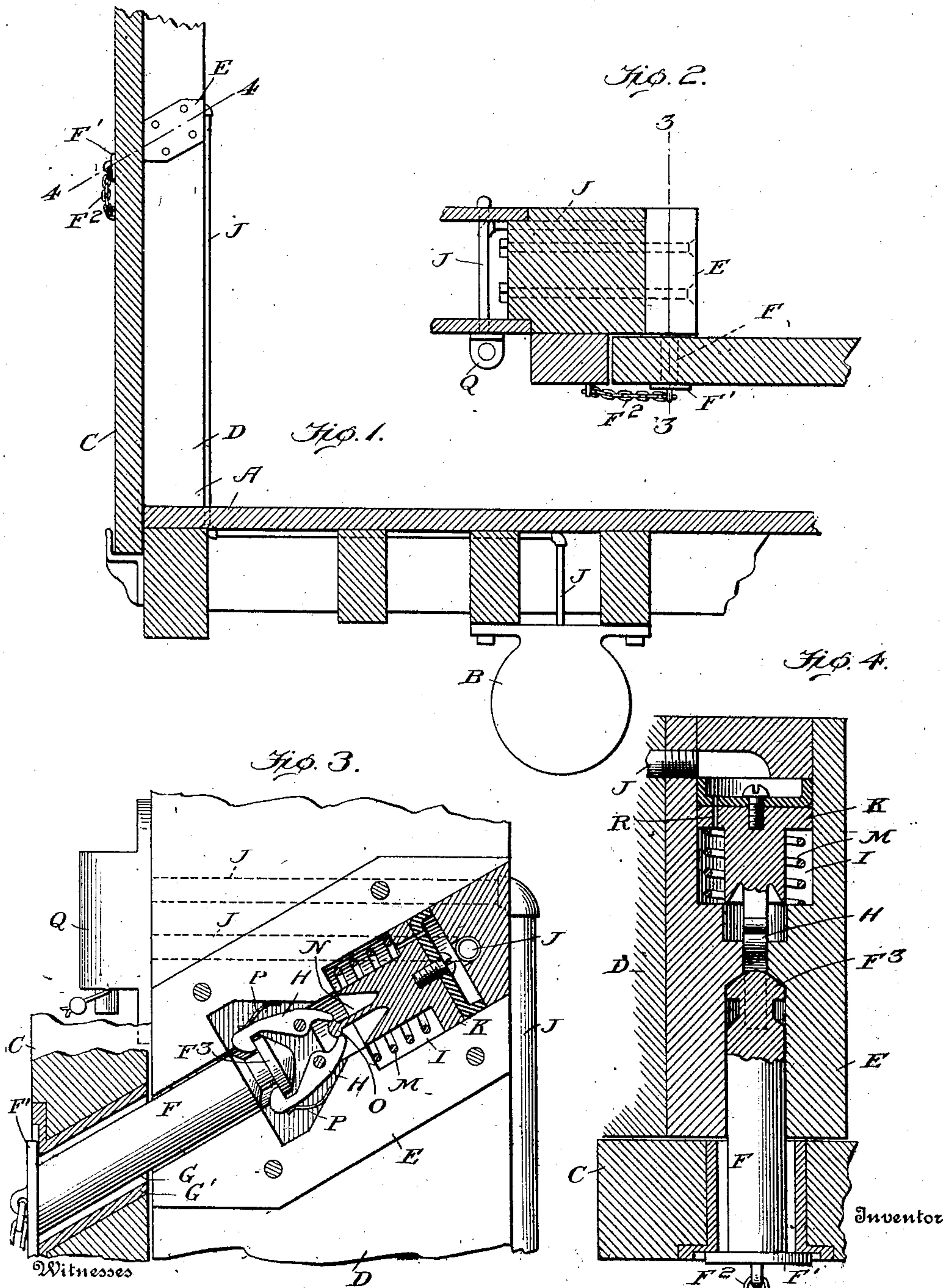


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BRAKE CONTROLLED CAR DOOR SECURER.
APPLICATION FILED JAN. 5, 1909.

925,433.

Patented June 15, 1909.



Witnesses
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UNITED STATES PATENT OFFICE.

FRANK J. GILROY, OF BUFFALO, NEW YORK.

BRAKE-CONTROLLED CAR-DOOR SECURER.

No. 925,433.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed January 5, 1909. Serial No. 470,752.

To all whom it may concern:

Be it known that I, FRANK J. GILROY, a 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 Brake-Controlled Car-Door Securers, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to securing car doors by devices which are released only by compressed air from the air-brake system of the train, or more specifically, with the brake cylinder of the car itself, the object being to make it practically impossible for any person to open the car without the aid of some person in charge of a locomotive which is coupled to the car so that it may actuate its air brakes. Other objects will herein-after appear.

In the accompanying drawings, Figure 1 is a cross sectional view of a portion of a car and its door, my devices being in position thereon. Fig. 2 is a horizontal section above the plane of the locking devices proper. Fig. 3 is a view looking from the right in Fig. 2, parts to the right of the plane 3-3 being removed. Fig. 4 is a section on the like 4-4, Fig. 1.

In these figures, A represents the body of a car provided with the usual air-brake cylinder B and with an ordinary sliding door C. Upon the side of the stud or jamb D of the doorway is secured a lock case E adapted to receive an inclined locking bolt or pin F which is passed upwardly inward through the marginal portion of the door or suitable device secured thereto, into the lock case where it is engaged by devices to be described and thus held from falling out under force of gravity. As shown, the bolt is formed with a conical point and near the point with an annular groove, so that it has in effect a small head F³ at its inner end. At the outer end it is provided with a thin flange or head F¹, and to this end is attached a chain F² which connects it to the car so that it may not be dropped or lost. The door is perforated for the passage of the bolt and the perforation is provided with a bushing G¹ recessed at its outer end to receive the head F¹, the passage G through the bushing and the recess in its end being of greater diameter than the corresponding parts of the bolt so that the door may move slightly in its own plane without causing

the bolt to bind. The head being thus sunk in the recess is not readily engaged by any implement capable of applying great force. The end of the bolt which enters the lock case is engaged upon opposite sides by two hooks H which are centrally pivoted in a recess in the case and are at all times preferably urged toward locking position by springs P and are positively locked and unlocked by the movements of a plunger K working in a cylindrical fluid pressure chamber I in the lock case, in line with the bolt. The plunger is normally held away from the hooks by a spring M and is forced in the opposite direction against the force of the spring by compressed air brought from the brake cylinder B by a pipe J which rises from the brake cylinder into the car or its walls, passes to the vicinity of the locking devices, out through the wall of the car and then back through the wall to the lock case.

The plunger is formed with a conical recess N adapting it to engage the inclined inner ends of the hooks and force them inward when the plunger is forced forward by the entrance of compressed air under sufficient tension to overcome the force of the spring, and thus the hooks are forced to release the bolt allowing the latter to slide out under the force of gravity, leaving the door unlocked. The spring is made of such strength that the full braking power must be applied in the braking cylinder before the lock is actuated. As soon as the air pressure falls sufficiently, the spring forces the plunger to retreat, and when it is fully retracted, the head O of a small stud carried by the plunger is brought between the free end of the hooks to hold them in locking position. This stud is in some cases omitted, engagement being then urged and maintained by the springs P.

In order that the air from the brake cylinder may not at all times reach the locking devices, a hand operated normally spring closed valve mechanism Q is interposed in the pipe J at the point where it passes to the outside of the car on its way to the lock case, and the valve stem is ordinarily provided with a seal which must be broken before the valve can be opened, and it may therefore be seen at a glance whether the mechanism has been tampered with. Even if it has been, the car cannot have been unlocked without the aid of the engineer, who

applies the needed full braking power only in an emergency or for the purpose of unlocking the cars.

If it be desired to unlock the car, the engineer applies the full braking power and while the power is acting another person removes the seal and holds the valve open. The plunger is thus actuated, and the bolt is released and falls out. This may be done with any of the cars desired and such cars may then be left unlocked upon a siding or elsewhere. If, however, the cars be thus left while locked, they cannot be unlocked until they are connected again with an engine or with some plant capable of producing the proper pressure in the braking cylinder. To prevent the gradual accumulation of pressure by a small pump or the like, the various air chambers are provided with vent passage R, here shown as in the plunger itself.

What I claim is:

1. The combination with a car, its door, and air brake devices carried by the car, of a door-engaging bolt adapted to be passed inward until it projects into the interior of the car, devices secured to the car within the door and adapted to engage the projecting end of the bolt and prevent its withdrawal, and means whereby compressed air from the brake mechanism may release said engaging devices.

2. The combination with a car, its door, and air-brake mechanism carried by the car, of a loose locking bolt passed obliquely upward through the door, and devices controlled by air from the brake mechanism for engaging the inner end of the bolt.

3. The combination with a car and a door therefor provided with an upwardly inclined transverse passage for a locking bolt, of a loose bolt adapted to pass loosely inward in said passage and to fall therefrom by

gravity when released, devices for engaging the inner end of the bolt to prevent its withdrawal, and means for at will releasing such engagement.

4. The combination with a car, its door, and air-brake devices carried by the car, of a bolt adapted to pass inwardly through the door, a clutch for engaging the inner end of the bolt, and a plunger operable by compressed air from the air brake system to control the engagement of said clutch.

5. The combination with a car, a car door provided with an upwardly inclined transverse bolt passage, and air brake mechanism carried by the car, of a lock case secured to the car inside the door's plane, and having bolt engaging devices and an air pressure cylinder, a plunger in said cylinder actuating the engaging devices, and a separate bolt adapted to be passed inward in said passage into engagement with the bolt engaging devices.

6. The combination with a car, its door, and air-brake mechanism, of a locking clutch secured to the car within the plane of the door, an air cylinder and plunger therein arranged for actuating the clutch, a pipe passing from the brake cylinder upward into the car and to said cylinder, a valve controlling the passage of air in said pipe and operable from the exterior of the car, a spring resisting the movement of the plunger by air from said pipe, and a door-locking bolt adapted to be passed from without the car through the door into engagement with said clutch.

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

FRANK J. GILROY.

Witnesses:

G. R. ALBY,
JOHN J. FARRILL.