

G. MAZZOLINI.
DOOR OPERATING MECHANISM.
APPLICATION FILED DEC. 14, 1907.

938,068.

Patented Oct. 26, 1909.

Fig. 1

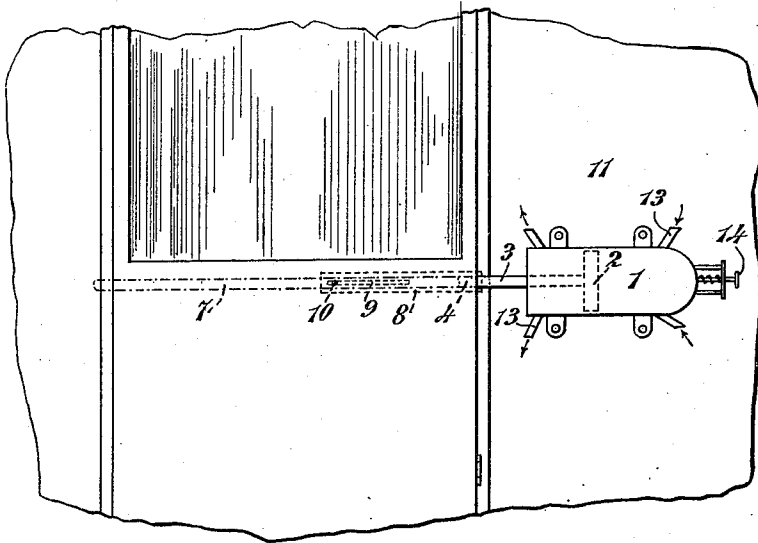


Fig. 2

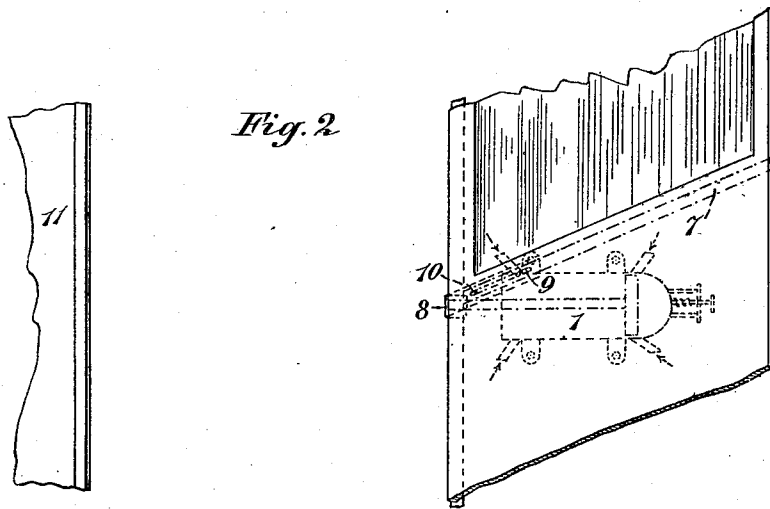


Fig. 3

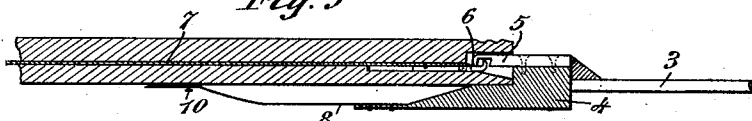
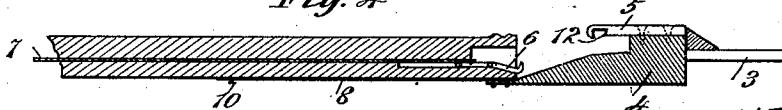


Fig. 4



WITNESSES

W. P. Bunn
John A. Lercival

INVENTOR

Giuseppe Mazzolini
(Signature)

UNITED STATES PATENT OFFICE.

GIUSEPPE MAZZOLINI, OF ROME, ITALY.

DOOR-OPERATING MECHANISM.

938,068.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed December 14, 1907. Serial No. 406,546.

To all whom it may concern:

Be it known that I, GIUSEPPE MAZZOLINI, a subject of the King of Italy, residing at Rome, Italy, gentleman, have invented certain new and useful Improvements in Door-Operating Mechanism for Railway-Carriage Doors or other Doors Generally, of which the following is a specification.

The object of the present invention is to provide a safety door bolting device permitting of simultaneously and mechanically closing and bolting, or opening and unbolting from a distance by mechanical, pneumatic or electric steam or other suitable means doors generally, and especially the doors of railway cars, the said device comprising a suitably operated piston rod connected to the door by a spring plate fixed at one end to a wedge block and engaging with a longitudinal slot at its other end and a catch tappet or stud fixed on the back side of the door which may be lined with wood, metal sheet or other means. The spring plate serves the double purpose of opening by traction the previously unbolted railway car or other doors, or closing them in order to be bolted, according to the piston advancing or retiring. The piston is controlled by the engineer or head-guard of the train which are able from their place to simultaneously close and bolt or open and unbolt a number or all of the doors of the train cars by simply reversing a cock or valves so as to send compressed air (or another medium) into either the front or the back part of the piston cylinder thus causing the piston to either retire or advance, so as to either open or close the doors by the piston rod. The front end of the piston rod is so connected to the door that when the latter has been shut by the pressure of the spring plate fixed to the piston rod, the nose of the hook at the top of the wedge on the further advancement of the piston rod strikes a hinged or pivoted counter-hook fixed to the back end of the bolt rod whereby the latter is pushed home into its bolting position while the counter-hook in assuming a horizontal position engages the hook. Railway car doors thus bolted cannot be opened either from within or without by accident or by unauthorized persons while the train is running, but will be only opened by the engineer when the train stops.

A form of the invention has been shown by way of example in the annexed drawing where—

Figure 1 is an elevation of a railway car door, closed and bolted, with my improved mechanical closing and bolting device, Fig. 2 is a perspective view of an opened car door, and Fig. 3 is a detail view showing the front end of the operating piston rod, and back end of the bolt rod applied to a railway car door, and Fig. 4 shows the preceding device in open position.

The closing device comprises a cylinder —1— provided with a safety valve 14 and in which works a piston —2— operated *f. i.* by compressed air, the piston rod —3— having at its front end a sloping nose —4— with a hook 5 designed for engagement with a counter-hook —6— at the back end of the bolt rod —7— the length of which is about the whole width of the door. The end of the piston rod is furthermore connected to the bolt-rod —7—, as has been stated, by a spring plate 8 having a slot —9— engaging a catch tappet or stud —10— fixed on the back side of the door. The function of the said slotted spring plate, as has been stated, is to be capable of yielding to or following the opening and closing movements of the door though being connected to the piston rod and bolt.

The operation of the device is as follows: Suppose the train is to start and the signal of departure having been given all of the passengers are in, the engineer or chief-guard of the train by operating a cock or other suitable device sends say compressed air into the cylinder —1— whereby the piston —2— will be so pushed toward the door that the piston rod 3 connected to the spring plate 8 causes the end of slot 9 of the said plate to strike the catch tappet 10 so as to thereby swing the door from open (Fig. 2) into closed position (Fig. 1) and on its further progress strikes by tooth —12— of hook —5— the counter-hook 6 placed at the back end of the bolt rod —7— the front end of which enters the corresponding keeper or staple thus bolting the door while the hook and counter hook remain engaged together. To unlock the doors the engineer by reversing the cock or other controlling device and sending the medium through tube —13— into the front part of cylinder —1— will

move the piston —2— in the opposite direction which by its back stroke will withdraw piston rod 3 and thereby spring plate —8—. The latter by striking with the front end of its slot —9— the catch button —10— will draw the bolt —7— out of its keeper thus unbolting the door, and by its further back movement swing it open (Fig. 2).

It is obvious that the spring plate and catch button device may as well be omitted, in which case closing and opening will be effected by the guards, and only bolting and unbolting by the mechanic device, namely by the piston rod pushing the bolt directly home into its keeper to bolt the door, or withdrawing it therefrom by the engagement of the hook and counter-hook to unbolt the door.

Suitable safety devices may be provided to allow the travelers in case of accident to unbolt and open the door from within.

Having now fully described my said invention and the manner in which the same is to be performed, what I claim and desire

to protect by Letters Patent of the United States, is:

A door closing and opening, and bolting and unbolting mechanism as described, comprising, in combination, motor fluid conduits, a cylinder connected thereto, a piston working in the said cylinder, a piston rod having a sloping front end, a hook on the piston rod, a bolt rod, a hinged or pivoted counter hook on the back end of the said bolt rod capable of engaging the said hook, a striking and engaging tooth on the said hook, a spring plate connected to the piston rod, a slot in the said spring plate, and a stud provided on the back side of the door and slidably engaging the said slot, substantially as described.

In witness whereof I have hereunto set my signature in the presence of two witnesses.

GIUSEPPE MAZZOLINI.

Witnesses:

DIULI WALDONI,
A. ROZZI.