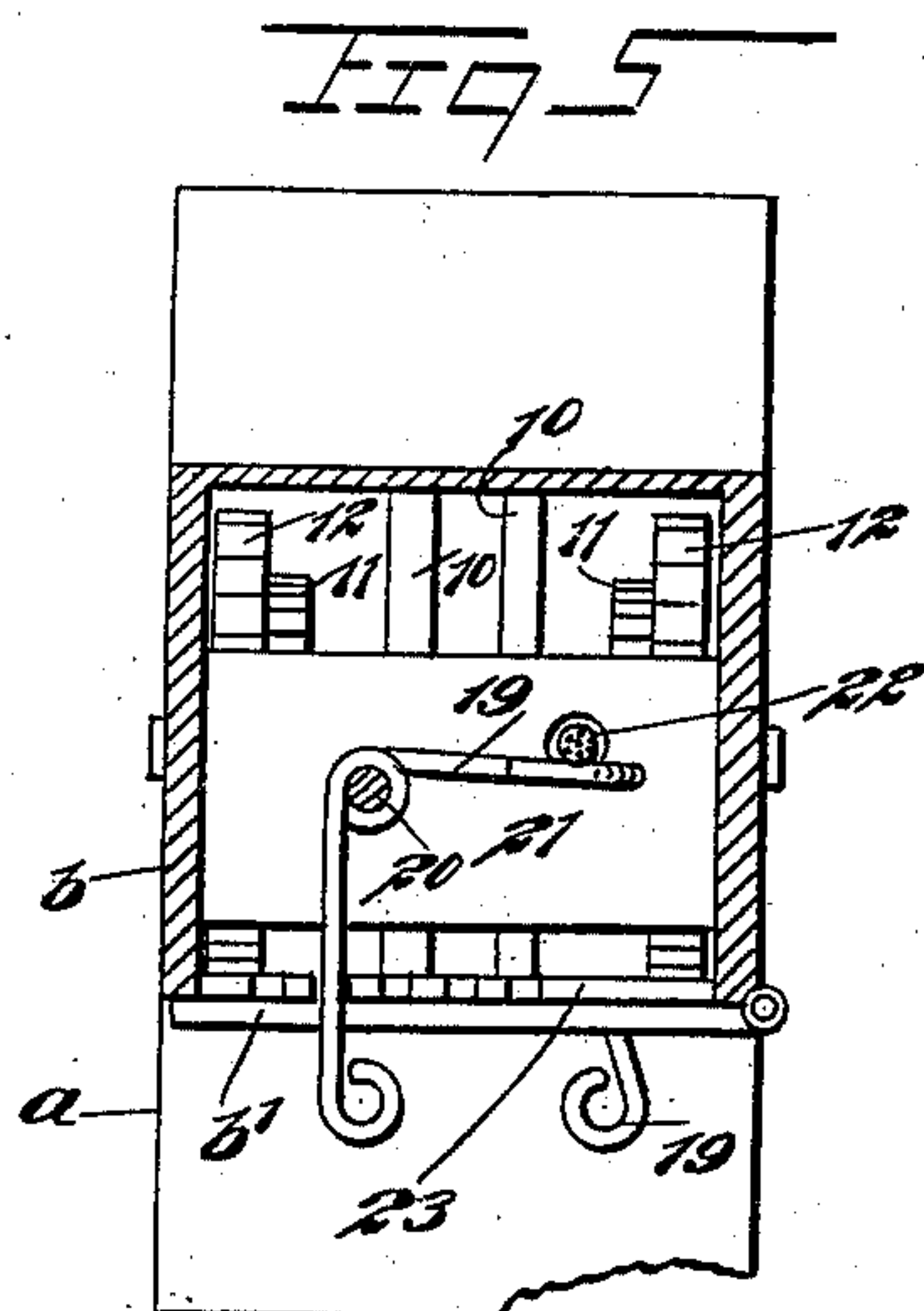
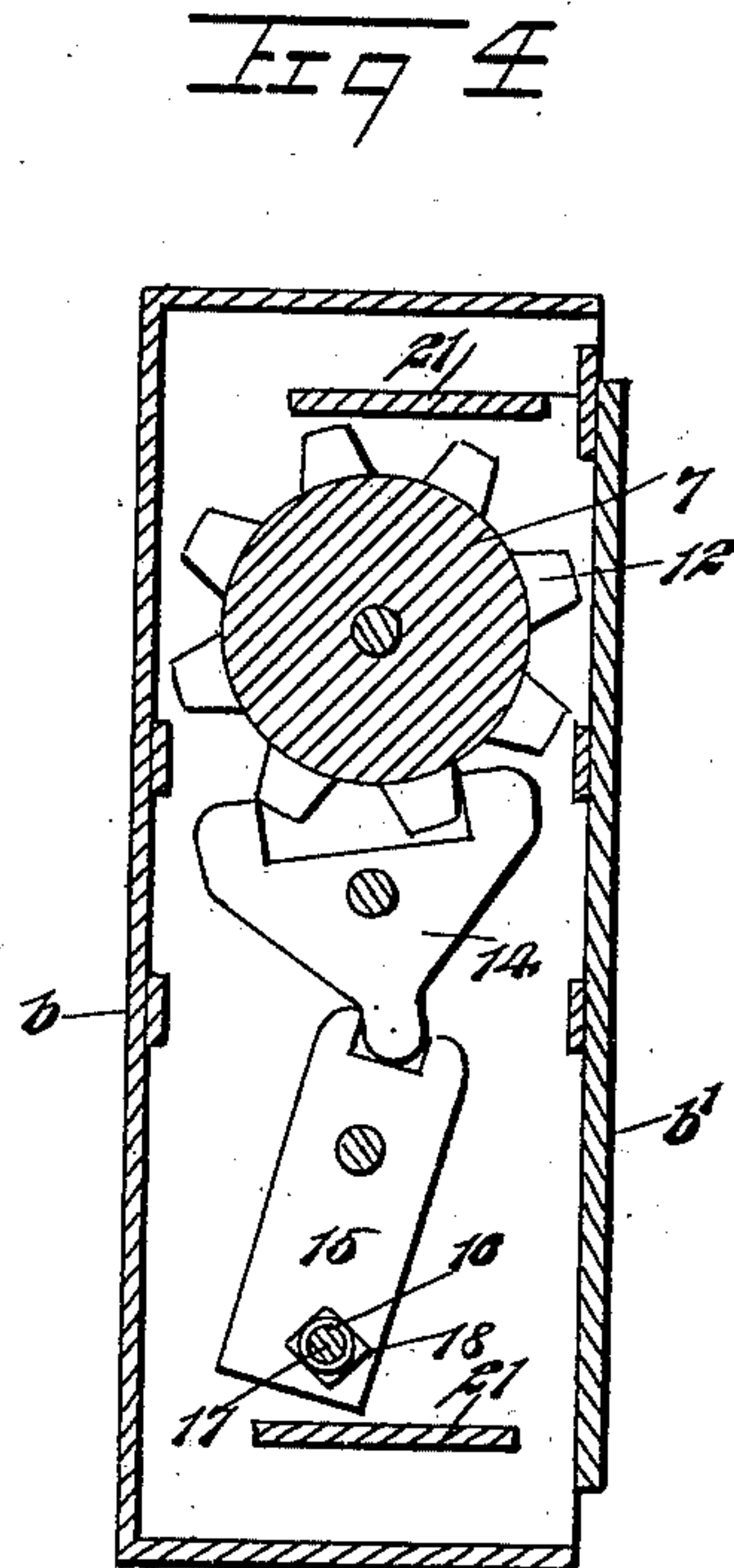
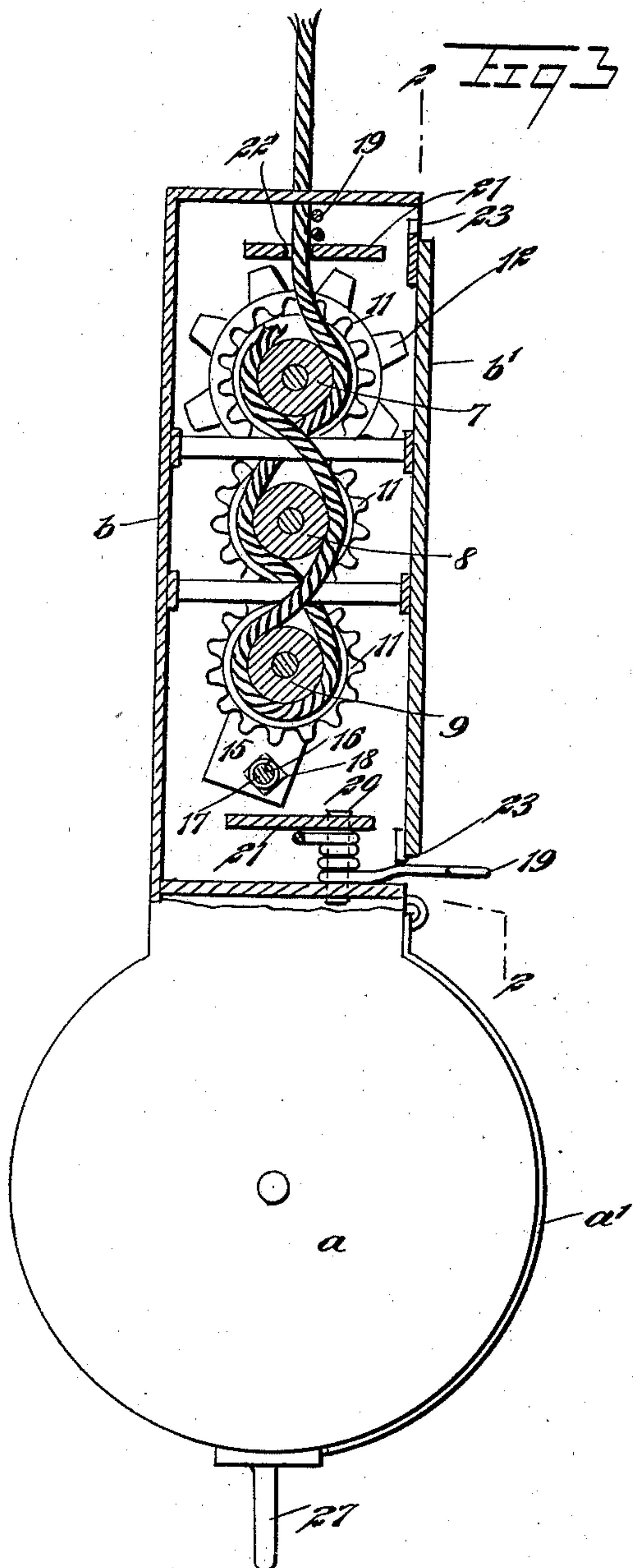
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2 Sheets—Sheet 2.



WITNESSES:  
*H Walker*  
*J B Curran*

INVENTOR  
*Thomas T. Brown*  
BY *Mundy*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

THOMAS T. BROWN, OF EUCLID, MINNESOTA, ASSIGNOR OF NINETEEN TWENTY-FIFTHS TO HARVEY C. MISNER, JACKSON S. CHAPIN, AND EDWIN A. FISK, OF SAME PLACE, AND JOHN F. MONTGOMERY, OF ANGUS, MINNESOTA.

## FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 656,507, dated August 21, 1900.

Application filed November 27, 1899. Serial No. 738,336. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS T. BROWN, a citizen of the United States, and a resident of Euclid, in the county of Polk and State of Minnesota, have invented a new and Improved Fire-Escape, of which the following is a full, clear, and exact description.

This invention relates to a fire-escape of that class in which a rope is provided in connection with a friction device arranged to move relatively to the rope, so that a person attached to the friction device may descend gradually to the ground; and the invention comprises certain improvements in the construction of the friction device, rendering it durable and certain of action.

This specification is the disclosure of one form of my invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a view showing the invention in use. Fig. 2 is a front view of the friction device with the door broken away. Fig. 3 is a section on the line 3 3 of Fig. 2. Fig. 4 is a section on the line 4 4 of Fig. 2, and Fig. 5 is a section on the line 5 5 of Fig. 2.

The friction device has a suitably-constructed casing or frame comprising a circular portion *a*, carrying a drum 6, on which a rope is primarily coiled, and also comprising an elongated body portion *b*, in which the friction devices proper are located. This casing *b* has at its front a door *b'*, which covers the mechanism and which permits the opening of the casing to inspect the parts within it. The circular portion *a* of the casing, in which the drum 6 is mounted, has a lid *a'* removably fastened in any desired manner, so that by throwing the lid to open position the interior of the part *a* of the casing may be reached for a purpose which will be hereinafter explained.

Mounted to turn in the part *b* of the casing are three rollers, respectively designated 7, 8, and 9. The rope used in connection with the friction device is first wound on the drum 6

and is then passed upward into the part *b* of the casing, the rope being passed alternately over and under the rollers 7, 8, and 9 in three runs, as shown, and being thence passed out of the upper end of the casing. The surface of one or more of the rollers 7, 8, and 9 may be roughened in any desired way to effectually engage the rope. For the purpose of keeping the three runs of the rope which pass around the rollers 7, 8, and 9 from interfering with each other I provide pins or rods 10, which are secured in the upper part of the casing in the manner shown, the pins or rods extending between the rollers 7, 8, and 9 and the rope being rove between the pins and on each side thereof. Each roller 7, 8, and 9 carries a spur-gear 11 at each end. These gears mesh with each other, forming two trains, as shown, and by their means the rollers are caused to turn together. The rope is rove around the rollers in such a way as to cause the rollers all to revolve in the direction of revolution of the gears 11.

Fastened to each journal of the roller 7 is a spur-wheel 12, the spur-wheels 12 being essentially escapement-wheels and turning with the roller 7. The spur or escapement wheels 12 respectively work with escapement-pawls 14, which are mounted to rock loosely on the respective journals of the roller 8. These escapement-pawls in turn work with friction bars or levers 15, which are mounted to rock on the journals of the roller 9, the parts 14 being engaged with the parts 15 in such a manner that the rocking of the parts 14 will impart a similar movement to the parts 15. The friction bars or plates 15 are mounted loosely on the roller 9, so as to not be influenced by the movement thereof, and these friction-bars are pressed firmly against the inner side walls of the part *b* of the casing by means of an expansive spiral spring 16, carried on a rod 17, extending between the friction-bars. The tension of this spring 16 may be regulated by a nut 18, which works on the rod 17. Therefore as the rollers 7, 8, and 9 turn, the escapement or spur wheels 12 serve to rock the escapement-pawls 14, and these pawls in turn rock the friction



bars or plates 15, which tends to retard the movement of all of the parts, and thus provides the necessary frictional resistance afforded to the passage of the rope through the machine by means of the rollers 7, 8, and 9. For the purpose of providing further friction against the passage of the rope through the machine and for permitting the person escaping to adjust the apparatus to his weight I provide at each end of the part *b* of the casing a spring-brake 19, which brakes are formed of coils of stout spring-wire mounted to rock on pins 20, respectively held in the end walls of the part *b* of the casing and in auxiliary walls 21, fastened, respectively, in the ends of the part *b* of the casing, as shown best in Figs. 3, 4, and 5. The rope is caused to pass through openings 22 in the walls 21 and also through openings in the end walls of the part *b* of the casing, and since the brakes act between the respective end walls and auxiliary walls it will be seen that by forcing the brakes into engagement with the rope the passage of the rope through the machine will be retarded. The handle portion of each brake projects forwardly out of the casing through a slot 23, formed in the casing and having a ratcheted edge provided with figures indicating the pounds which will be required to move the friction device on the rope when the brake-handle is engaged with the ratcheted edge. For example, if the person escaping weighs one hundred and fifty pounds one of the brakes should be moved to lie in the notch which is marked "150." If the person weighs one hundred and twenty-five pounds the brake is shifted accordingly. Two brakes being provided, the person escaping may use either one, or both, according to that person's convenience.

I provide a harness, as shown in Fig. 1, by which a person may be swung from the friction device. This harness comprises a seat-strap 24, adapted to be straddled by the person, and a belt 25. The front end of the seat-strap 24 has a snap-hook 26, which may be engaged with an eye 27 at the bottom of the friction device or with a ring 28 at the top thereof. The ends of the belt 25 are provided with snap-hooks 29, which are adapted to be engaged with the ring of the hook 26. The person may thus engage the harness with either end of the casing *a b*, according to the position of such casing with respect to the rope. Assuming that the parts are in the position shown in Fig. 1, in which the major portion of the rope is supposed to be coiled in the circular part *a* of the casing, the harness should be attached to the eye 27, as shown. The person in descending causes the rope to be unwound from the drum 6, and then, should a second person desire to descend, the rope should be hauled back into the building, and the end which is shown fastened to the building (see Fig. 1) should be disconnected therefrom and the other end of

the rope fastened in the building. The harness should then be disengaged from the eye 27 and attached to the ring 28, whereupon the person descends in the same manner, except that in this case the rope hangs down the whole length of the building. It will be seen, therefore, that the apparatus may be used repeatedly and without any loss of time. By providing the lid *a'* for the part *a* of the casing the casing may be readily opened to reach the end of the rope which is first fastened to the drum, thus permitting such end to be fastened to the building when a second person is to descend.

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

1. In a fire-escape, the combination with a casing, of a member revolvably mounted therein and adapted to have a rope move over it, a spur or escapement wheel driven by said member, a rocking escapement-pawl driven by the spur or escapement wheel, a friction-bar connected with the pawl to be moved thereby and means pressing the friction-bar against a part of the casing.

2. In a fire-escape, the combination with a casing, of a member revolvably mounted therein and adapted to have a rope passed over it, a spur or escapement wheel, a rocking escapement-pawl driven by the spur or escapement wheel, and a friction device connected with the pawl, to be moved thereby.

3. In a fire-escape, the combination with a casing, of a member mounted to turn therein and to be engaged by a rope, friction-bars mounted in the casing and engaging opposite walls thereof, a rod extending between the friction-bars, a spring carried on the rod and pressing the bars against the casing, and means for driving the friction-bars from the said revolvable member, to retard the movement of the revolvable member.

4. In a fire-escape, the combination with a casing, of a plurality of rollers mounted therein, gearing connecting the rollers to move in unison, a spur or escapement wheel attached to one of the rollers and driven thereby, an escapement-pawl rocked by the spur or escapement wheel, a friction-bar mounted in engagement connected with the pawl to be moved thereby, and means pressing the friction-bar against the casing.

5. A fire-escape, comprising a casing, parallel rollers mounted therein, over which a rope is rove in a plurality of runs, and bars or pins mounted rigidly in the casing between the rollers, to separate the runs of the rope and prevent their interference with each other.

6. In a fire-escape, the combination with a casing, of a plurality of rollers mounted to turn therein, a rope rove over the rollers gearing connecting the rollers to turn in unison, and a friction device connected with the rollers and mounted in engagement with one of the walls of the casing to retard the movement of the rollers.



7. In a fire-escape, the combination with a casing, of three rollers mounted therein and adapted to have a rope rove around them, gearing connecting the rollers to turn in unison a spur or escapement wheel attached to and turning with one roller, an escapement-pawl mounted to rock on the journal of an adjacent roller and driven by the escapement-wheel, a friction-bar mounted to rock on the journal of the third roller and driven by the pawl, and means pressing the friction-bar against a part of the casing to retard the movement of the rollers.

8. A fire-escape, provided with a casing, frictional devices mounted therein, and an adjustable spring-brake mounted in the casing and having a handle portion projecting

beyond the same, the brake serving as an adjunct in the said frictional devices.

9. A fire-escape, having a casing, means mounted in the casing to retard the passage of a rope through the same, and a spring-brake mounted in the casing to engage the rope in addition to said means, the brake having a handle portion projected through a slot in the casing, one wall of such slot being ratcheted to engage the handle of the brake.

In witness whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS T. BROWN.

Witnesses:

HATTIE HARRINGTON,

CHARLES E. HARRINGTON.