

(No Model.)

2 Sheets—Sheet 1.

T. W. JENKINS.

ELECTRICALLY OPERATED LOCKING DEVICE FOR ELEVATORS.

No. 587,002.

Patented July 27, 1897.

Fig. 1.

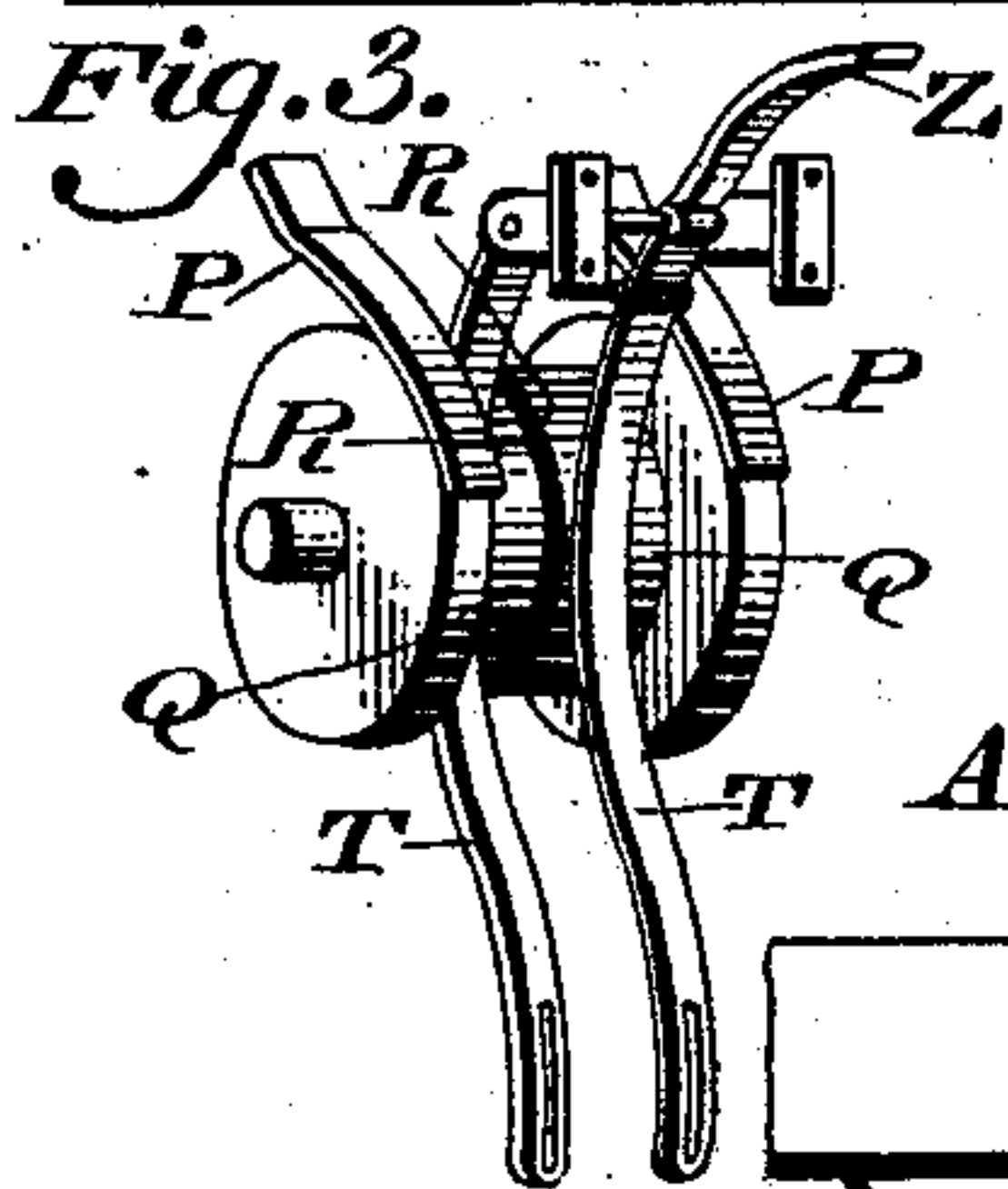
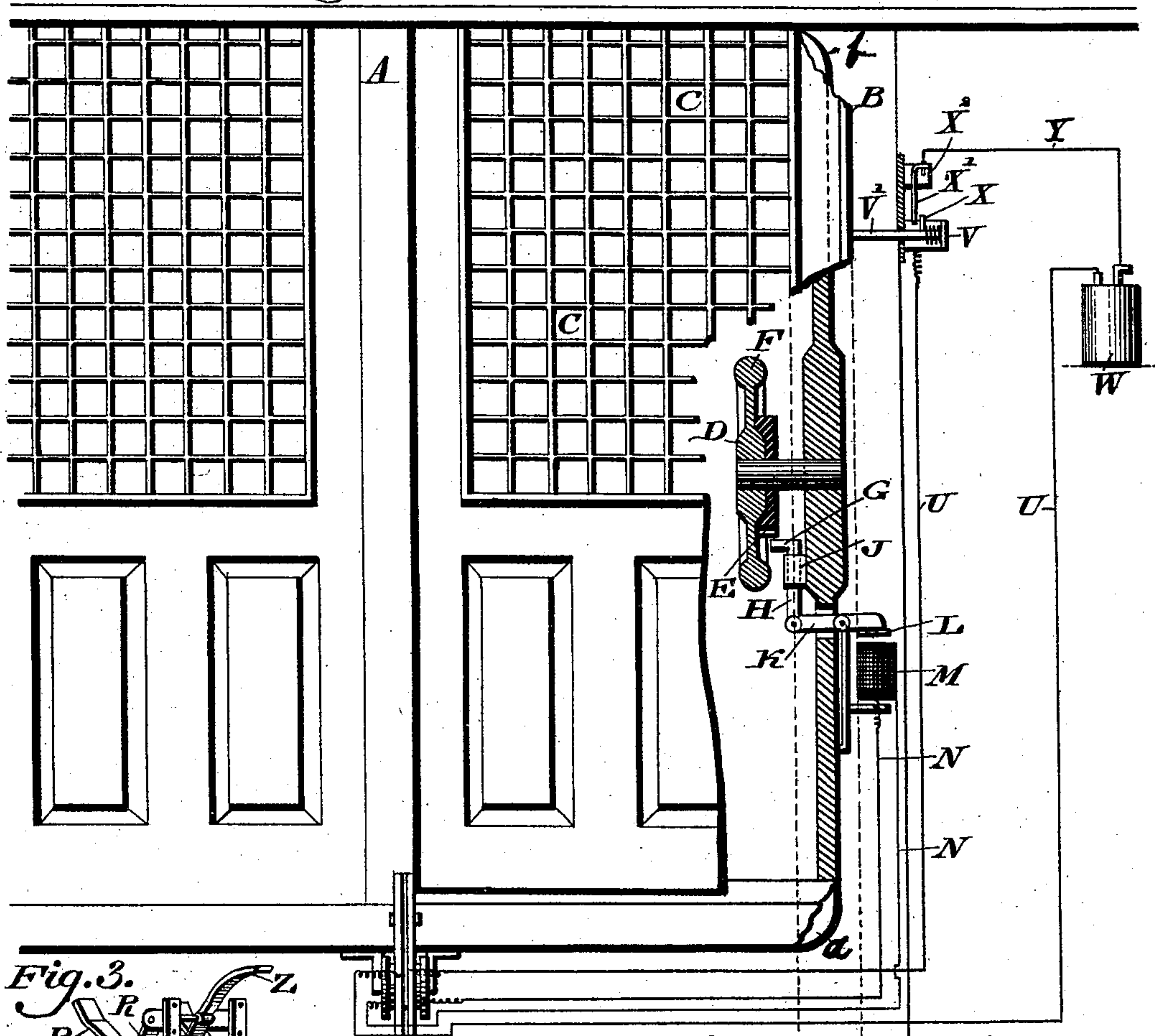
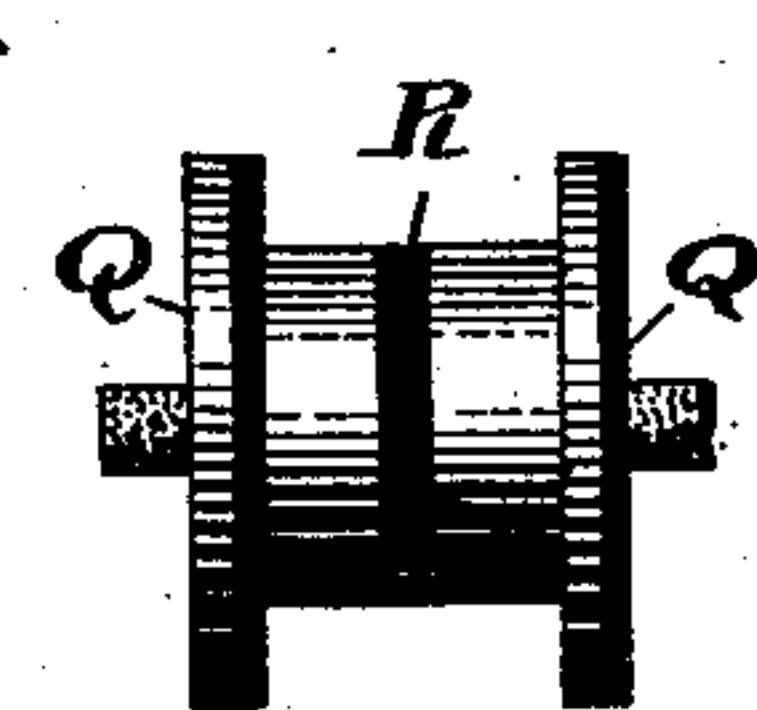
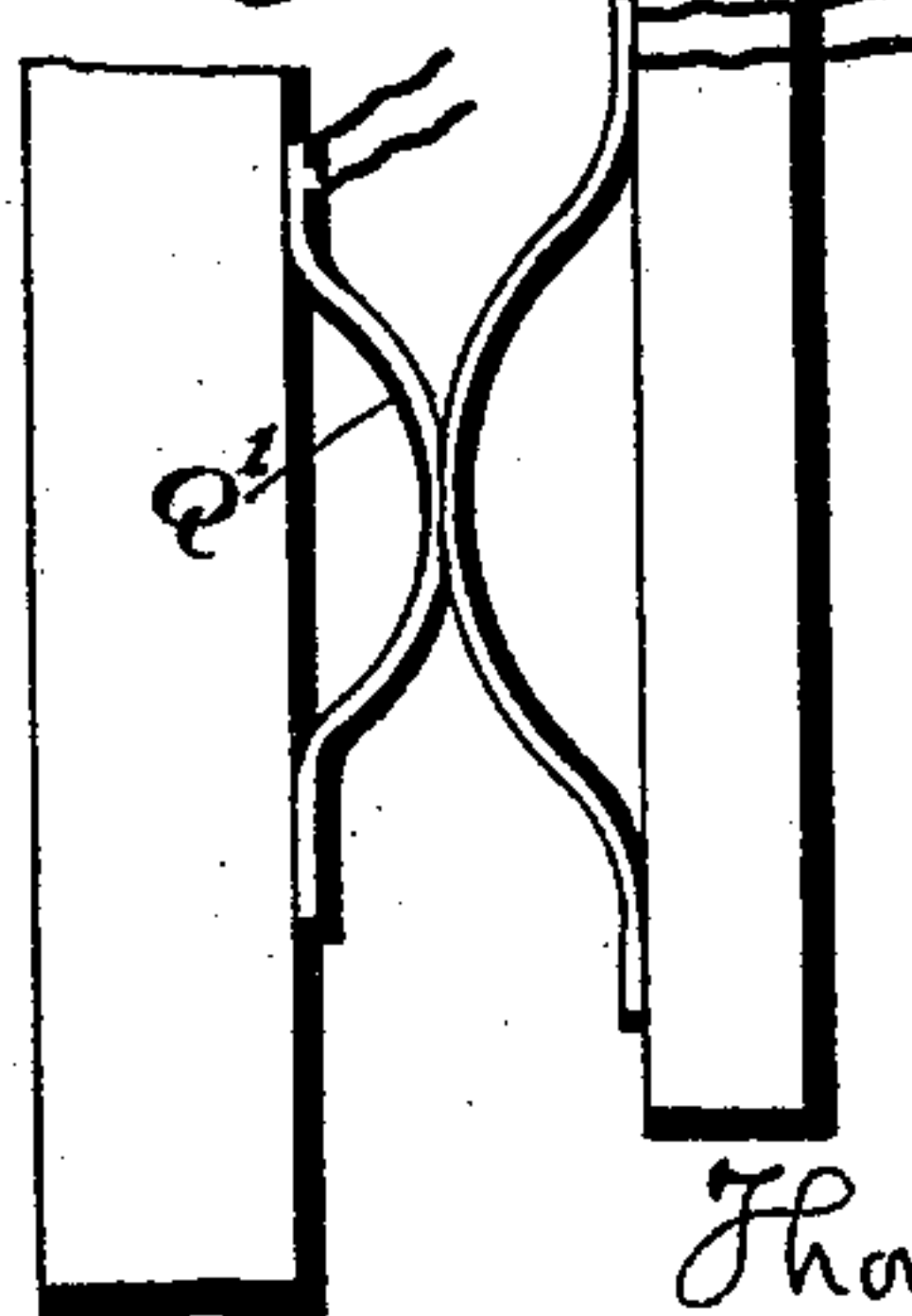
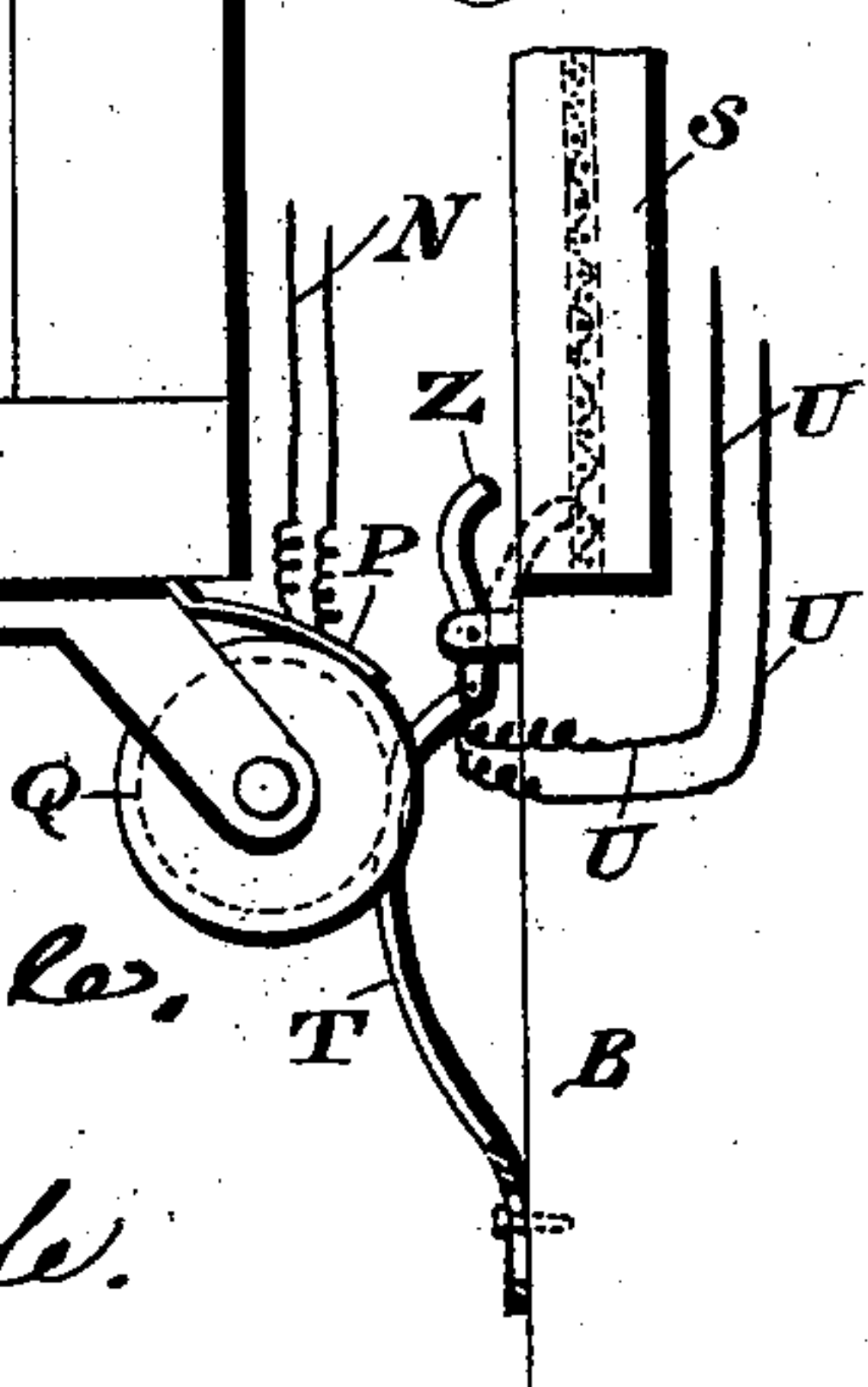


Fig. 2.

Fig. 5.

Fig. 4.



WITNESSES:

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(No Model.)

2 Sheets—Sheet 2.

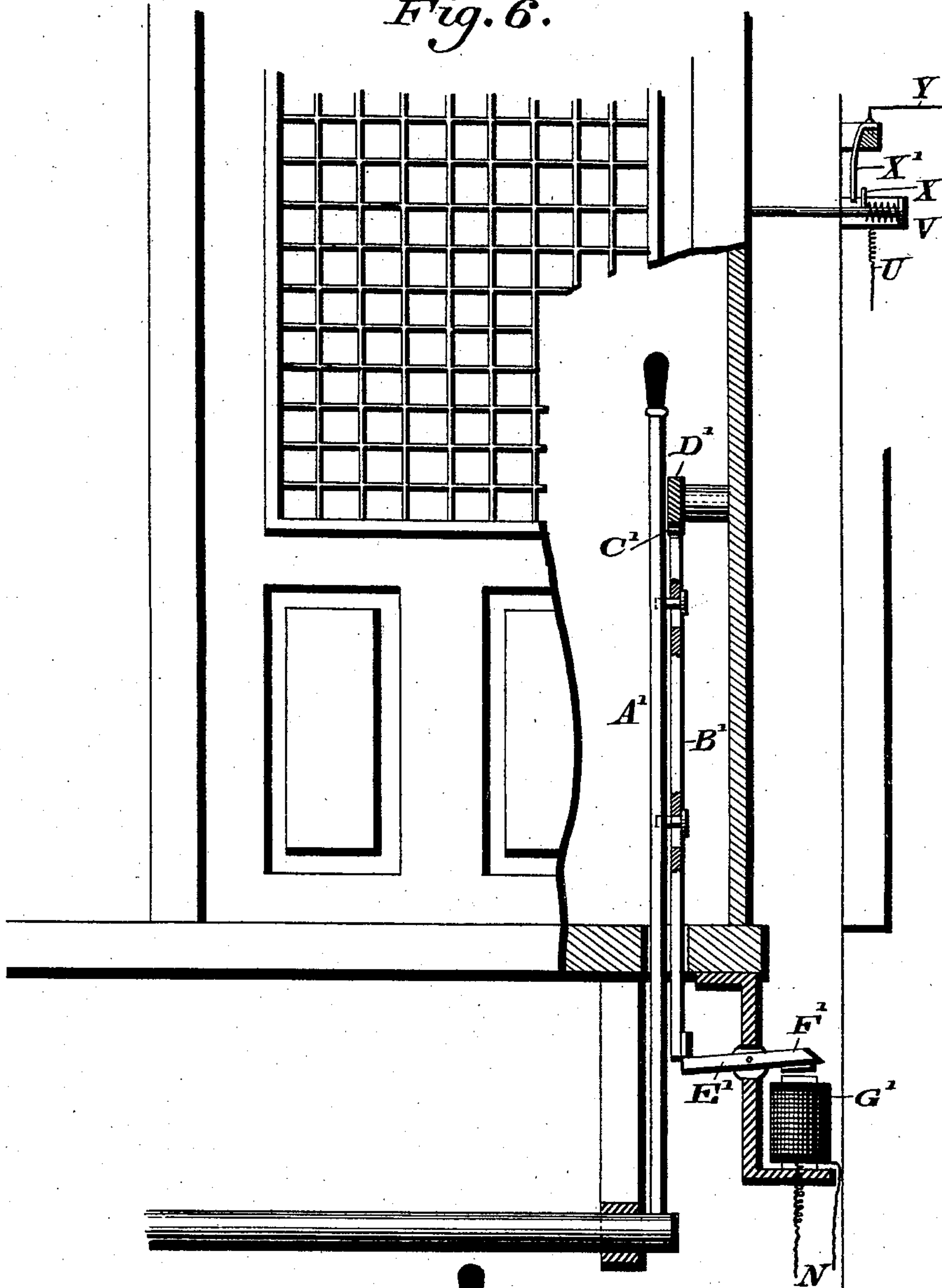
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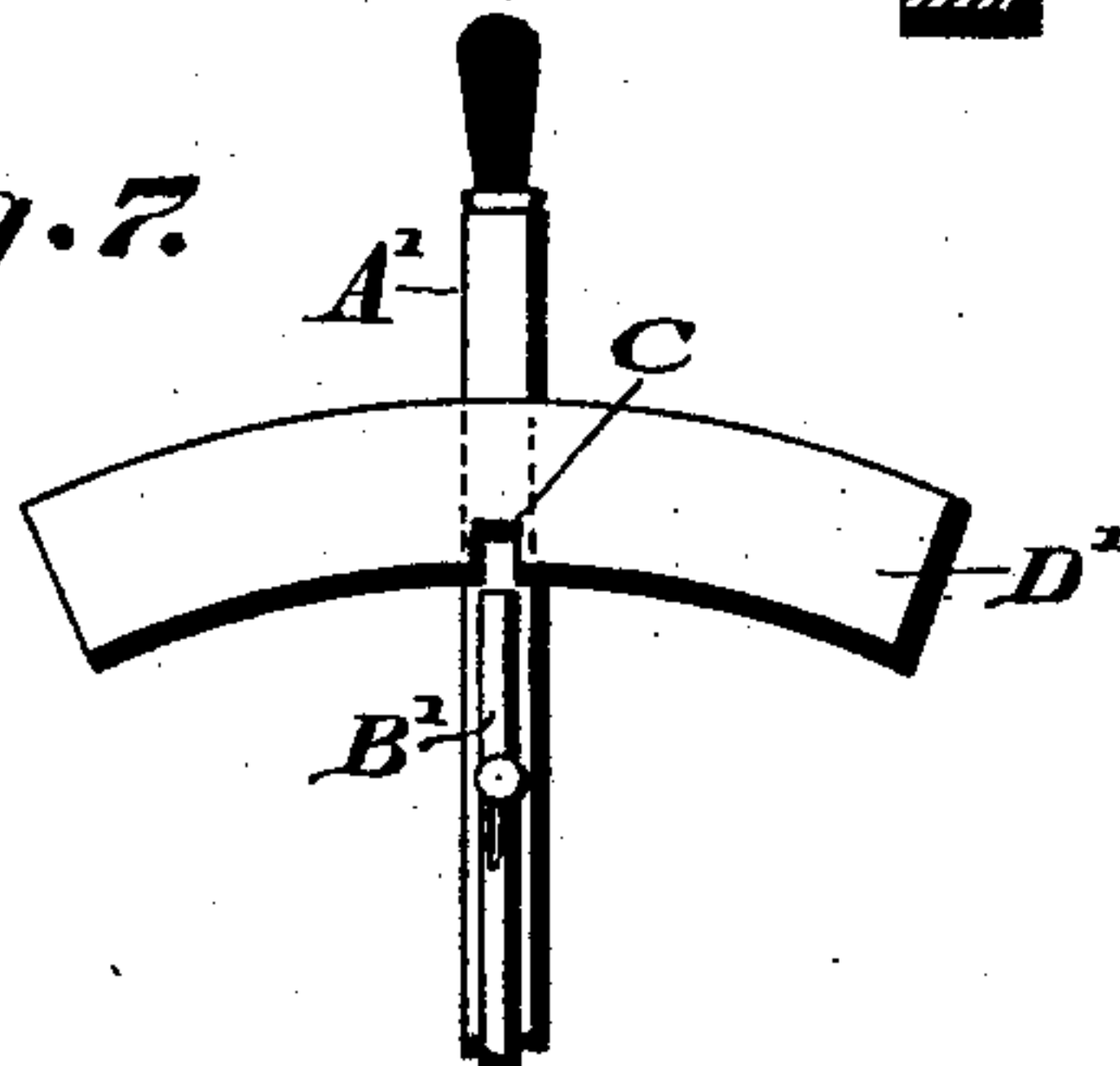
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*Fig. 6.*



*Fig. 7.*



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# UNITED STATES PATENT OFFICE.

THOMAS W. JENKINS, OF PHILADELPHIA, PENNSYLVANIA.

## ELECTRICALLY-OPERATED LOCKING DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 587,002, dated July 27, 1897.

Application filed October 2, 1895. Serial No. 564,367. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS W. JENKINS, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Electrically-Operated Locking Devices for Elevators, which improvement is fully set forth in the following specification and accompanying drawings.

My invention has for its object the locking of the power-controlling mechanism of an elevator when the door of the car is opened and the car is at a landing and which cannot be released until said door is closed; and for this purpose it consists of novel mechanism hereinafter described, said mechanism being in an electric circuit which is adapted to be closed and broken by the operation of the door.

It further consists of novel means for locking the door of the frame of the elevator-well and the unlocking of the same by the action of the car when it has reached its destination.

Figure 1 represents a partial front elevation and partial vertical section of portions of an elevator embodying my invention. Fig. 2 represents a side elevation of a portion thereof. Fig. 3 represents a perspective view of a detached portion. Fig. 4 represents a face view of a detached portion. Fig. 5 represents a side elevation of forms of contacts that may be employed. Fig. 6 represents a partial front elevation and partial vertical section of an elevator embodying my invention, the power-controlling mechanism being of a different form from that shown in Fig. 1. Fig. 7 represents a side elevation of part of the frame. Fig. 8 represents a vertical section of upper and lower ends of one side of the car, showing beveled ends and groove for passage of the sliding rod for completing the circuit.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates the car of an elevator, and B designates the stationary frame of the well thereof.

C designates the door of the car, the same being adapted to open and close, as usual.

D designates the power-controlling wheel on the car A, the said wheel having a recess

E in the periphery of the disk or hub portion F thereof, said recess being adapted to receive the head G of the dog H, which is fitted in the guide J on the car and pivotally connected with the lever K, the outer end of which carries the armature L, adjacent to which is the magnet M, said lever and armature being carried by the car.

Wires or conductors N are connected with the magnet M and with the brushes P, which are held in contact with the spools or rollers Q, it being noticed that said spools are insulated by the material R, and said brushes and spools are connected with the under part of the car and act as shoes.

Connected with the frame B, below the floor-door S of the same, are elastic springs or yielding plates T, which, when the car has fully reached a floor, have the spools Q ride over and in contact with the same, said spools and plates thus serving as contacts, as shown Fig. 2.

Wires or conductors U are connected with the plates T and with the bracket V and battery W. Mounted in the bracket is a spring-pressed rod or bar V', which carries the contact-piece X, the latter being adapted to be moved to and from the contact-piece X', which is secured to the bracket or binding-post X<sup>2</sup>, it being noticed that the brackets V and X<sup>2</sup> and the battery W are mounted on the frame B, and the rod V' is so located that it is adapted to be engaged by the side edge of the door C when the latter is closed. The lower edge of the cage is rounded or beveled at a, and the top of the door at b, so as to prevent any catching of the rod V' and said door.

Y designates a wire or conductor which is connected with the bracket or binding-post X' and with the battery W.

Mounted on the frame B, below the door S thereof, is a dog Z, the lower end of which is connected with one of the spring-plates T and has its upper end or nose adapted to engage with said door and lock the same, which is the normal position and action of said dog.

The operation is as follows: When the car rises and reaches the floor, the spools Q press against the spring-plates T and cause the dog Z to leave the door S and thus unlock the latter. The door C is opened, as usual, and the rod V', which has been held back by the door in



closed position, now advances and causes the pieces X and X' to contact, thus completing or closing the electric circuit, whereby the armature L is attracted, and the lever K causes the dog H to rise and have its nose enter the recess E of the wheel D, thus locking said wheel, so that the car cannot be started until said wheel is properly released, which can only be occasioned by the closing of the door C, whereby the car can only move with a closed door.

When it is desired to start the car, the door C is closed, whereby it presses against the rod V', and the latter then separates the contact-pieces X X' and breaks the circuit. This releases the armature L, and as a consequence the dog H drops, its nose leaves the recess E, and the wheel D is unlocked, whereby said wheel may be turned to cause the starting of the car. As soon as the spools leave the springs T the latter expand, and the dog has its head or nose thrown into engagement with the door S, so that the latter is locked from the inside of the well and can only be opened when the springs are again engaged by the spools on the moving car, whereby the dog L is forced from said door, so that the latter may be opened from within the car. When the car reaches its destination, the door thereof is opened, so that the electric circuit is again closed, and the wheel D is then locked, so that the car cannot be moved until said door is fully closed, when the circuit is broken and the wheel is unlocked similar to that hereinbefore stated.

In Fig. 5 I show shoes Q' in lieu of the spools Q, the same being employed for forming or closing the circuit when the car reaches its destination similar to said spools.

When a lever, such as A', is employed in lieu of the wheel D, the same has connected with it the vertically-sliding bar or rod B', whose head is adapted to enter the recess C' in the quadrant D' on the car. The lower end of the bar engages with one end of the lever E, whose other end carries the armature F', below which is the magnet G', it being evident that when the armature is attracted, due to a closed circuit, the bar B' is raised and caused to engage with the quadrant D', thus locking said lever A'. When the circuit is broken, the armature is released, so that the bar is permitted to fall and disengage from the quadrant, whereby the lever A' is unlocked, and the car may be set in motion by the operation of the lever A'.

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

1. In electrically-operating locking devices for elevators, a car with a power-controlling wheel and a door, a lock for said wheel, an electric circuit with magnet controlling said lock, and contact-points connected by the action of said door, said parts being combined substantially as described.

2. In an elevator, a car having a door and a power-controlling mechanism with a locking device, an armature connected with said device, and a magnet for said armature, in combination with an electric circuit, having contact-pieces and means operated by the movement of said door for connecting said contacts and thereby closing said circuit, said parts being combined substantially as described.

3. In an elevator, the power-controlling mechanism on the car thereof, a dog adapted to lock said mechanism, an armature connected to said dog, and a magnet adjacent to said armature in combination with a rod adapted to engage the door of the car, a contact-piece on said rod, a contact-piece adjacent to the first-named piece, an electric circuit, said armature and contact-pieces being in said electric circuit which is formed by conductors, part of which are carried by the car and part by the frame of the well, and contacts on said car and frame for closing said circuit, substantially as described.

4. In an elevator, a car having a door and a power-controlling device, a locking-dog on said car for said controlling device, an electric circuit with contact-points supported by the frame of the elevator-well, means on said car for connecting said contact-points, and a magnet with wires adapted to be connected with said circuit, said magnet controlling an armature connected with said locking-dog, said parts being combined, substantially as described.

5. In an elevator, a car having a door and a power-controlling device, a locking-dog for said device, and a magnet for controlling said dog, insulated spools on said car connected with said magnet, an elevator-well frame having a door and provided with spring-plates, adapted to be engaged by said spools, a dog connected to one of said spring-plates and engaging said door on said well-frame, an electric circuit connected with said spring-plates, and having contact-points for making and breaking the circuit, and a spring-controlled rod carrying one of said contact-points, said rod being engaged by the door of the car, said parts being combined substantially as described.

6. In an elevator, a car having insulated shoes thereon, a well-frame having an electric circuit having contact-pieces for said shoes, a door on said frame, and a lock on said contact-pieces adapted to be operated by the shoe for releasing said lock when said car has reached its floor, in combination with means on the car for locking the power-controlling mechanism thereon, said means being in the electric circuit of which said contact-pieces form part, substantially as described.

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Witnesses:

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