

2 Sheets—Sheet 1.

No. 440,834.

Patented Nov. 18, 1890.

Fig. 1

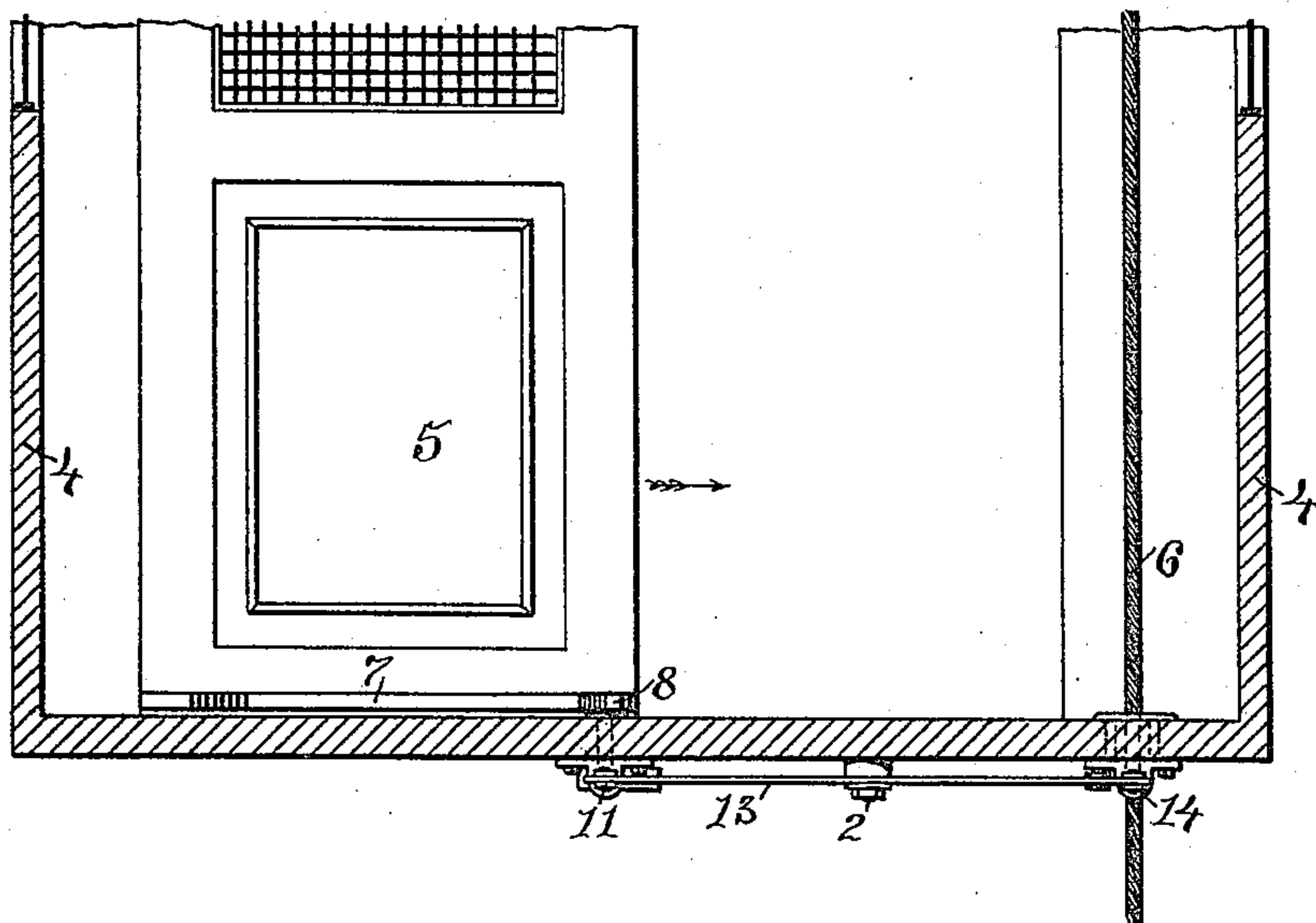
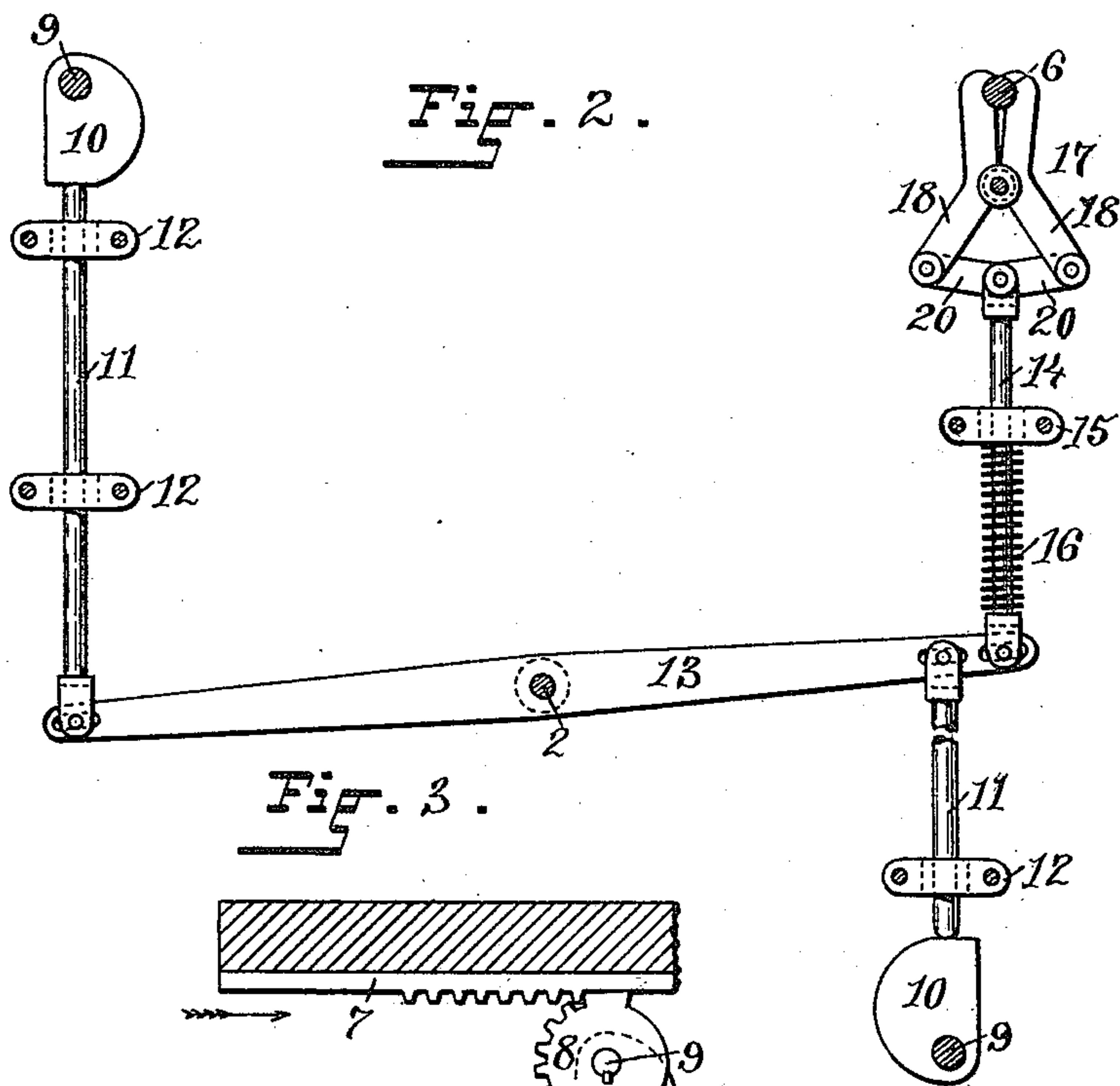


Fig. 2.



Fif. 3.

WITNESSES:

Chas. H. Luther Jr
Mr. F. Bligh.

INVENTOR:

11 John B. Faust
Joseph A. Miller

(No Model.)

2 Sheets—Sheet 2.

J. B. TAFT.
ELEVATOR.

No. 440,834.

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Fig. 4.

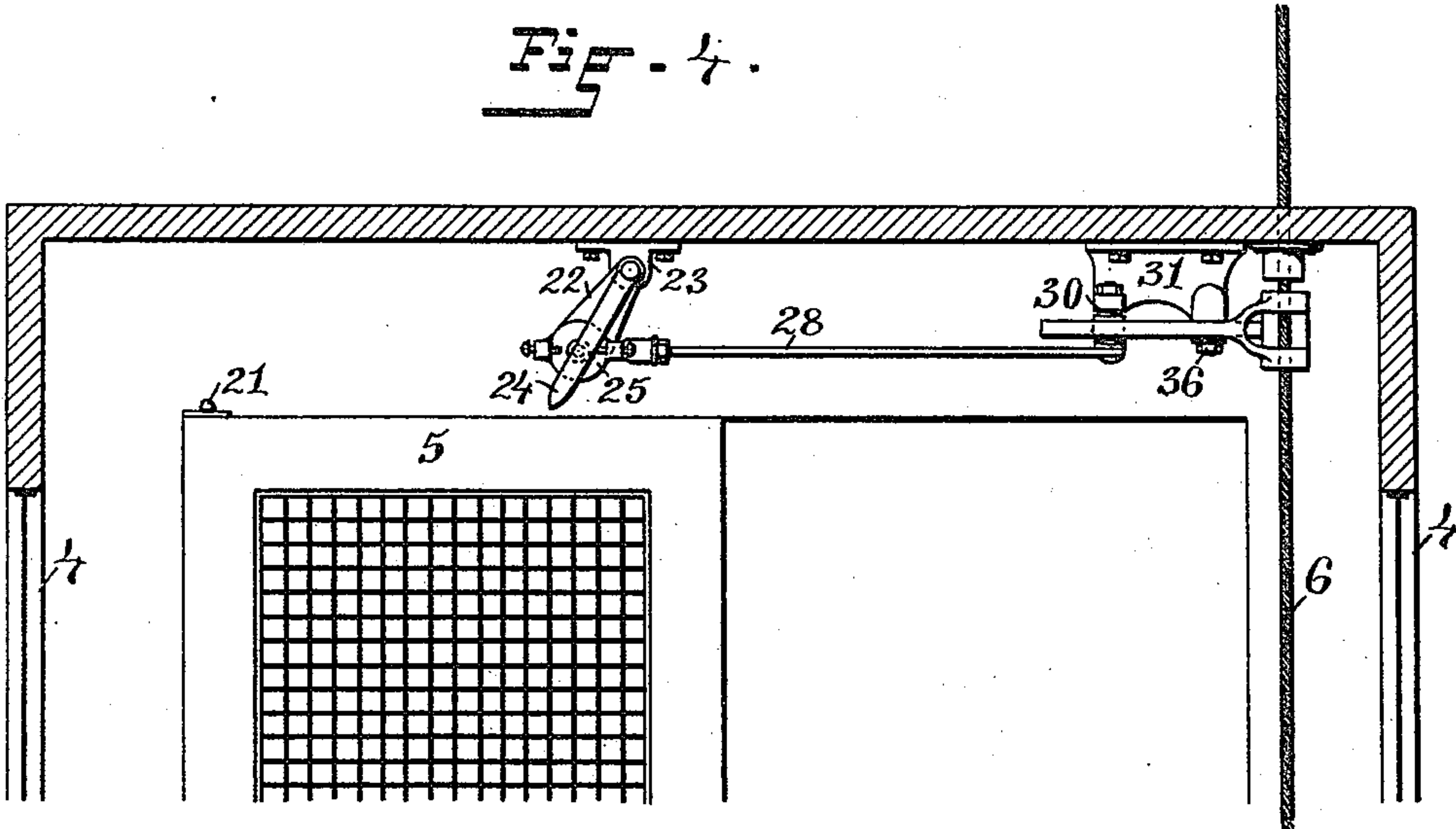


Fig. 5.

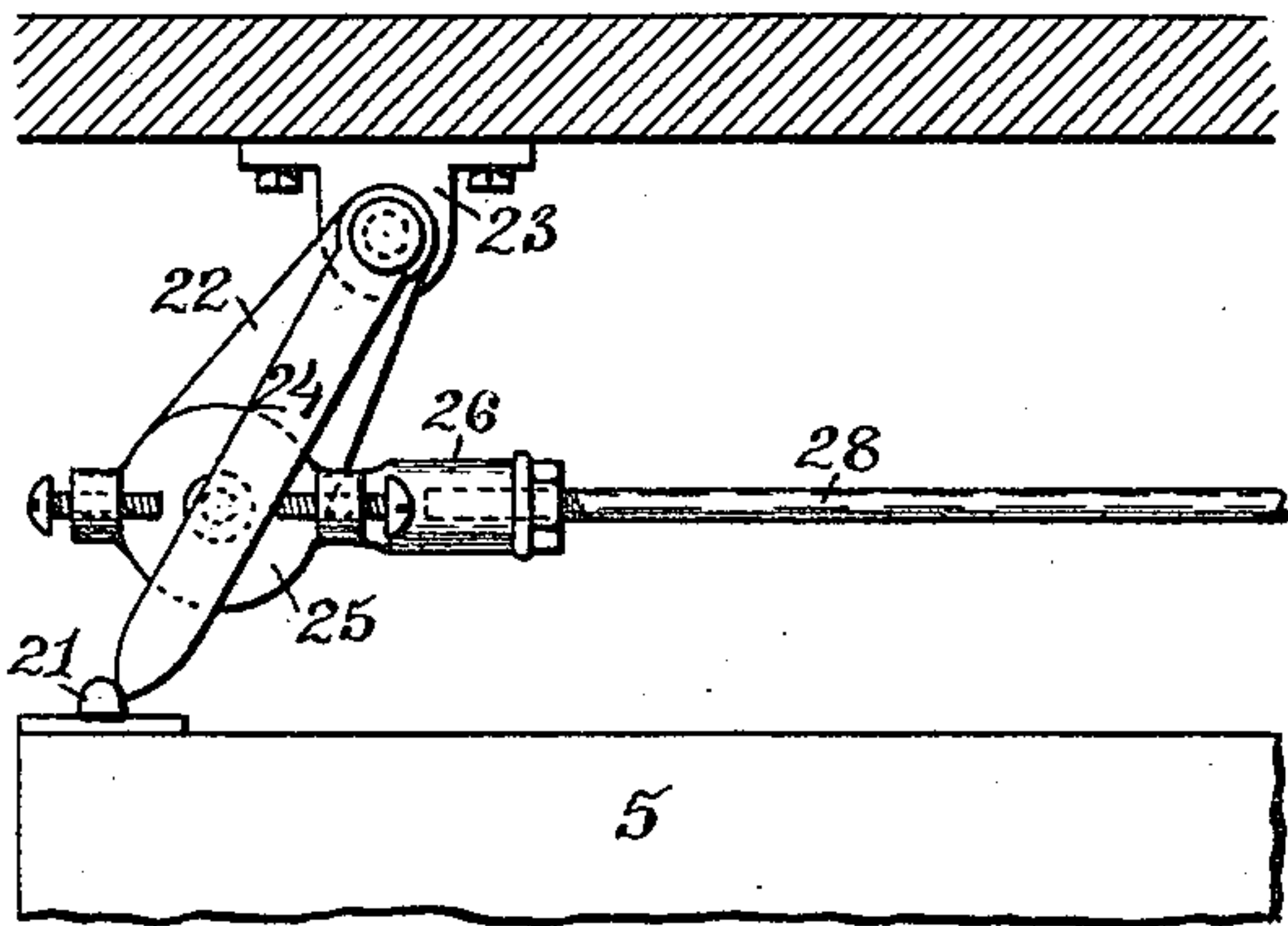


Fig. 6.

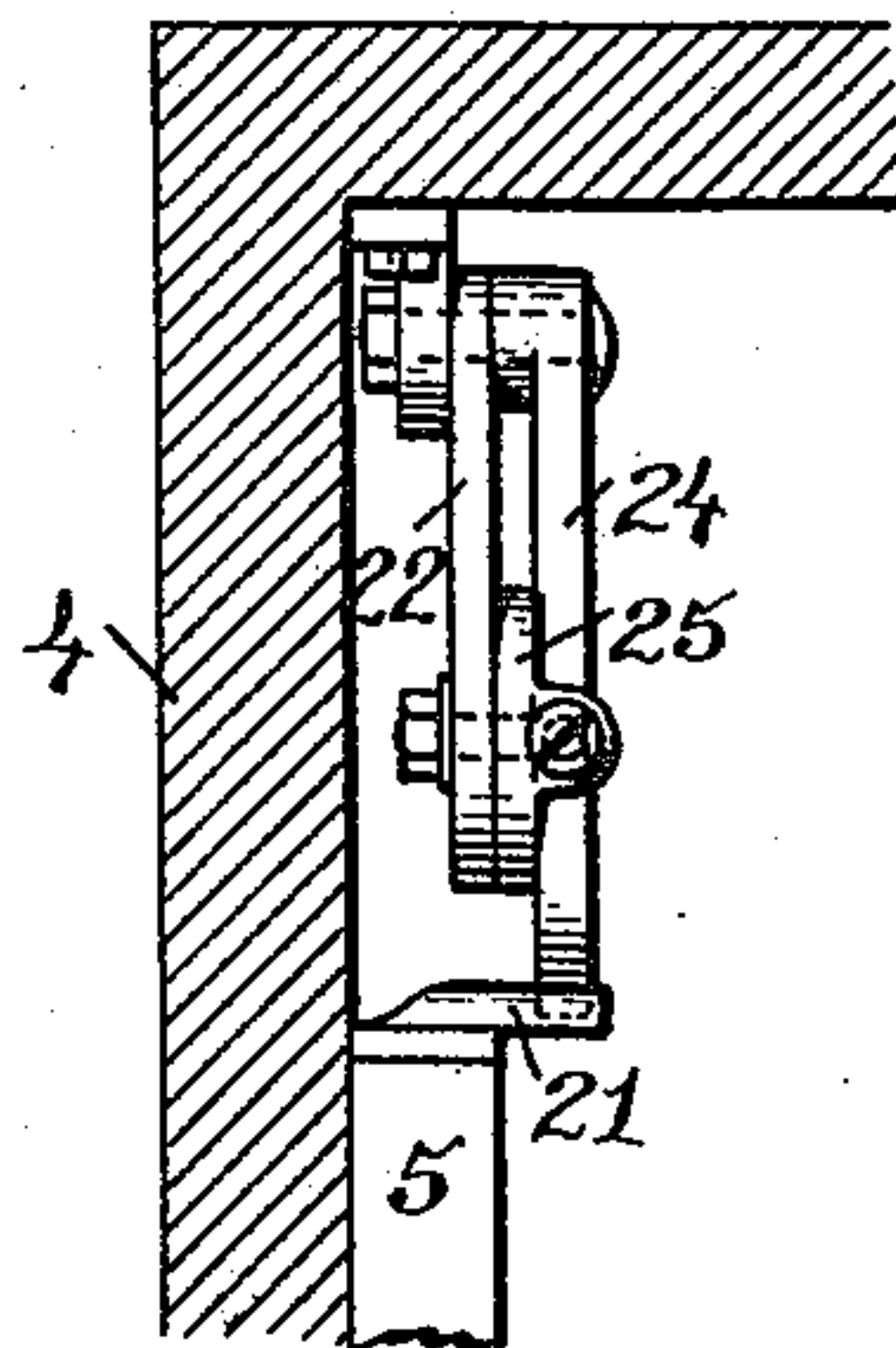
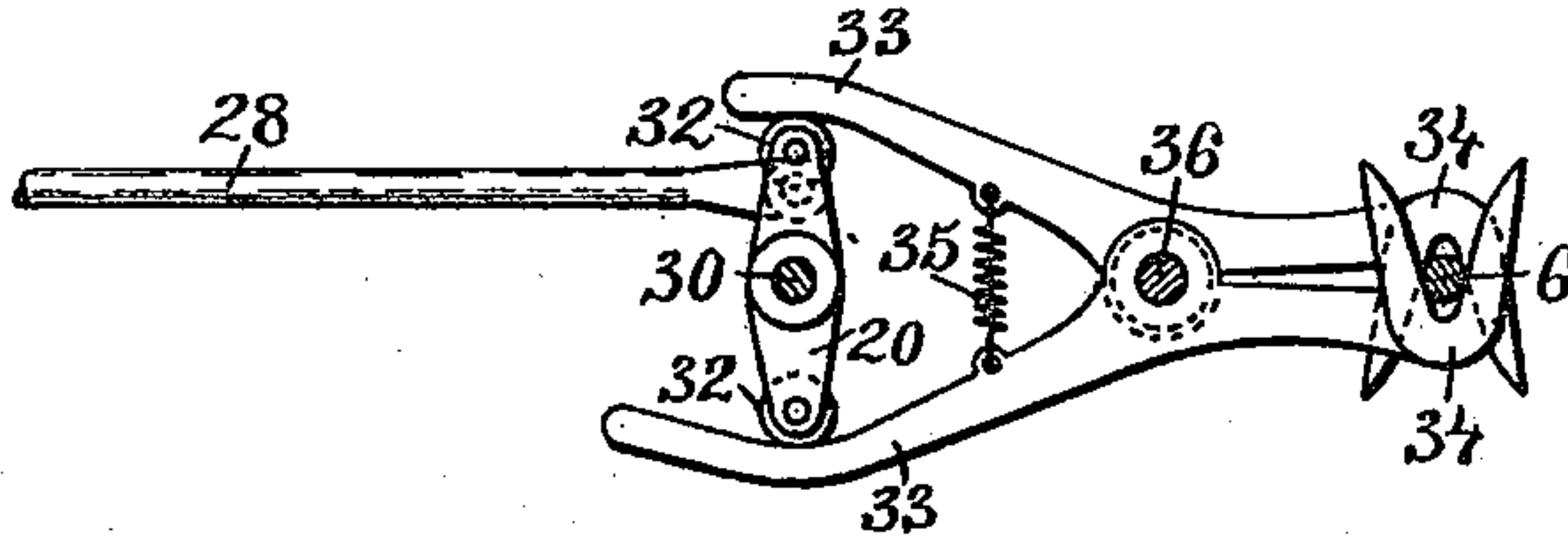


Fig. 7.



WITNESSES:

Chas. H. Luther Jr.
M. F. Bligh

INVENTOR:

John B. Taft
Joseph A. Miller & Co.
Attys

UNITED STATES PATENT OFFICE.

JOHN B. TAFT, OF PROVIDENCE, RHODE ISLAND.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 440,834, dated November 18, 1890.

Application filed July 2, 1890. Serial No. 357,545. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. TAFT, of the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Elevators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

10 This invention has reference to an automatic attachment for elevator-cars, whereby the elevator-car is held against upward or downward movement during the time the door or doors remain open, and can only be
15 operated while the door or doors of the elevator-car are closed.

The invention consists in providing an elevator-car with a grip or clutch device operated by the door or doors, whereby the elevator-operating rope is locked and held during the time that the door or doors of the elevator-car remain open.

The objects of this invention are to provide a safety device for elevators, whereby the
25 elevator-car is held against upward or downward movement while the door or doors are open, and consequently prevent passengers leaving the elevator-car until the same has been stopped.

30 In the drawings similar numbers of reference designate corresponding parts throughout.

Figure 1 is a sectional view of the lower part of an elevator-car having one form of my improved locking devices attached thereto. Fig. 2 is a plan view of a modified form of my improved devices, showing the various parts in operative position. Fig. 3 is an enlarged detail view of part of the door, the rack secured thereto, and the segmental gear. Fig. 4 is a sectional view of the upper part of an elevator-car, showing a rope-clutch operated by the upper part of the door. Fig. 5 is an enlarged side view of the latch, showing
40 the connection of the same with the car and the door. Fig. 6 is an end view of the latch shown in Fig. 5. Fig. 7 is a side view of a modified form of rope-clutch or grip device.

50 In the drawings, 4 indicates the sides of the elevator-car; 5, the door of the elevator-car; 6, the operating-rope; 7, the rack secured to the bottom of the door 5; 8, the segmental

gear; 9, the shaft connecting the segmental gear 8 to the cam 10. 11 11 indicate the lever-rods; 12, the bearings for the rods 11 11; 55 13, the pivoted lever; 14, the connecting-rod; 15, the bearing for the connecting-rod; 16, the spring; 17, the clutch or grip device, which in the drawings consists of the jaws 18 18, pivoted at 19, and operated by the connecting-rod 14 through the links 20. 60

The device which forms the subject-matter of this invention is secured to the under side of the flooring of the elevator-car. The shaft 9 extends through the floor connecting the
65 cam 10 to the segmental gear 8. The lever 13 is pivoted at 2 to the under side of the elevator-car.

It often happens that the location of the elevator-shaft is such that it is necessary to
70 use two doors for the elevator-car, such being the case illustrated in Fig. 2 of the drawings. It is evident that when one door is used but one set of connecting mechanism intermediate the rack 7 and lever 13 is used, the
75 other set remaining idle, or, as shown in Fig. 2, both doors having been opened, as indicated by the cams, the cams are brought in contact with the end of the rods 11 11, so that the elevator cannot be operated until the
80 doors are closed.

The operation of the device shown in Figs. 1, 2, and 3 and so far described is as follows: Upon the elevator-car arriving at the desired landing or floor, either in ascending
85 or descending, the operator stops the elevator-car by means of the operating-rope 6 and opens the door 5. The door 5 has the rack 7 secured to the bottom, and in moving backward this rack is brought into gear with the
90 segmental gear 8, and through the shaft 9 operates the cam 10, which in turn pushes the rod 11 inward, moving the pivoted lever against the strain of the spring 16, which is placed between the bearing 15 and the end of the
95 connecting-rod 14. The lever 13 in its movement causes the connecting-rod 14 to depress the links 20 20, and thereby move the free ends of the jaws 18 18 into contact with the operating-rope 6 and firmly grip the same,
100 thereby securely holding the elevator-car against operation during the time the door or doors remain open.

The device shown in Figs. 4, 5, 6, and 7 con-

sists of the finger 21, secured to and projecting from the door, the hinged arm 22, pivoted in the bracket 23, secured to the upper part of the elevator-car, and shown secured to the ceiling, the latch 24, pivoted on the same pivot on which the arm 22 is pivoted. To the lower end of the arm 22 the disk 25 is pivotally connected, provided with the extension 26 and the adjusting-screws 27. The rod 28 is secured at one end to the extension 26 and at the other end pivotally connected to the arm 29, pivoted on the pin 30, secured in a projecting arm of the frame 31. The arm 29 is provided at opposite ends with the rollers 32, which bear against the levers 33, both pivoted on the pin 36, secured to the frame 31. The opposite ends of the levers 33 are provided with the V-shaped clamps 34, the open ends of which extend in opposite directions and on each side of the rope 6. The levers 33 are constructed in the usual form of a pair of pinchers, the V-shaped ends 34 forming the pinching and holding ends of the same. The coiled spring 35 is secured to the two operating-arms of the levers 33 and acts to draw them together to open the ends 34 when the the arm 29 is turned on the pin 30 at or nearly at a right angle to the position shown in Fig. 7.

In the position as shown in Fig. 1 the door of the elevator-car is open and the rope is firmly held by the pinchers or levers 33 in the V-shaped ends 34. The arm 29 is in the position shown in Fig. 7. When now the door is closed, the finger 21 on the door will come in contact with the pivoted latch 24 and cause the same to swing on its hinge, carrying with it the arm 22, the disk 25, and rod 28, which rod, being pivoted to the arm 29 at one side of its pivotal center, will turn the arm on the pin 30 and release the levers 33, which, being drawn together by the coiled spring 35, will open apart at the ends 34 and release the rope.

The rope 6 can now be used to operate the elevator until the door is opened, when the reverse operation will be performed by the finger 21 coming in contact with and causing the latch 24 to swing in the opposite direction, and by drawing the arm 29 into the position shown in Fig. 7 clamp the rope 6 by the V-shaped ends 34, when the rope is so firmly held that the same cannot be used to operate the elevator.

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

1. The combination, with the shifting-rope of an elevator-car and the door of the car, of a grip device consisting of two levers centrally pivoted to each other, the forward ends of which are provided with gripping-jaws, and mechanism operated by the door and connected with the rear ends of the pivoted levers, the whole constructed to grip and hold the shifting-rope when the door is open and release the same when the door is closed, as described.

2. The combination, with the rack 7, the segmental gear 8, and the cam 10, of the rod 11, the lever 13, the connecting-rod 14, and the clutch or grip, substantially as herein shown and described.

3. The combination, with the rack 7, the segmental gear 8, the shaft 9, and the cam 10, of the rod 11, the pivoted lever 13, the connecting-rod 14, the spring 16, and the clutch 17, all substantially as herein shown and described.

In witness whereof I have hereunto set my hand.

JOHN B. TAFT.

Witnesses:

J. A. MILLER, Jr.,

M. F. BLIGH.