

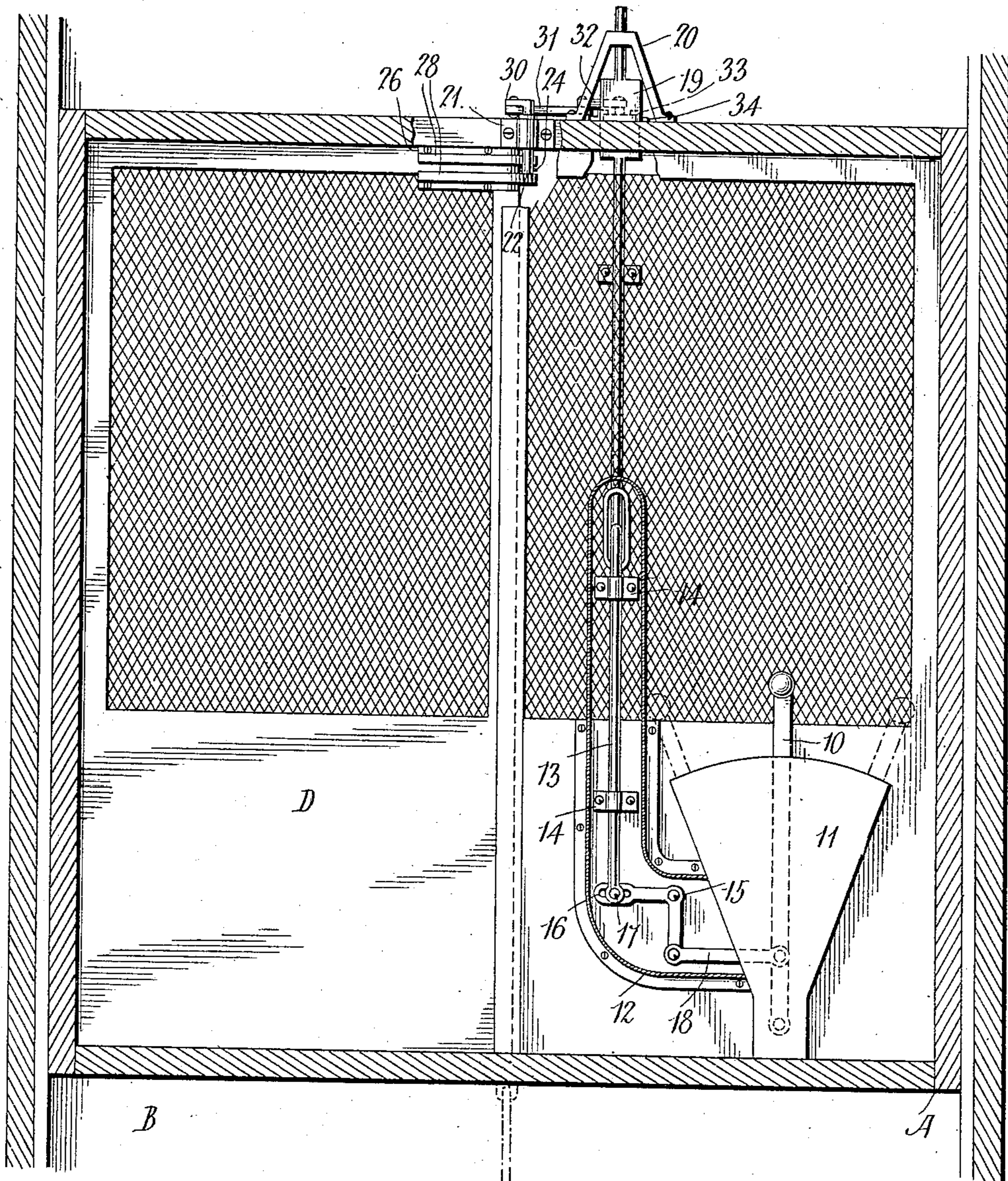
A. W. HUBERS.
CONTROLLING MECHANISM FOR ELEVATOR CARS.
APPLICATION FILED FEB. 26, 1908.

918,051.

Patented Apr. 13, 1909.

3 SHEETS—SHEET 1.

FIG. 1



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3 SHEETS—SHEET 2.

FIG. 2

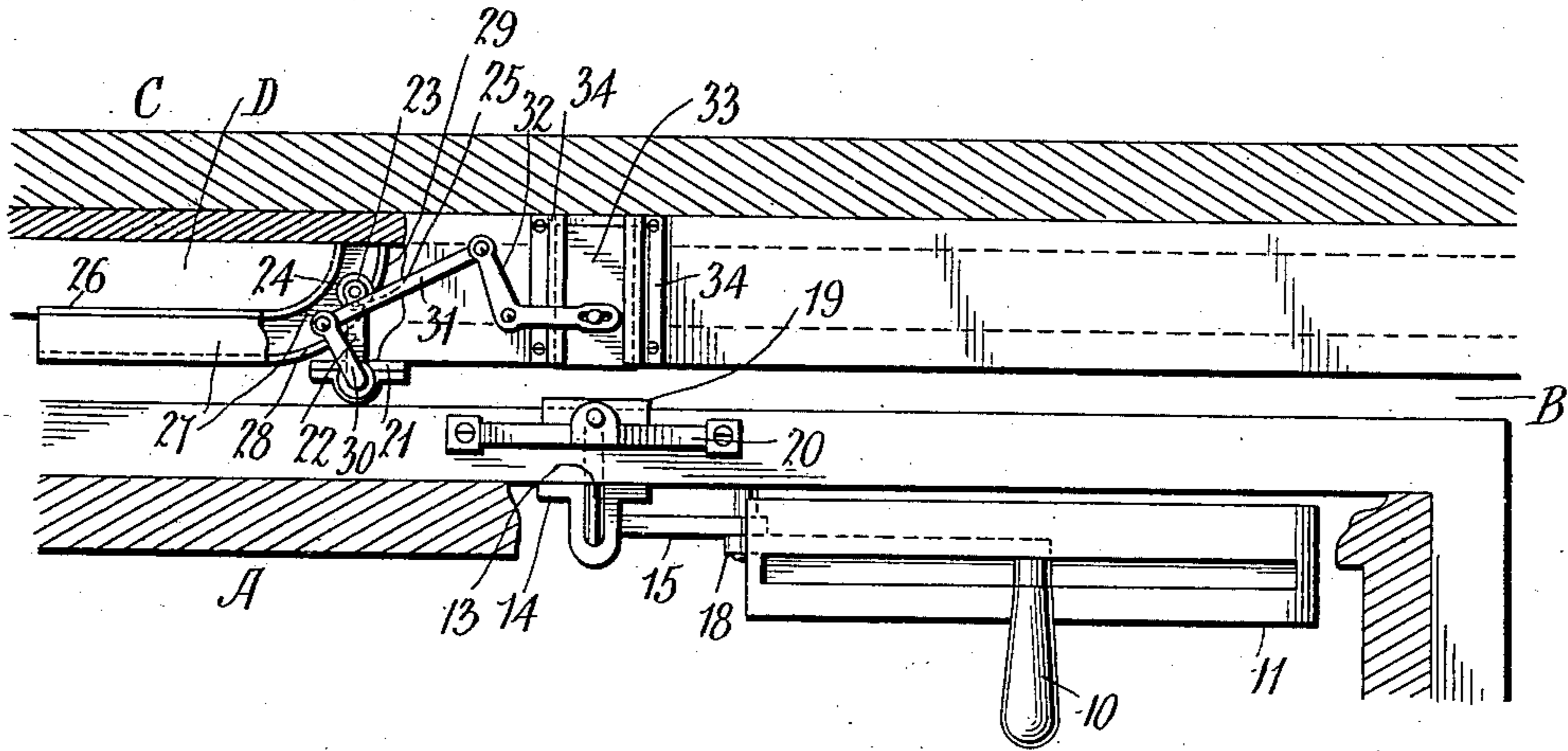


FIG. 3

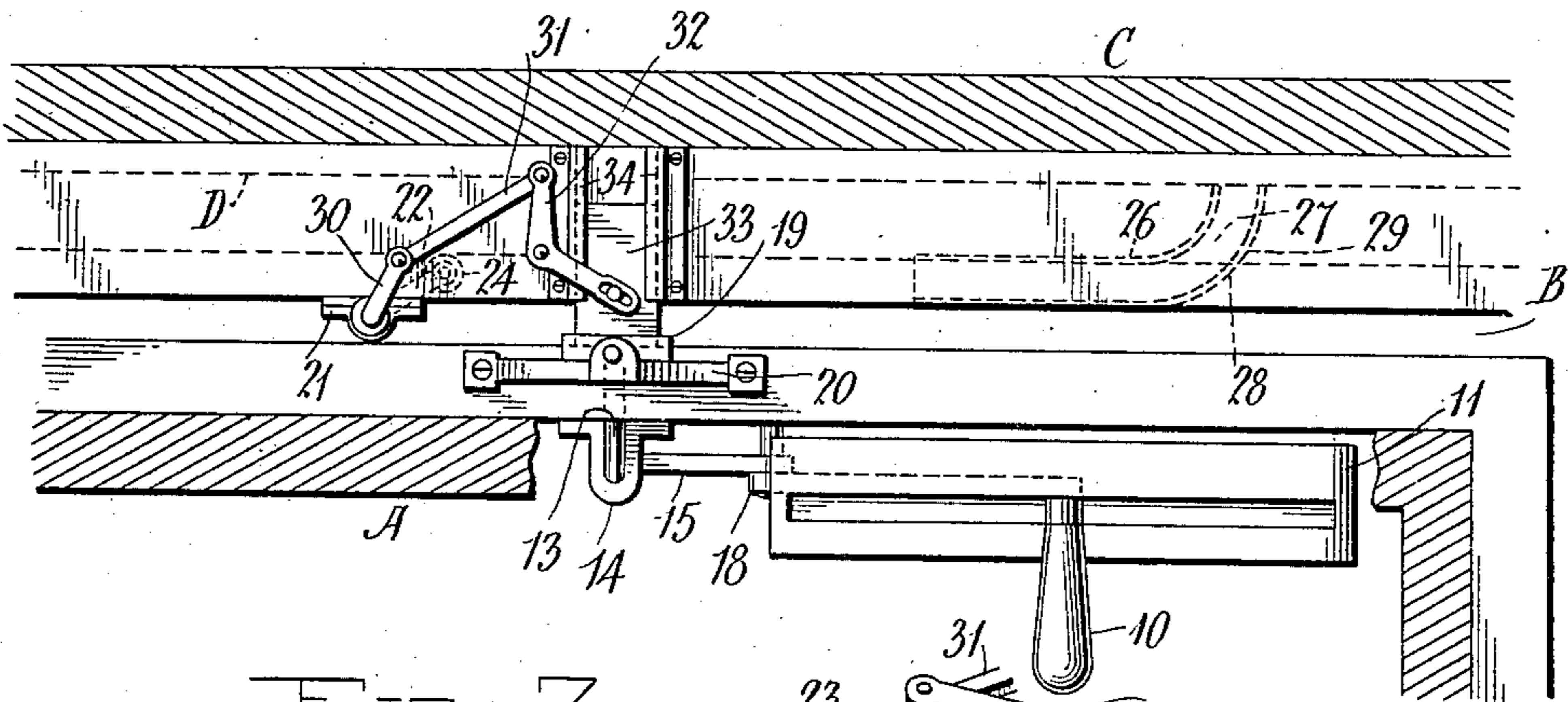
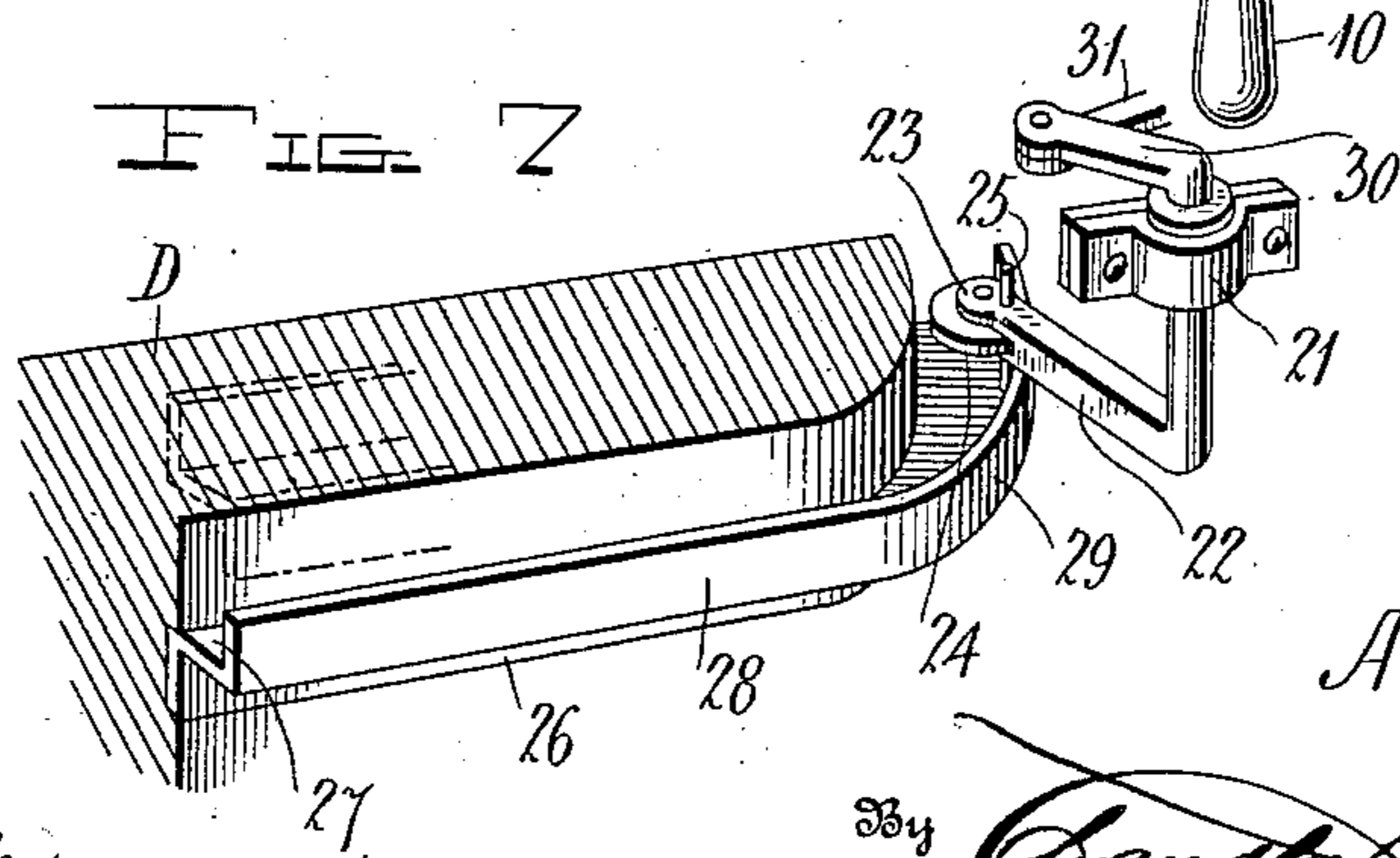


FIG. 4



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3 SHEETS—SHEET 3.

FIG. 4

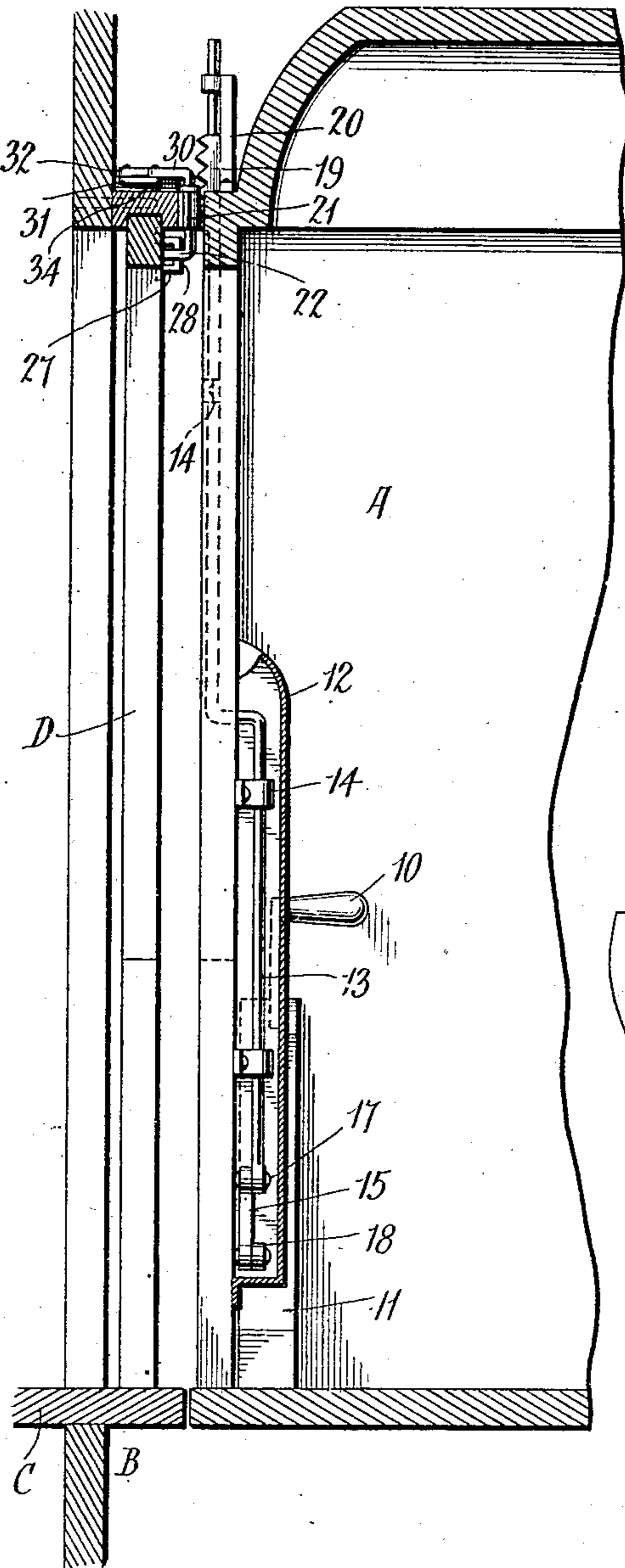


FIG. 5

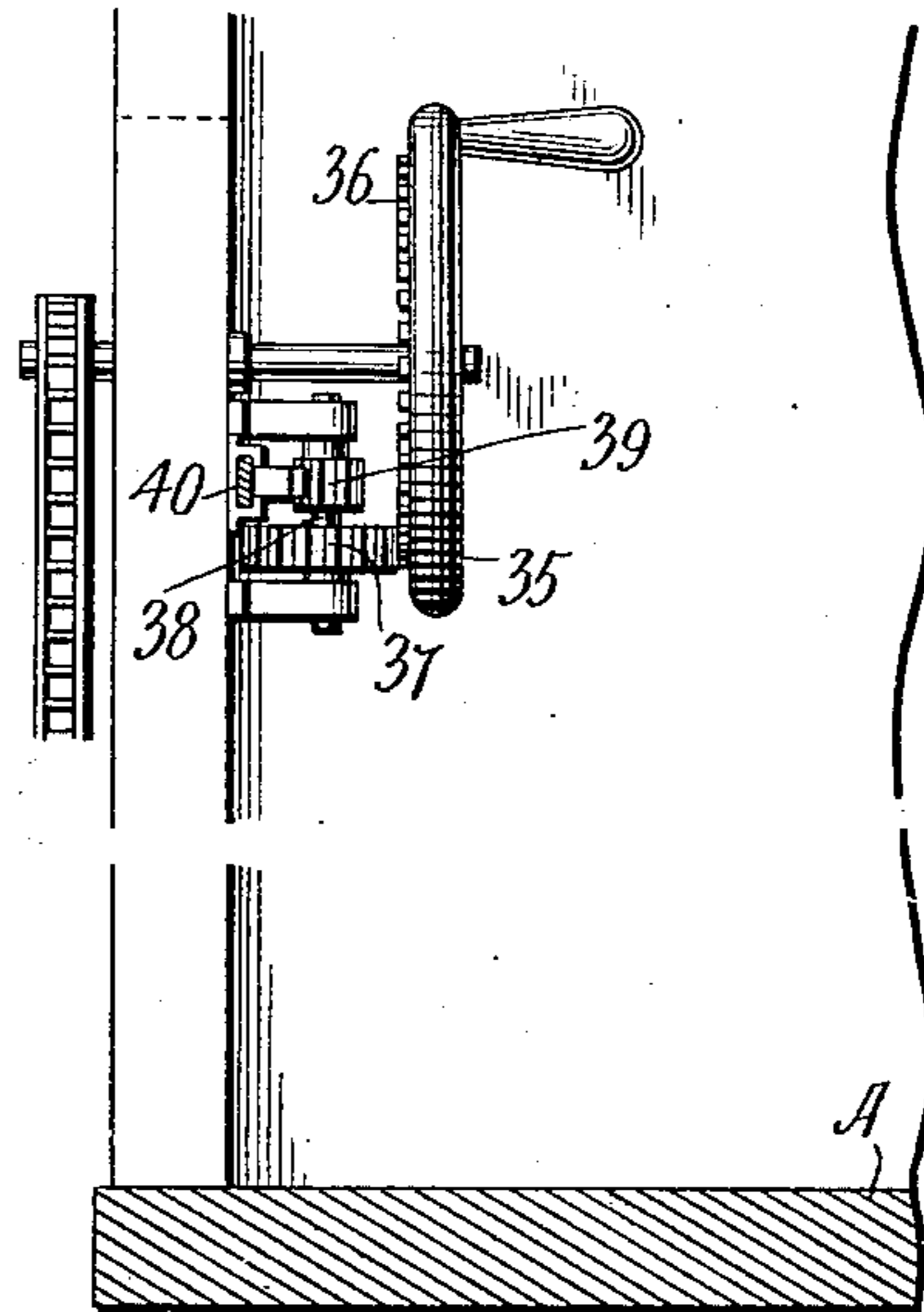
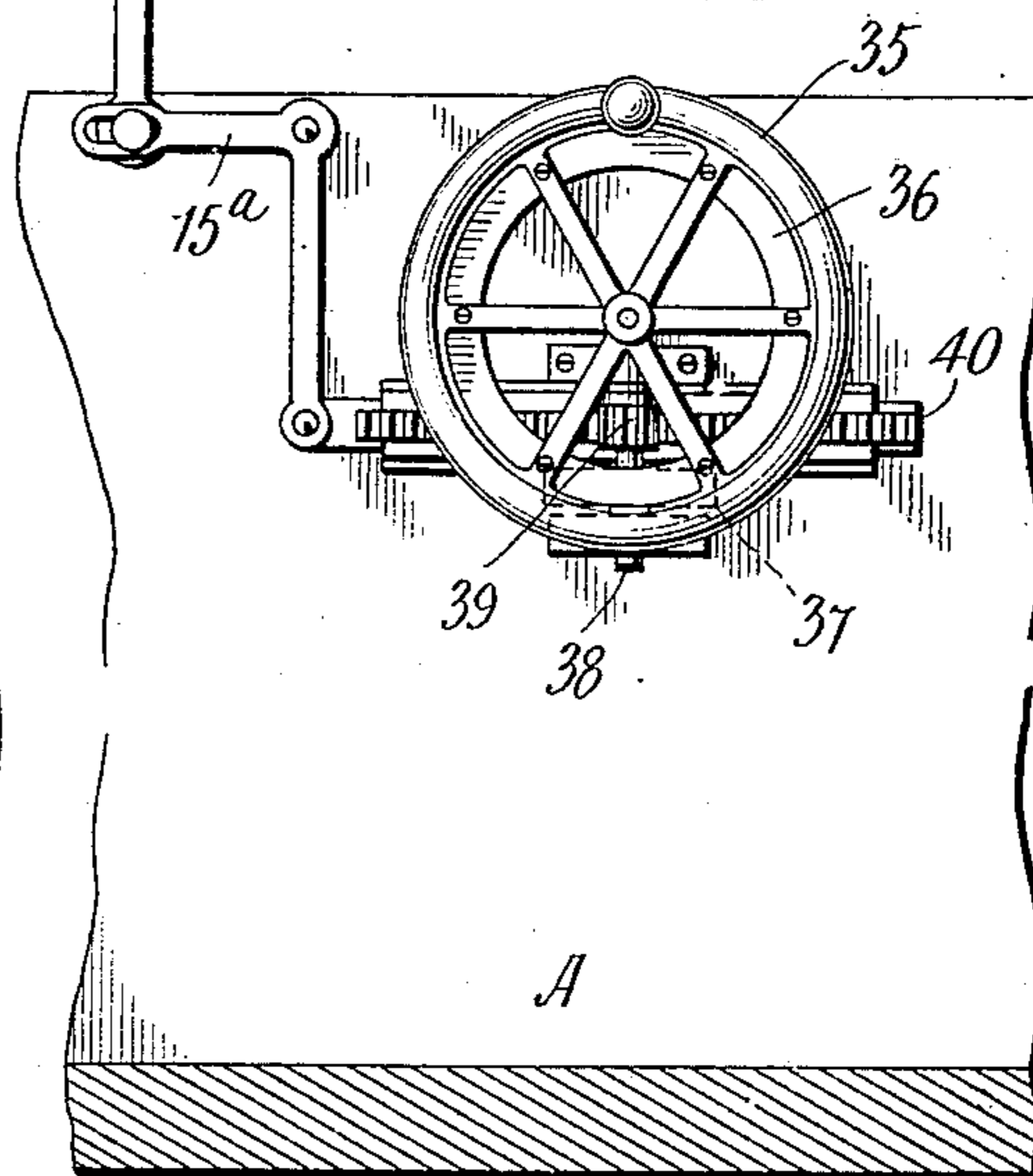


FIG. 6



Witnesses

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UNITED STATES PATENT OFFICE.

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CONTROLLING MECHANISM FOR ELEVATOR-CARS.

No. 918,051.

Specification of Letters Patent.

Patented April 13, 1909.

Application filed February 26, 1908. Serial No. 417,908.

To all whom it may concern:

Be it known that I, ALBERT W. HUBERS, a citizen of the United States, residing at Baltimore, in the county of Baltimore City, State of Maryland, have invented certain new and useful Improvements in Controlling Mechanisms for Elevator-Cars; 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.

This invention relates to controlling mechanisms for elevator cars and has for its object to provide a mechanism of this class which will not only lock the controller lever against movement toward up or down position when the door at the landing at which the elevator car is stopped, is open, but will also prevent or rather counteract any up or down movement of the car due to "creeping."

In carrying out my invention, I mount, at a convenient point upon the elevator car, a slidable element, preferably in the form of a rack bar, which has operative connection with the controller lever within the car and I arrange at each landing, at any suitable point, a device including a detent which is operated upon opening of the door, to engage with the slidable element above mentioned and lock it against movement, in this manner locking the controller lever against movement to up or down position. Not only do these instrumentalities perform the function stated, but, by reason of the fact that the rack element heretofore mentioned is slidable and operatively connected with the controller lever, any up or down movement of the car due to "creeping" will result in the controller lever being swung to position to move the car in the opposite direction.

In the accompanying drawings, Figure 1 is a view in elevation of the mechanism, viewing the said mechanism from the interior of the car, Fig. 2 is a view of the mechanism in top plan showing the normal position of the parts and prior to the time of opening the door, Fig. 3 is a similar view but showing the position of the parts after they have been operated by the opening of the door, Fig. 4 is a view in side elevation of the mechanism, the parts of the same being shown in normal position, Fig. 5 is a similar view illustrating the application of

the principle of the invention to a controller mechanism of the rotary type, Fig. 6 is a view in front elevation illustrating this application of the invention, Fig. 7 is a detail perspective view of a portion of the landing mechanism.

In the drawings, there is illustrated a portion of an elevator car, indicated in general by the reference character A and there is also illustrated a shaft B in which the car travels, the landings of the shaft being indicated in general by the reference character C and the door of this landing by the character D. The controller lever for the elevator car is indicated by the reference numeral 10 and it operates in the usual casing 11, this being the type of controller illustrated in the first four figures of the drawing.

I will first describe the mechanism which is carried by the elevator car, then the mechanism which is arranged at each landing of the elevator car, and finally describe the manner in which these two mechanisms coöperate to produce the result hereinbefore mentioned.

A casing 12 is fixed upon that wall of the elevator car at which the controller is located and slidable vertically in this casing is a rod 13, this mounting of the rod being had by passing it through guide brackets 14 within the casing and upon the wall of the car. An angle lever 15 is mounted to rock within the casing and has one of its arms formed with a slot 16 in which works a pivot 17 which is passed through the slot 16, the said pivot being also engaged through the lower end of the rod 13, a sliding pivotal connection between the said arm of the angle lever and the rod 13 being in this manner secured. Pivoted to the end of the other arm of the angle lever is a link 18 and the other end of this link is pivoted to the controller lever 10 within the car. The rod 13, at a point about its middle, is bent to extend through an opening in the wall of the car and in a vertical direction. At its upper end, the rod or bar 13 is fixed to the lower end of a rack bar 19, there being a stem formed at the upper end of the rack bar and projecting vertically through an opening in a bracket 20 fixed upon the car.

From the above description, it will be understood that the rod or bar 13 may have a vertical movement and that when it is so moved, the controller lever 10 will be corre-

spondingly moved owing to the operative connection heretofore described, namely the angle lever 15 and link 18. It will also be understood that the controller lever may be moved manually under normal conditions so as to operate the power mechanism for moving the car up or down.

Fixed upon the upper track in which the door slides, is a bearing 21 and journaled in this bearing is a rocker formed at its lower end with an arm 22 which projects in the direction of the path of movement of the door and this arm is bifurcated as at 23 and journaled in the bifurcation is a roller 24 which travels along the inner face of the door D, there being a pin 25 passed vertically through the arm adjacent its said end and extending above and below the same. Upon the door are secured tracks including each an attaching wing 26, a web 27, and a flange 28, the edges of the flanges of the two tracks being directed toward each other in spaced parallel relation. These tracks, for a purpose to be presently explained, are curved to extend around the inner end of the door as indicated by the numeral 29.

The function of the construction above described will be presently fully explained in connection with the description of the operation of the entire mechanism.

The rocker above mentioned is formed with an arm 30 and pivoted to the end of this arm is a link 31, the other end of the link being pivoted to the end of one arm of an angle lever 32 mounted above the said upper track in which the door works. The end of the other arm of this angle lever 32 is pivoted to a sliding detent 33 mounted in suitable guides upon the upper face of the said track, the guides being indicated by the numeral 34. This sliding detent is preferably in the form of a plate and its end edge which is presented in the direction of the car or in the interior of the shaft in which the car travels, is designed to coöperate with the teeth of the vertically movable rack bar 19 of the mechanism carried by the car.

The operation of the mechanism in its application just described, will now be given in full. The elevator car A, being stopped at a landing, the door is unlocked and slid open. It will be understood from the description of the mechanism at the landing of the shaft that the projecting ends of the pin 25 are engaged behind the flanges 28 of the tracks upon the door, this engagement being in the curved inner end portions of the tracks when the door is closed. Now as the door is slid to open position, the said roller will ride along the door, this travel of the roller resulting in an oscillation of the rocker upon which the arm 22 is formed. This movement of the rocker will result in the angle lever 32 being rocked, by reason of the connection between the said lever and

the arm 30 of the rocker and this rocking movement of the angle lever will be in such direction as to slide the sliding detent 33 into engagement with the rack bar 19 at the upper end of the rod 13 which is mounted upon the car. As long as the door remains in open position, the controller lever 10 cannot be operated manually as will be readily understood, the engagement of the roller 24 with the inner surface of the door serving to hold the mechanism rigid. Upon sliding the door to closed position, the door will travel against the roller 24 and the projecting ends of the pin 25 will reengage behind the flanges 28 of the tracks. When the door is completely closed, the projecting ends of the pin 25 will be in engagement behind the portions of the flanges 28 at the curved ends of the tracks and as the ends of the pin ride in this engagement, the arm 22 of the rocker will be swung or returned to its original position by retracting the sliding detent 33 thereby releasing the controlling lever and permitting of its manual operation. Should the elevator car move up or down while the door is in open position, due to "creeping" the sliding rack bar 19 will be moved in one direction or the other and more specifically speaking in a direction opposite to the direction of movement of the car, owing to the fact that the detent which is engaged with it, is stationary. This movement of the rack bar 19 will result in a rocking movement of the controller lever of the car through the instrumentality of the connection between it and the rod 32 which is connected to the said sliding rack bar, as will be readily understood and these connections are such that should the car move upwardly, the controller lever will be moved in a direction toward down position so as to counteract this movement of the car; on the other hand, should the car be moved down, the controller lever will be rocked to up position for the same purpose.

In Figs. 5 and 6 of the drawings, I have illustrated the application of the principle of my invention to a controlling mechanism in which the controller element is of the rotary type such as a hand wheel. In these figures, the said controller element is indicated by the numeral 35 and is provided with an annular rack or gear 36 with which meshes a gear 37 upon a shaft 38 journaled in suitable bearings upon that wall of the car upon which the controller is mounted. A pinion 39 is also fixed upon this shaft and meshing with this pinion is a rack bar 40 which is mounted upon the said wall for reciprocatory movement and has connected to it the end of one arm of an angle lever 15^a which corresponds in every way with the angle lever 15 of the first described form of the invention. From the foregoing, it will be observed that the rack bar 40 in real-

ity takes the place of the link 18 in the first described form of the invention and the remainder of the mechanism is the same in every respect as is also its operation, it being understood that reciprocation of the rack bar 40 will result in the hand wheel 35 being rotated to counteract any up or down movement of the elevator car and that manual operation of the controller wheel will be positively prevented, as is the case of the first described form of the invention, when the door is in open position.

It is to be understood, of course, that any of the instrumentalities herein described may be applied to the elevator car or the landings of the shaft in which the car moves at any convenient point and that the principle of the invention may be applied to any form of controller for operating any class of power mechanism for moving the elevator.

What is claimed, is:—

1. The combination with the controller of an elevator and a landing door, of a slidable rack element operatively connected with the controller, a detent engageable with said rack element, a track, and a member operatively connected with said detent and with the track for moving the detent into such engagement with the rack element when the door is moved to open position for locking said controller against manual movement, the track being formed to return said instrumentalities to normal position upon closing the door.

2. The combination with the controller of an elevator and a landing door, of a sliding rack element operatively connected with the controller, a sliding detent engageable with the rack element, a track upon the door,

said track being curved at one end around one edge of the door, and an element connected with the detent and arranged at one end to travel in said track and to engage at its said end in the curved portion of the track when the door is in closed position to hold the detent out of engagement with the rack element and to move into the other portion of the track when the door is moved to open position to throw said detent into such engagement with the said element to lock the controller against manual operation.

3. The combination with an elevator car, of a controller mounted thereon, a member wholly carried upon said elevator car and operatively connected with the controller, and means on the elevator wall adapted to engage said member and lock the same against movement with respect to the said wall, said member when locked being arranged to move the controller to up position as the car moves down and to down position as the car moves up.

4. The combination with an elevator car, and a controller mounted thereon, of a member wholly carried by the car, a landing door, a locking member mounted on the shaft wall and adapted to engage the car supported member and hold the same against movement with respect to the said wall, and a cam on the door for operating the locking member, the car supported member being connected to the controller of the elevator to counteract the creeping thereof.

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

ALBERT W. HUBERS.

Witnesses:

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