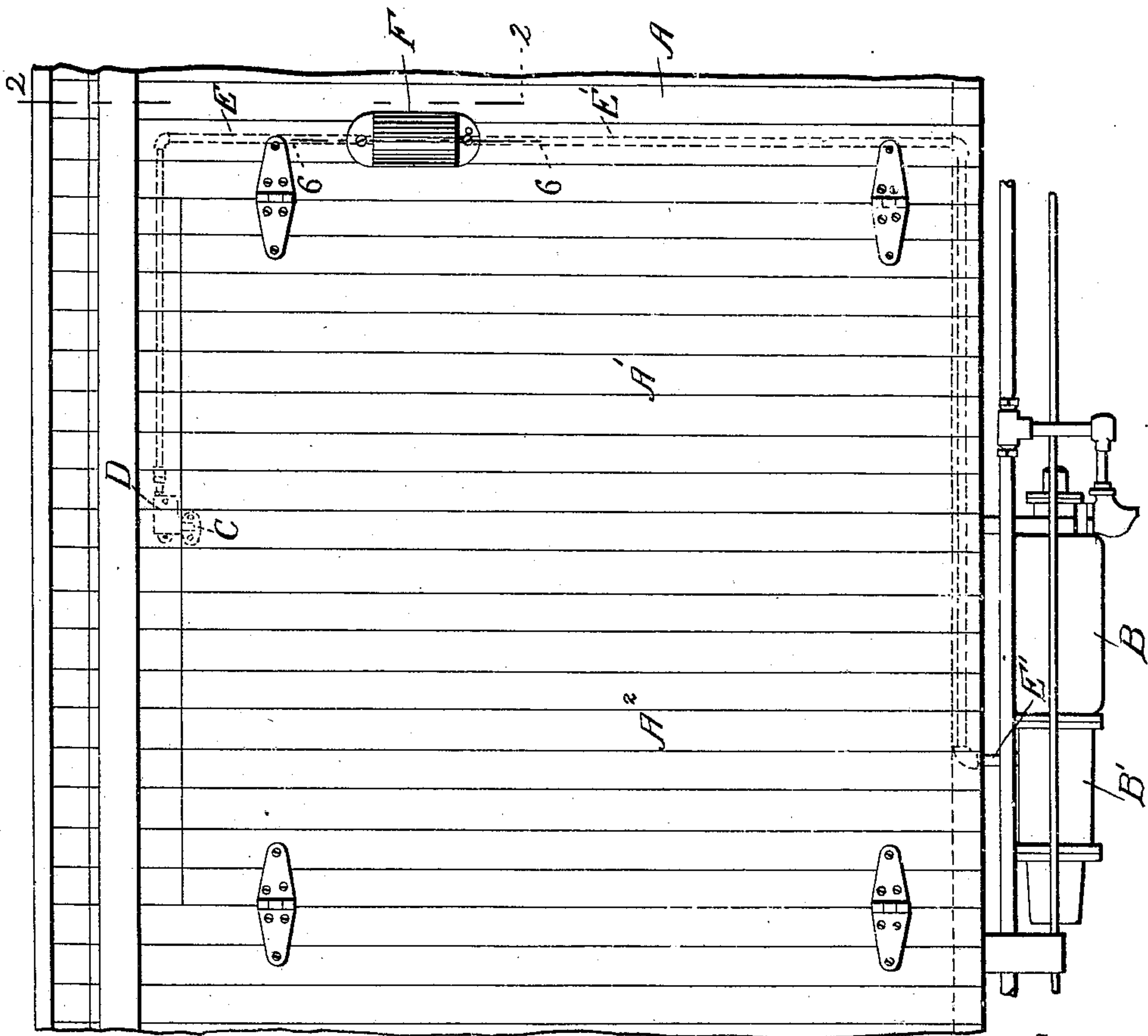
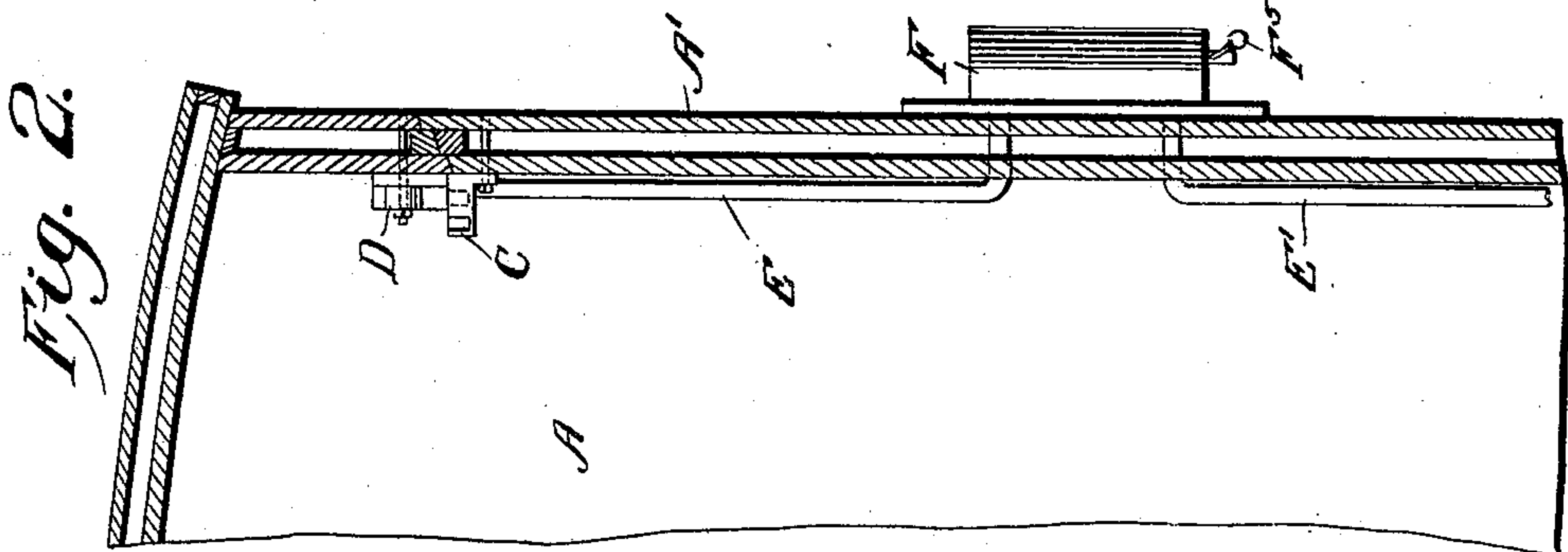


F. J. GILROY.  
 DEVICE FOR SECURING CAR DOORS.  
 APPLICATION FILED DEC. 31, 1908.

924,160.

Patented June 8, 1909.

2 SHEETS—SHEET 1.



Inventor

Witnesses

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*Fig. 1*

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Fig. 6.

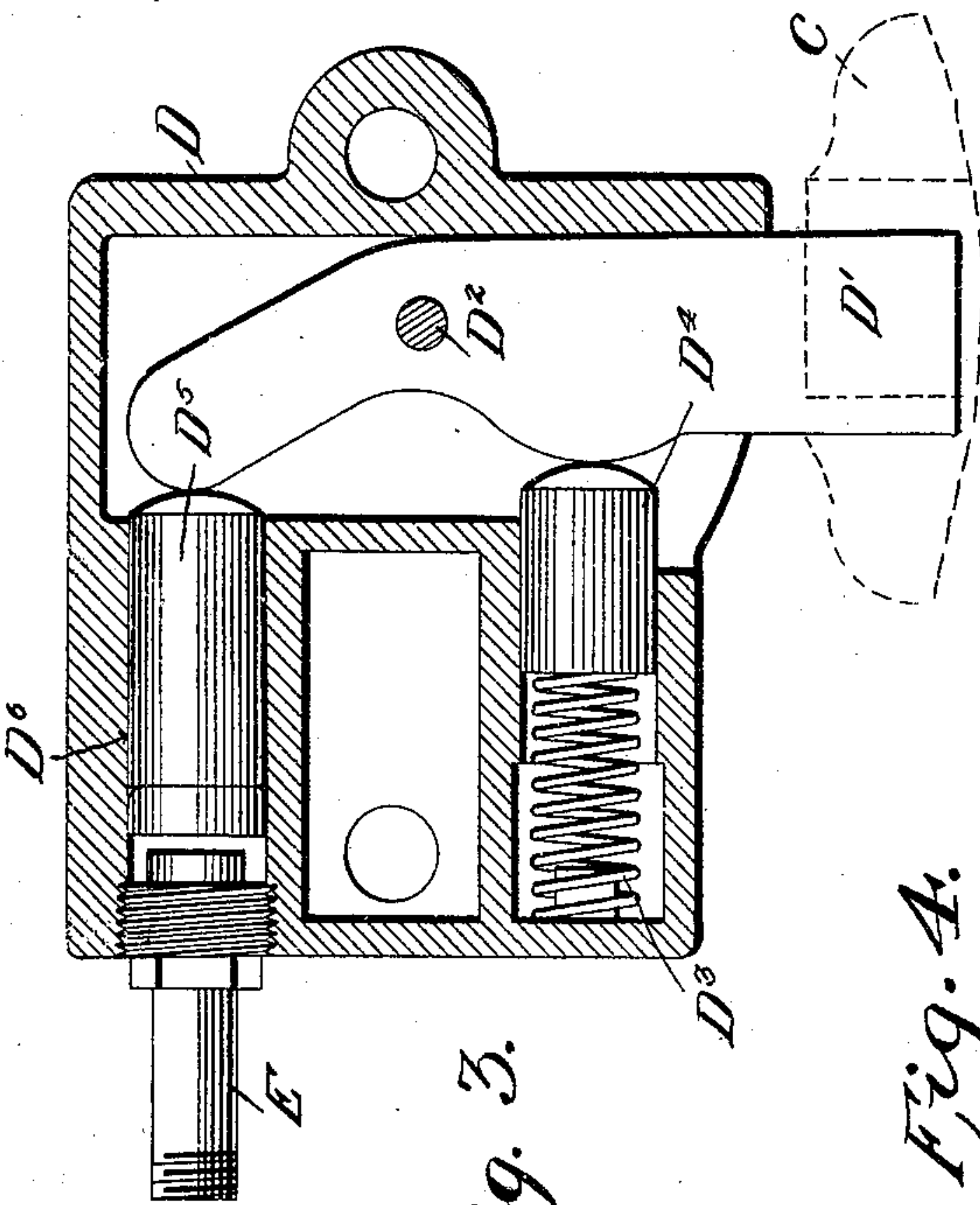
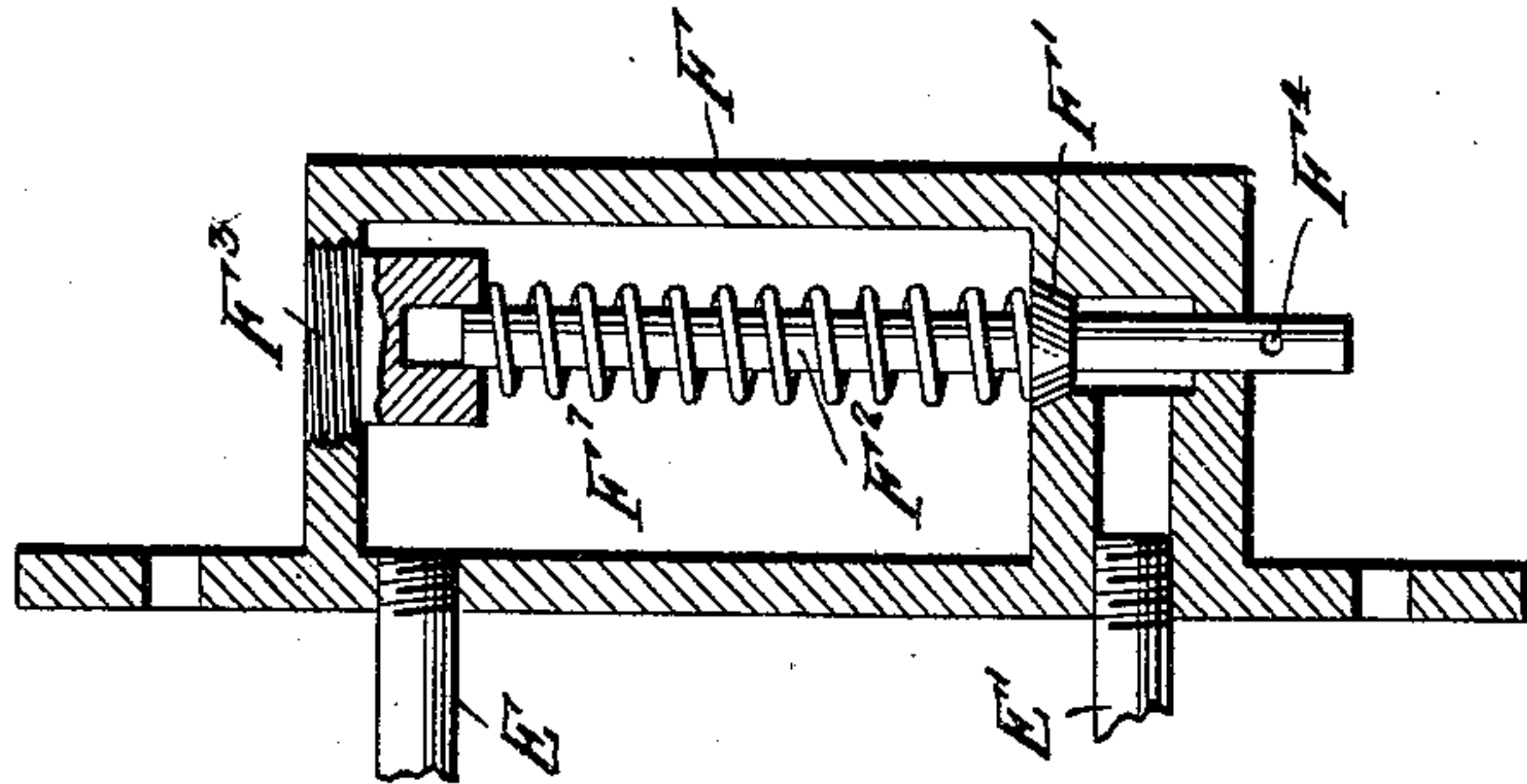


Fig. 3.

Fig. 4.

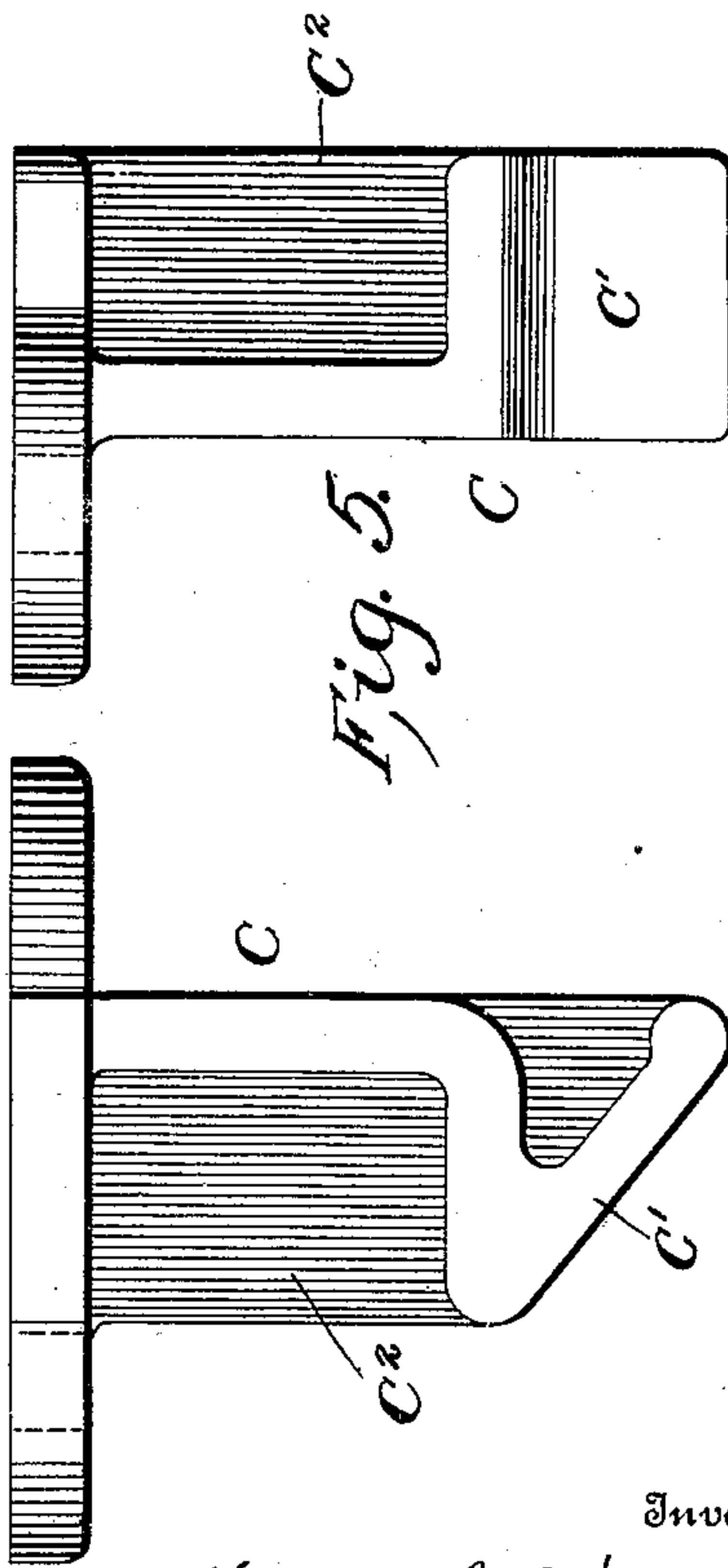


Fig. 5.

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# UNITED STATES PATENT OFFICE.

FRANK J. GILROY, OF BUFFALO, NEW YORK.

## DEVICE FOR SECURING CAR-DOORS.

No. 924,160.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed December 31, 1908. Serial No. 470,209.

*To all whom it may concern:*

Be it known that I, FRANK J. GILROY, citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Devices for Securing Car-Doors, of which the following is a specification, reference being had therein to the accompanying drawing.

The object of this invention is to provide for securing car doors of cars provided with air brakes by devices which can be unlocked only when the full braking power is applied through the brake cylinders, whereby it becomes practically impossible to unlock the devices while the car is in transit between stations or is detached from the engine at stations or elsewhere.

For the purposes of illustration I have shown the invention embodied in devices adapted for cars having hinged doors, but the broad features of the invention may be used in connection with sliding doors.

In the accompanying drawings, Figure 1 is a side elevation of a portion of a car having a door opening closed by two hinged doors, one of which, as usual, when locked prevents the opening of the other. Fig. 2 is a section on the line 2—2, Fig. 1. Fig. 3 shows the locking devices proper seen from the inside of the car, the lock case being in section. Figs. 4, 5 are views of a catch carried by one of the doors. Fig. 6 is a section, on the line 6—6, Fig. 1, showing certain hand-operated valve devices.

In these figures, A represents the body of a car having hinged doors A', A<sup>2</sup> and provided with the usual reservoir B and brake cylinder B' of air brake apparatus. The door A' when closed prevents the opening of the door A<sup>2</sup> and upon its inner face near the upper portion of its free margin is rigidly secured an inwardly projecting catch C having upon one side an inclined face C' to push aside a certain spring latch. Just above the place occupied by this catch when the door is closed is a casing D bolted to the inner wall of the car and provided with a latch D' which normally projects downward into the path followed by the catch when the door is being closed. As seen clearly in Fig. 3 this catch is pivoted at D<sup>2</sup> between its ends and is normally held in vertical position and against the end wall of the casing by a helical spring D<sup>3</sup> which presses a bar D<sup>4</sup> against the latch but which yields to the

pressure of the beveled end of the incoming catch upon the latch and an instant later throws the latch into the recess C<sup>2</sup> (Figs. 4, 5) of the catch, locking the doors. The locking is thus automatic, but by devices wholly within the car and not to be reached even by inserting anything in the joint at the door's margin when ordinary construction is followed. The opposite end of the latch rests against or lies in the path of a plunger D<sup>5</sup> working in an air cylinder D<sup>6</sup>, in the casing, to which compressed air may be admitted by a small pipe E. When air is thus admitted under sufficient pressure to overcome the resistance of the spring D<sup>3</sup>, the plunger moves outward, forcing the latch to swing upon its pivot and release the catch, allowing the doors to open. The spring is usually made strong enough to resist pressure less than the full braking pressure in the brake cylinder. From the casing the pipe passes along the inside of the car to a point preferably at the side of the door opening and somewhat above the middle, vertically, of the car, and thence through the car wall (Fig. 2) into a valve chamber F secured to the outside of the car by devices not detachable by persons without the car. From the lower part of this chamber a pipe E' passes inward through the car wall, downward along the same, and thence to a point preferably immediately above the brake cylinder whence it turns and enters the latter.

The chamber F contains a valve F' provided with a stem F<sup>2</sup> the upper portion of which slides in a bearing in a screw plug F<sup>3</sup> projecting inward through the upper wall of the chamber, while the lower portion of the stem passes through the lower wall, projecting to some distance and being provided with a perforation F<sup>4</sup> through which a common sealing wire F<sup>5</sup> may be passed to prevent opening the valve without making it evident that it has been tampered with.

Between its ends the stem carries a valve F' which is normally held closed by a spring F<sup>7</sup> strong enough to resist the force of air at full or emergency braking pressure tending to open the closed valve, which is so placed as to cut off communication between the two pipes. If now the engineer by means of the engineer's valve applies full braking power through the brake cylinder, thus of course setting the brakes, removal of the seal and pushing the valve F' upward allows air to pass from the braking cylinder to the



latch casing and causes the latch to disengage the catch, unlocking the doors. If this pressure in the brake-cylinder is lowered while the doors are still closed, the car is immediately locked again.

Should the desired pressure in the brake cylinder be secured by cutting the pipe between the cars, the brakes would be instantly set, giving notice to all persons on the train that something unusual had occurred. If a car be detached from the engine without first opening its doors, it cannot be opened at all until re-connected with an engine or with air pressure devices of like capacity.

It is plain that without the connivance of the engineer it is practically impossible to open a car at any time, either between stations or otherwise, and that this result is secured through the air devices with which all trains are usually provided.

What I claim is:

1. The combination with a car provided with ordinary air brake mechanism and with a door, of door locking devices adapted to be unlocked by air pressure, means for putting said devices in communication with the interior of the brake cylinder and means for preventing unlocking by air pressure less than that secured by emergency application of braking pressure.

2. The combination with a car provided with a door and with air brake mechanism, of door securing devices operable by air pressure, means for delivering to said devices air from the brake cylinder, and manu-

ally actuated means for controlling such delivery.

3. The combination with a car provided with a door and ordinary air brake mechanism, of door securing devices adapted to be unlocked by compressed air, means for preventing such unlocking by air below a predetermined pressure, means for supplying to said devices unlocking air from the air brake cylinder, and manually actuated devices for controlling said means.

4. The combination with a car provided with a door and with air brake mechanism, of door securing devices within the car and adapted to be released by compressed air, a normally closed conduit leading from the brake cylinder to said devices, means for preventing unlocking by air below full brake pressure, and means for at will opening said conduit.

5. The combination with a car provided with a door and with air brake mechanism, of door securing devices adapted to be unlocked by compressed air, means for preventing unlocking by air below a fixed pressure, a pipe leading from the brake cylinder to said devices, a valve controlling said pipe, and a seal preventing, while intact, the opening of said valve.

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

FRANK J. GILROY.

Witnesses:

J. F. DESMOND,  
C. S. CANNIFF.