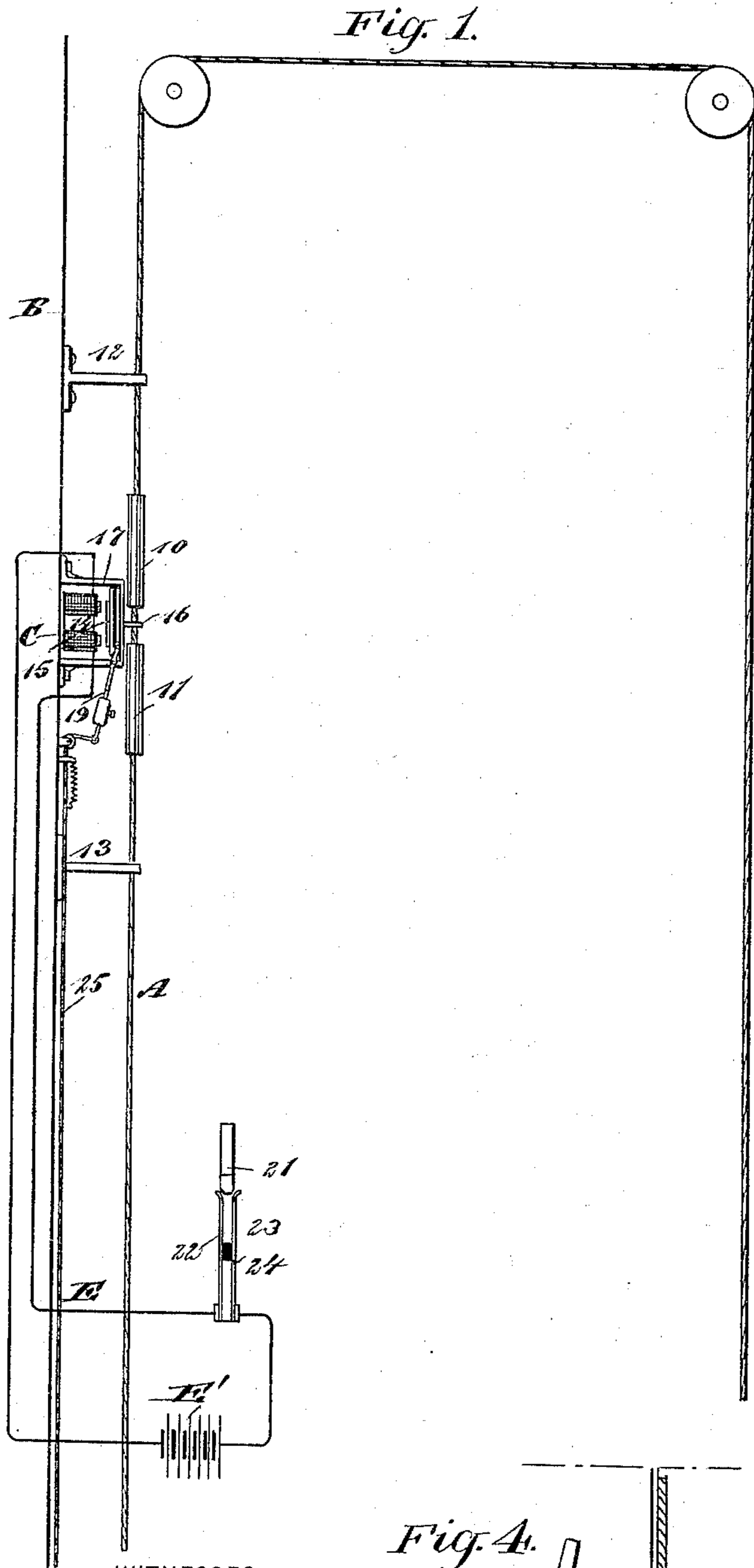


(No Model.)

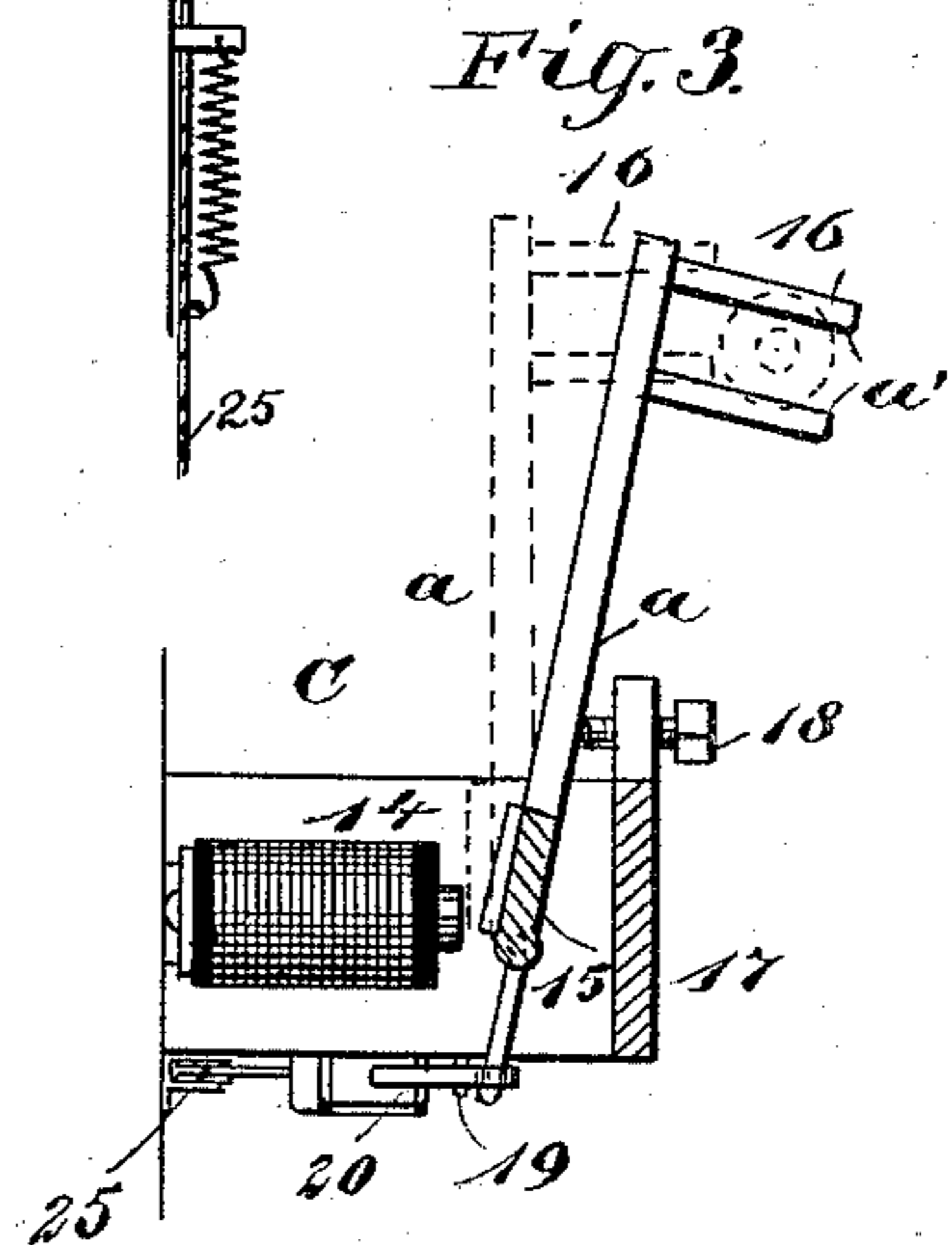
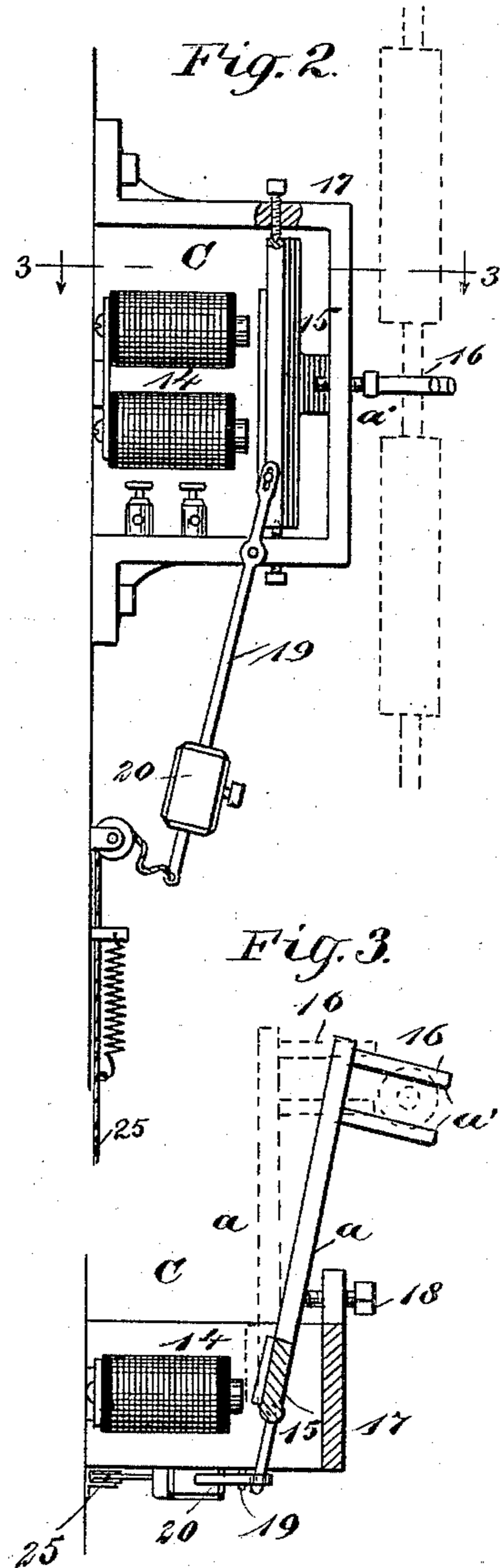
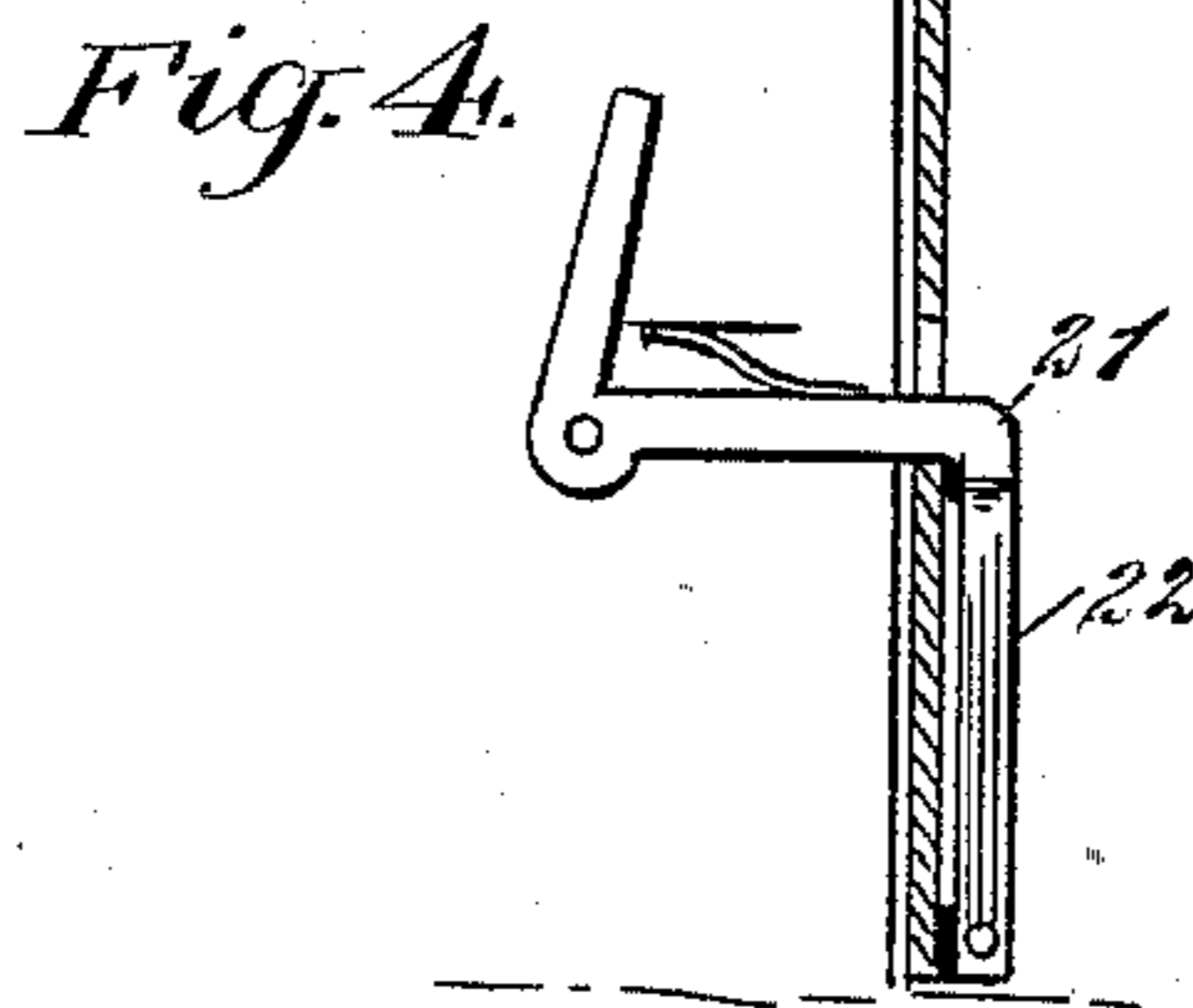
L. W. BUTLER.
SAFETY ATTACHMENT FOR ELEVATORS.

No. 488,424.

Patented Dec. 20, 1892.



WITNESSES:
J. H. Criswell.
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LOUIS W. BUTLER, OF BROOKLYN, NEW YORK.

SAFETY ATTACHMENT FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 488,424, dated December 20, 1892.

Application filed April 8, 1892. Serial No. 428,353. (No model.)

To all whom it may concern:

Be it known that I, LOUIS W. BUTLER, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Safety Attachment for Elevators and Elevator-Shafts, of which the following is a full, clear, and exact description.

My invention relates to a safety attachment for elevators and elevator shafts, and has for its object to utilize electricity as a medium for removing out of the path of the valve rope of the elevator a keeper capable of preventing movement of the rope, the keeper being carried from the path of the valve rope the moment that the doors of the elevator shaft are closed, and whereby when any door of an elevator shaft is opened the keeper will be drawn into the track of the valve rope, and effectually prevent the rope from being manipulated to start the car until the open door has been closed.

Another object of the invention is to so construct the device that it will be exceedingly simple and may be applied expeditiously and conveniently to any elevator shaft and used in connection with any form of valve rope.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

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

Figure 1 is a diagrammatic view illustrating the application of the device to the valve rope of an elevator car; Fig. 2 is a rear elevation of the device; Fig. 3 is a sectional plan view thereof on the line 3—3 in Fig. 2; and Fig. 4 is a detail view of the latch of a door and the electrical keeper to receive the latch.

The valve rope A of the elevator car is run in the usual manner, and is provided with two buttons or stops 10 and 11, arranged at short intervals apart, which buttons are adapted for engagement with the usual bottom and top stops in the shaft B of the elevator, the stops being designated as 12 and 13.

The safety device C is attached to the wall of the elevator shaft, its location being such that it will be opposite the space intervening

the two buttons or stops 10 and 11 when these buttons are in the position they should occupy after the valve rope has been manipulated to stop the elevator car. The device consists primarily of magnets 14, an armature 15 adapted to be attracted by the magnets, and a keeper 16, carried by the armature. The magnets are ordinarily located within a bracket 17, and in this bracket the armature 15, is fulcrumed. The armature is provided with an arm a, as shown in Fig. 3, which extends outwardly therefrom in direction of the valve rope A, and this arm carries the keeper 16, which may be of any approved construction, but ordinarily consists of two pins a' located at suitable intervals apart and attached to the arm, the pins extending at a right angle to the arm. The outward throw of the arm is limited by means of a set screw 18, or its equivalent, carried by the bracket 17, as best shown in Fig. 3. When the armature is not attracted by the magnet or magnets, it is carried to the outer position, that is, it is carried away from the magnets preferably by means of a lever 19, fulcrumed upon the bracket 17 and attached to the armature, as shown in Fig. 2, the lower end of this lever being provided with a weight 20, but any equivalent of the weighted lever, as for instance a spring, may be employed in lieu thereof. When the armature is carried by the lever out of engagement with the magnets, the keeper will receive the valve rope A between the buttons or stops 10 and 11, and consequently the rope cannot be manipulated in either direction to start the car, until the armature has been attracted by the magnets, at which time the keeper will be removed out of engagement with the buttons or stops 10 and 11 and the car may be manipulated as usual. The attraction of the armature by the magnets takes place only when the circuit in which the magnets are located is closed, and this is usually effected by the latches 21 of the shaft doors being utilized as a contact, the said latches being adapted to be received between two spring plates 22 and 23, which plates are in the same circuit with the magnets 14, the circuit being designated as E in the drawings and the battery as E'.

The plates 22 and 23 form spring keepers, as they are of spring metal, and they are con-

nected usually near their upper ends by an insulated block 24. This is done in order that should the latch strike one of the plates diagonally it will draw the other plate to it
 5 and thus complete a contact, the current passing from one plate to the other through the latch which must be of good conducting material. Thus it is evident that when the elevator car is brought in front of the shaft door
 10 and the door is opened the circuit will be broken, as the latch will be removed from the spring keeper and all the latches and the spring keepers of the shaft and of the car are in the same circuit. The circuit being thus
 15 broken the armature 15, will be released by the magnets 14 and will be forced outward by the lever 19, in such manner as to cause the keeper 16 to receive the valve rope A between the buttons or stops 10 and 11. It is
 20 obvious that the rope at this time cannot be manipulated to impart motion to the car, nor can it be until the circuit is again closed, and this can be effected only by closing the door opened and causing its latch to enter between
 25 the plates 22 and 23 constituting its spring keeper.

In the event that any accident should happen to the car, or to the apparatus when the keeper 16 is in locking position with the valve
 30 rope A, I connect a rope or chain 25 with the lower end of the lever in such manner that the lever can be manipulated to carry the keeper 16 inward out of the track of the buttons or stops 10 and 11. This rope 25, is to
 35 be led downward, for instance, to the bottom of the shaft, and its lower end concealed within a locked box or cabinet.

The advantages of an appliance constructed substantially as above stated, are so apparent
 40 that I will forbear to mention any of them.

In order to take the strain off the cable 25, a spring is connected with the shaft and with the cable as shown in Figs. 1 and 2, the spring supporting the cable, thereby removing its
 45 weight from the lever 19.

Having thus described my invention, I

claim as new, and desire to secure by Letters Patent,—

1. In an elevator, the combination with an elevator door, and the valve rope provided
 50 with stops of a pivoted and counterbalanced keeper adapted to engage the rope when the door is open, and an electrical device for moving the keeper in one direction, said device being controlled by the opening and closing of
 55 the car door, substantially as described.

2. In an elevator, the combination with an elevator door, and the valve rope, provided with stops, of an electro magnet, a pivoted and counterbalanced armature carrying a
 60 keeper adapted to engage the rope when the door is open, an electric circuit in which the magnet is located, and a make and break device for the electric circuit controlled by the opening and closing of the door, substantially
 65 as described.

3. In an elevator, the combination with the valve rope provided with stops, the elevator door and its latch, of an electro magnet, a pivoted and counterbalanced armature, carrying a
 70 keeper adapted to engage the valve rope when the door is open, an electric circuit in which the magnet is located, and a contact in the circuit and with which the door latch engages when the door is closed,
 75 substantially as described.

4. In an elevator, the combination with the valve rope provided with buttons, the elevator door, and its latch, of an electro magnet, a pivoted armature carrying a keeper adapted
 80 to engage the valve rope between its buttons when the door is open, a pivoted and weighted lever connected to the armature, an electric circuit, and spring plates in the circuit and between which the door latch projects when
 85 the door is closed, substantially as herein shown and described.

LOUIS W. BUTLER.

Witnesses:

J. FRED. ACKER,
 E. M. CLARK.