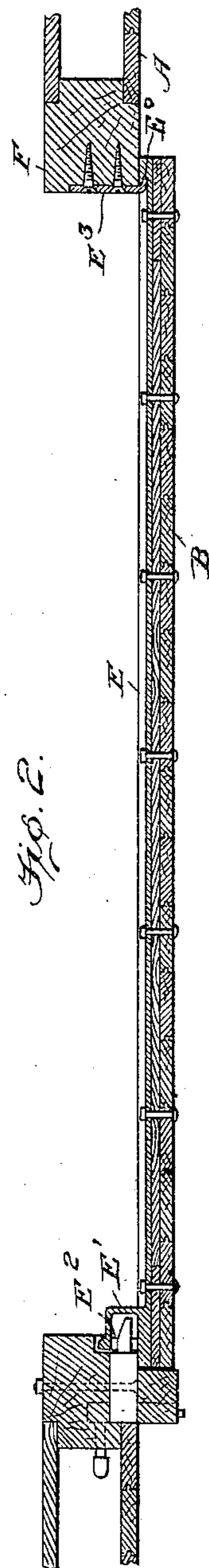


991,610.

2 SHEETS—SHEET 1.



Witnesses
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By *Wm. C. C. C.* Attorney

F. J. GILROY.
LOCKING DEVICE FOR CAR DOORS.
APPLICATION FILED OCT. 22, 1910.

991,610.

Patented May 9, 1911.

2 SHEETS—SHEET 2.

Fig. 3.

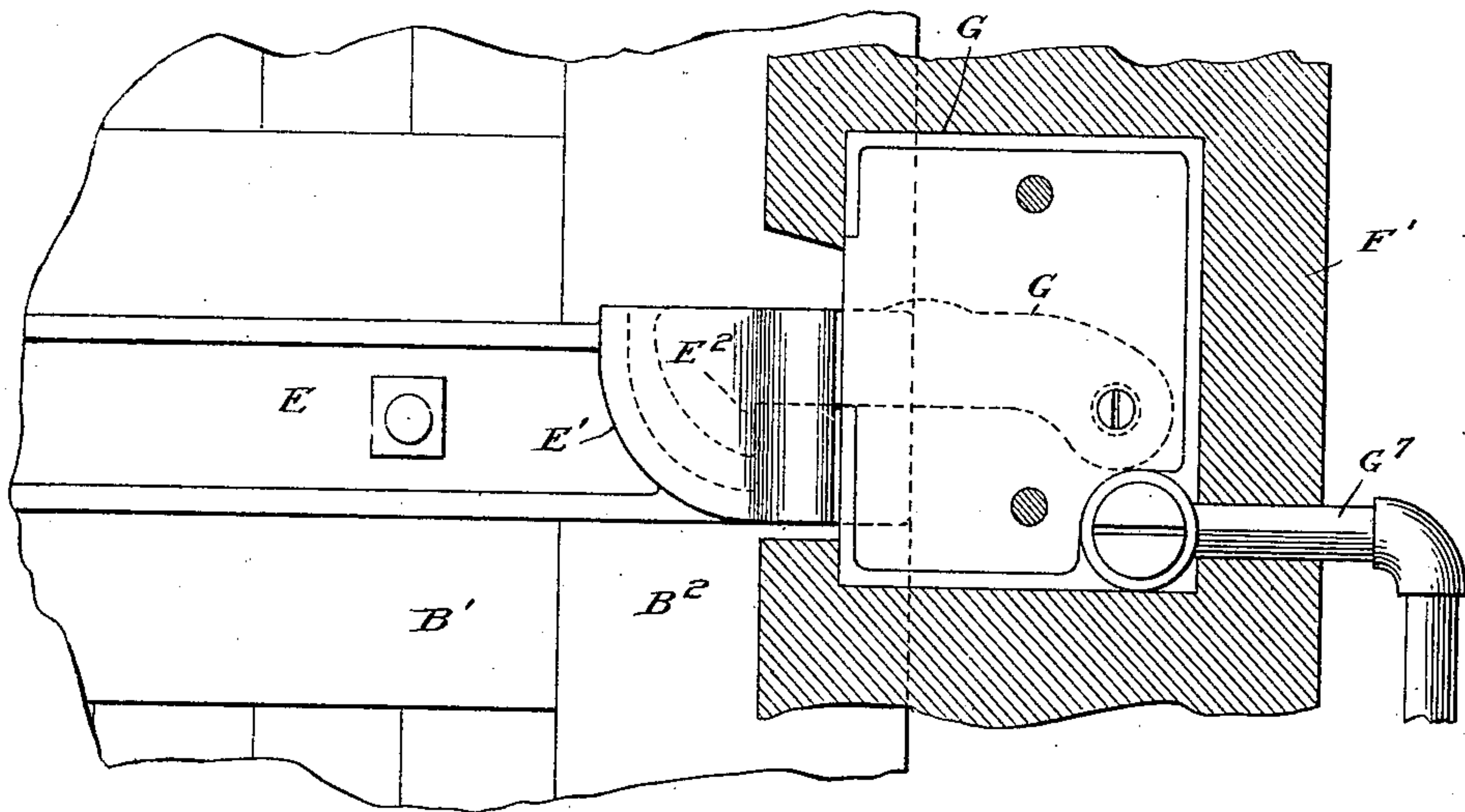


Fig. 4.

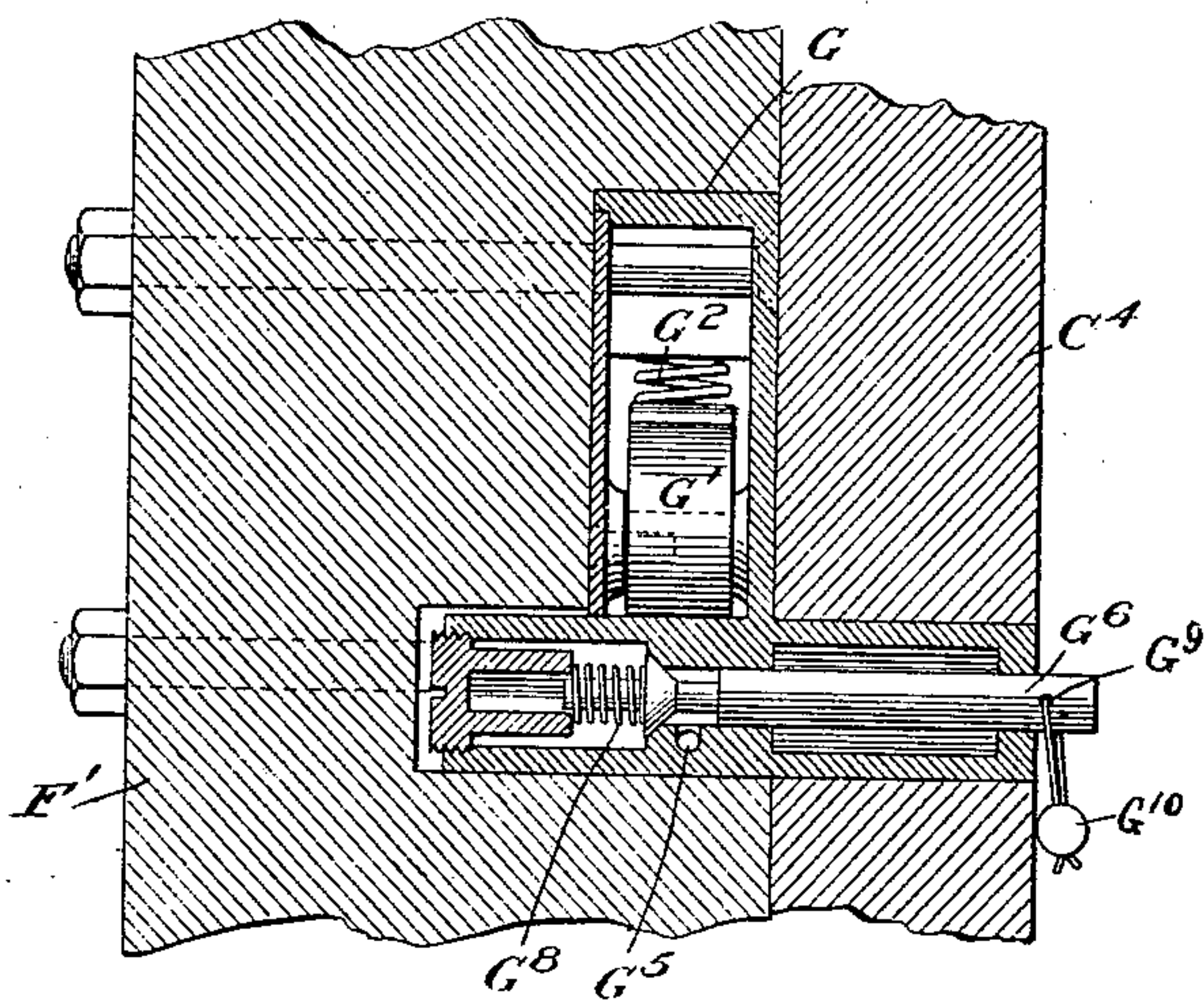


Fig. 5.

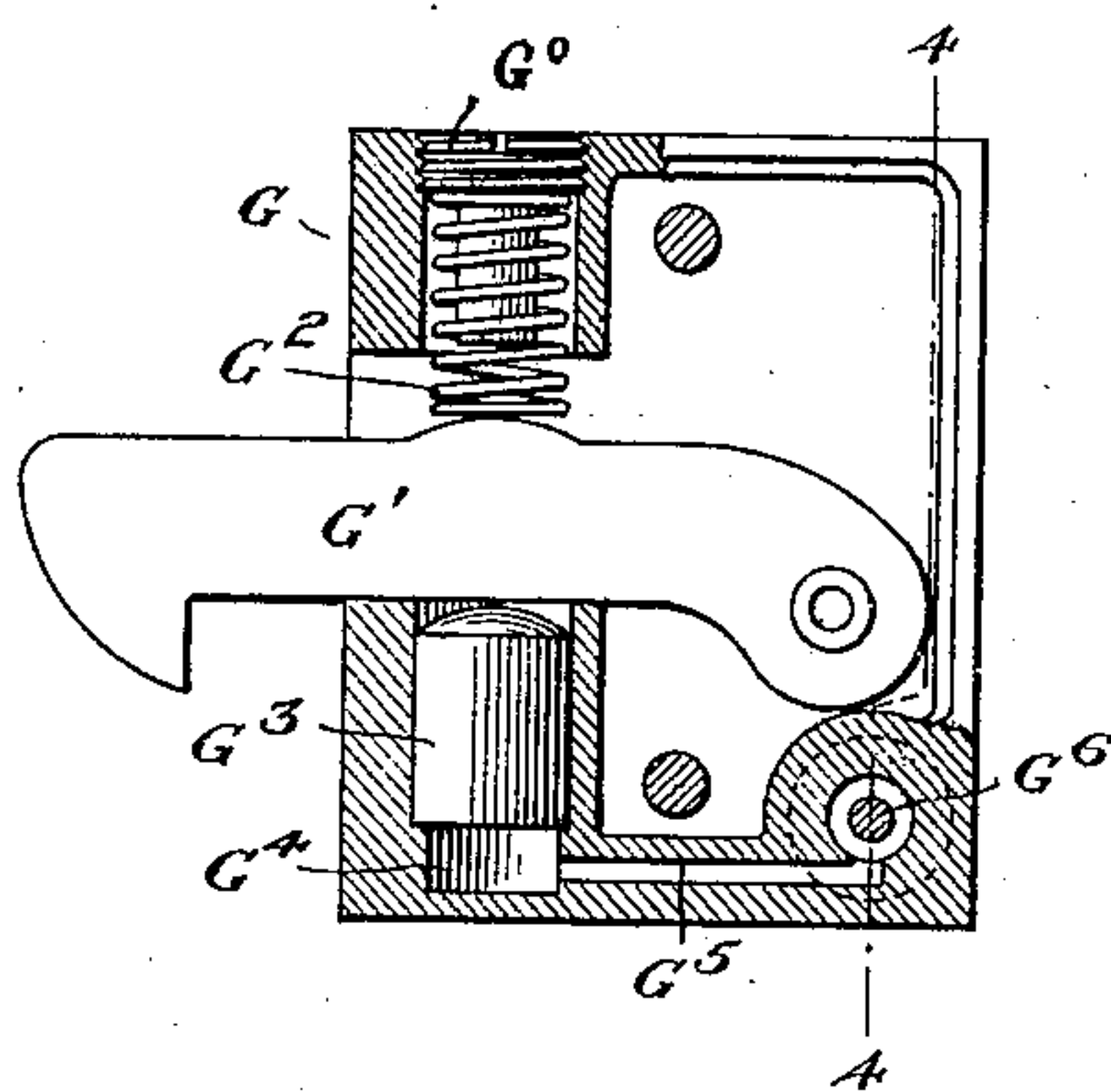
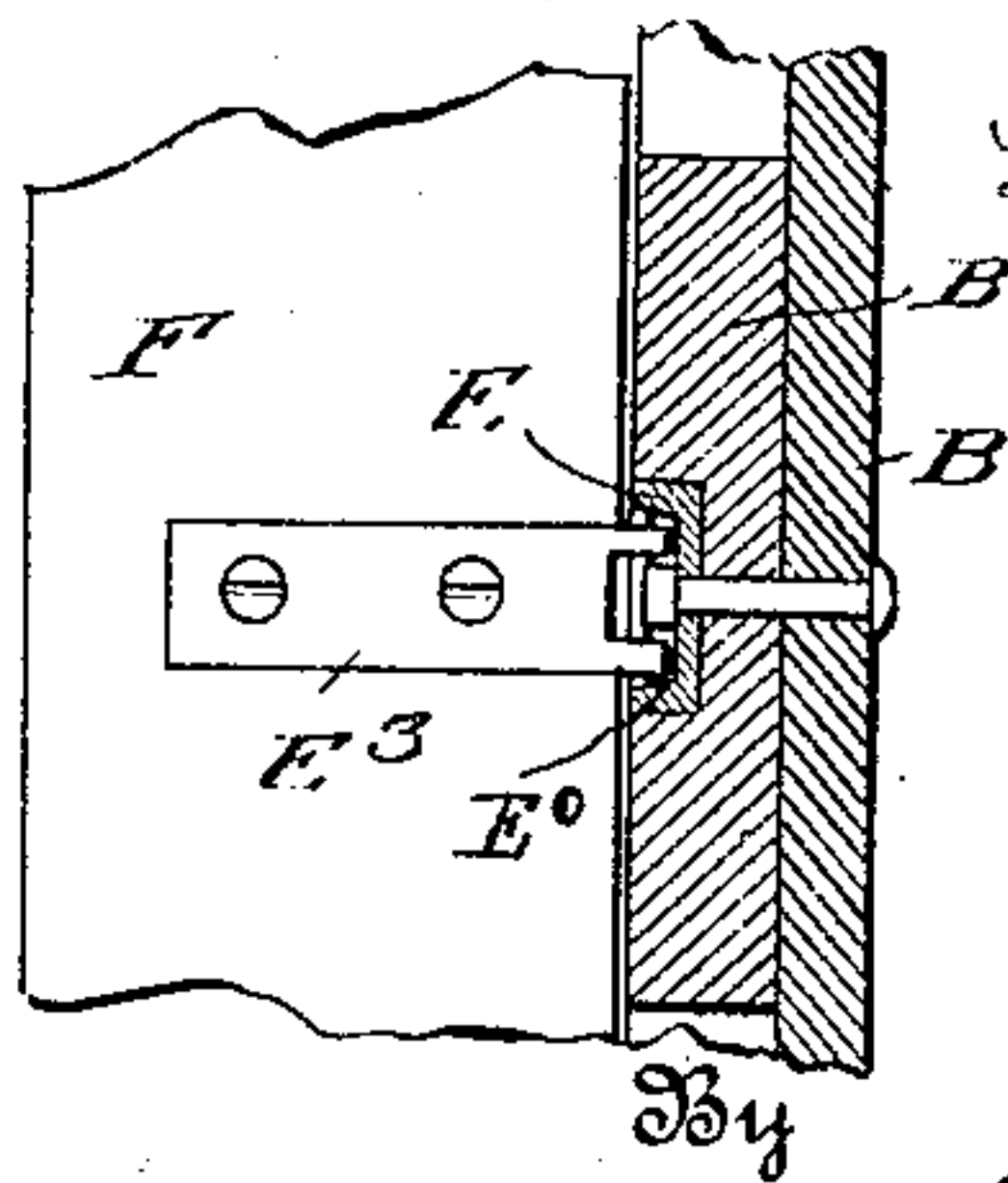


Fig. 6.



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UNITED STATES PATENT OFFICE.

FRANK J. GILROY, OF BUFFALO, NEW YORK.

LOCKING DEVICE FOR CAR-DOORS.

991,610.

Specification of Letters Patent.

Patented May 9, 1911.

Application filed October 22, 1910. Serial No. 588,422.

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 Locking Devices for Car-Doors, of which the following is a specification, reference being had therein to the accompanying drawing.

In securing car doors by locking devices it is highly desirable that opening should be possible only when the engineer coöperates in securing unlocking. Heretofore, the locking devices have sometimes been inside the outer wall, or outer part of the wall, of the car and have been operated by compressed air from the brake cylinder, the arrangement being such that only maximum, or emergency, pressure in the brake cylinder could be effective, and then only when a valve in the conduit from the brake cylinder was open during the continuance of such high pressure.

This invention provides for securing somewhat similar practical results by different means, and also for preventing access to the locked car by releasing the lock with an instrument inserted in the crevice between the door and car, or by removing the "shoes" and door hangers of a sliding door and swinging the latter outward, these objects being accomplished without changing the construction of ordinary cars now in use.

With these ends in view, the car is provided with a pneumatic lock to which leads a valved conduit from the common "pressure retaining valve" pipe or conduit, with a suitable guard for a certain latch and with nonexposed means for holding the door securely at the side opposite the lock.

In the accompanying drawings, Figure 1 is a side elevation of a portion of a car provided with my devices. Fig. 2 is a horizontal section of a car door and the adjacent portions of the car wall. Fig. 3 is an enlarged fragmentary view showing, from within the car, the lock side of a closed and locked door, the door post being in vertical section. Fig. 4 shows a horizontal section of the lock and contiguous portions of the door post and outer stop of the car wall. Fig. 5 is a vertical section of the lock, the plane of section being parallel to the car door. Fig. 6 is a vertical section through the door near the door post opposite the lock.

In these views, A represents the side wall of a car and B the usual sliding door carried by roller hangers C and held below by shoes C', and at its leading edge by the common beveled guides C² passing over a stop C⁴.

D represents a portion of the usual compressed air apparatus beneath the car, and D' the pressure retaining pipe leading to a valve D² at the top of the car, this valve being without novelty and operating in the usual manner, well understood by those familiar with air brake systems, to retain temporarily a certain pressure in the conduit. On the inner side of the door a metal bar E extends horizontally from edge to edge and is sunk in the mid-rail B' and stiles B² (Figs. 2, 3 and 6). It has a central channel extending nearly from end to end, and is held in place by bolts the nuts of which lie in the middle of the channel leaving a clear space on each side. At the locking edge of the door, this bar E has an inwardly extending, integral, upwardly open cup E', extending from the body of the bar toward the interior of the car that side of the cup facing the door post forming a keeper or catch E² to engage a latch, to be described. At the opposite end of the channel the bar is undercut at E⁰ to receive, when the door is fully closed, a forked hook E³ secured to the corresponding door post F and preventing this side of the door from moving from the car.

In horizontal alinement with the cup E' just mentioned a lock G is secured in a recess in the door or post F', and from its edge projects a pivoted latch G' in position to engage the keeper, or catch, E² when the door is closed. The latch is beveled so that the approaching keeper lifts it and its rising is resisted by a spring G², Fig. 5 the force of which may be adjusted by means of a screw G⁰. Beneath the middle portion of the latch is a piston G³ working in a cylinder G⁴ to which air is admitted through a passage G⁵, valve G⁶ and pipe G⁷ from the conduit D'. The opening of the valve is resisted by a spring G⁸ (Fig. 4) and its stem projects outward through the stop C⁴ in position to be pressed inward at will by hand. This stem is perforated at G⁹ to receive a seal G¹⁰ when desired.

Obviously, when the door is closed it is automatically secured at both edges by devices none of which are accessible from with-

out the car, and which prevent the falling or outward swinging of the door if the shoes or hangers, or both, cease to support it. The danger of the door's dropping and 5 derailing its own or other trains, or of swinging out and "side swiping" cars on another track is practically eliminated, preventing the now frequent loss of life and property from this cause. It is also obvious 10 that the pneumatic locking device may or may not be concealed by the lining or inner portion of the car wall, so long as it is not exposed to direct attack from without the car with any tool or implement.

15 As is well understood, the function of the valve at the top of the car is to retain temporarily in the conduits of the air brake system, when it is in closed position, a certain pressure of air—sometimes about fifteen 20 pounds—after the brakes have been set by the engineer and then released. This action having been taken, if the spring above the locking latch yields with a little less than fifteen pounds of air pressure in the cylinder 25 beneath, the opening of the valve G^c, by pushing inward on its stem, causes the piston to rise, lifting the latch and unlocking the door. Since this pipe D' carries no pressure ordinarily, opening the valve has no 30 effect except when the engineer coöperates in the unlocking by setting and then releasing the brakes.

What I claim is:

35 1. The combination with a car equipped with air brakes and provided with a pressure retaining valve conduit, of a pneumatic lock, for the car door, and an air conduit leading from said conduit to said lock to furnish to the latter lock-operating air.

40 2. The combination with a car and its sliding door, of a pneumatic lock within the car wall, arranged for holding one lateral

margin of the door from movement from the car while locking the door against sliding, and a device at the opposite side of the 45 door adapted to engage automatically, when the door is fully closed and hold this side against falling or moving from the car.

3. The combination with a car and its sliding door, of a pneumatic lock fixed 50 within the car wall alongside the doorway and provided with a latch arranged to move in one plane only, and a catch or keeper secured to the door within its outer portion and adapted to receive said latch as the 55 door closes and to be held by parts which it overlaps, when in closed position, against material outward movement from the plane in which the door normally lies.

4. The combination with a car equipped 60 with an air brake and provided with a pressure-retaining valve and a conduit leading thereto, of a pneumatic lock for the car door, within the car wall, a second air conduit leading from said conduit to said lock 65 to supply operating air to the latter, and a valve, operable from without the car, interposed in said second air conduit.

5. The combination with a car equipped 70 with an air brake and provided with a pressure retaining valve and a conduit leading thereto, of a pneumatic lock for the car door within the car wall, a valved conduit leading from said conduit to said lock, a 75 spring resisting the releasing movement of said lock, and means for varying the force of said spring.

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

FRANK J. GILROY.

Witnesses:

WILLIAM LONG,
JAS. A. BAUTZ.