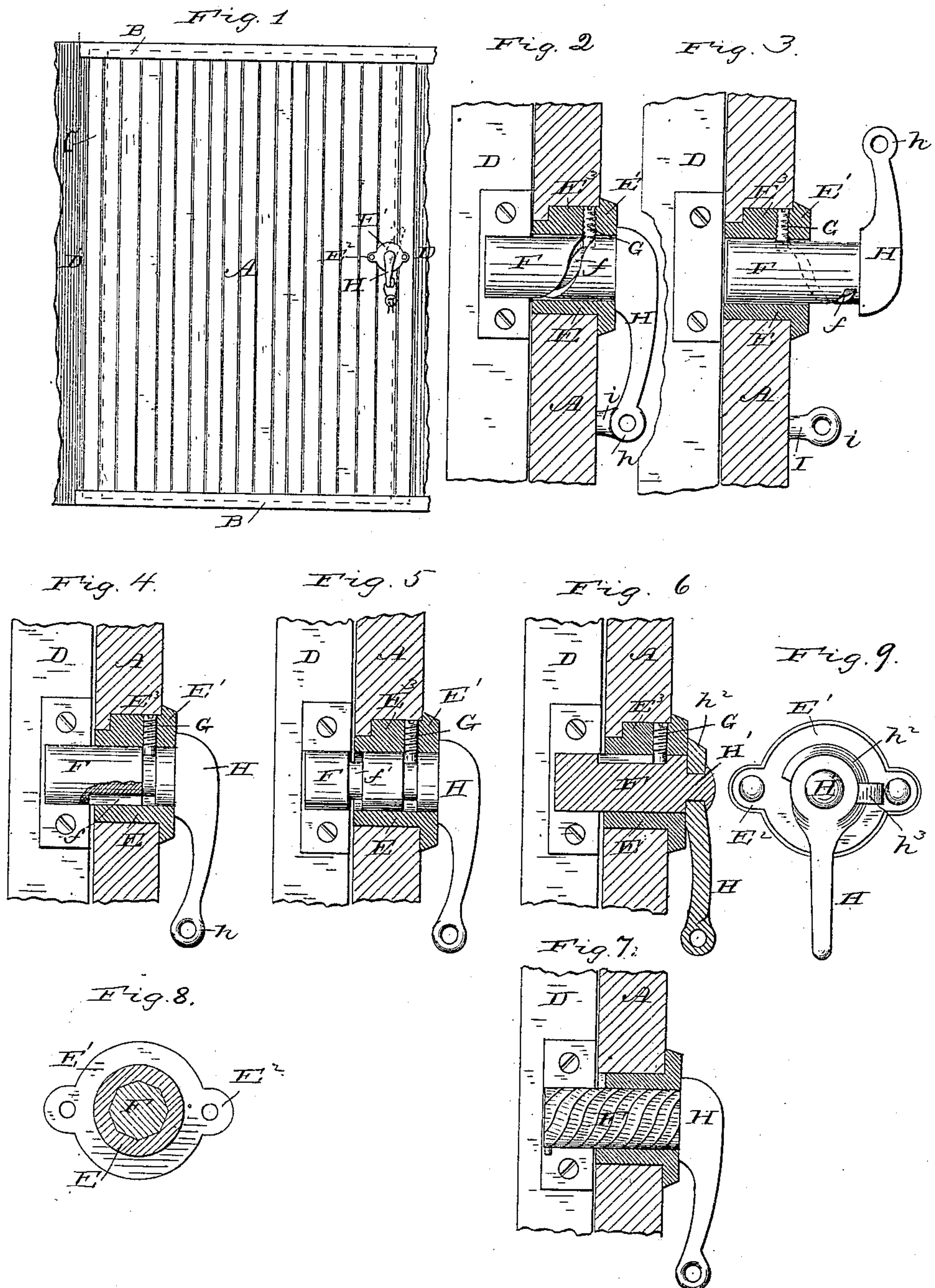


(No Model.)

W. JOHNSON.  
SLIDING CAR DOOR BOLT.

No. 267,539.

Patented Nov. 14, 1882.



Witnesses:

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# UNITED STATES PATENT OFFICE.

WALTER JOHNSON, OF JACKSON, MICHIGAN.

## SLIDING CAR-DOOR BOLT.

SPECIFICATION forming part of Letters Patent No. 267,539, dated November 14, 1882.

Application filed May 22, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER JOHNSON, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Fastenings for Freight-Car Doors, of which the following is a specification, reference being had therein to the accompanying drawings.

Heretofore it has been customary to fasten freight-car doors at the front edge in most cases—that is to say, at the edge opposite to the post in front of which the door slides. In some cases fasteners have been used at the rear edge of the door, such fasteners consisting of spring-locks engaging with iron rails on the side of the door. The fasteners of this last class have been found useless from the fact that they have been complicated more or less, being constructed with small parts easily disarranged and broken. Moreover, they have necessitated the use of keys, and car-fasteners requiring the use of keys have now been almost entirely superseded, owing to the inconvenience arising from the fact that so many keys were required at all the points along the roads. Again, these spring-fasteners that have been used at the rear edge of the doors have necessitated the use of a bar (generally metallic) upon the side of the car, against the end of which or in a recess in which the spring-lock is fastened.

The object of my invention is to provide a fastener for a car-door which shall have a strong heavy bolt projecting directly through the body of the car-door itself from the outside to the inside, the inner end adapted to bear directly against the rear post and the outer end adapted to have a handle and fastening device attached thereto.

The fastener is so constructed and arranged as to hold the door with the greatest available force, differing essentially from those secured at the front end of the door, in that the shocks or opening strains tend to tear a door to pieces when secured in the last aforesaid manner, and in a construction like mine the materials of the door are crowded together more tightly rather than pulled apart, the bolt passing entirely through the door and distributing the strain evenly.

The spring-fastenings at the rear edges of the doors heretofore used have not been so arranged as to prevent the tearing and breaking strain, as they have been mounted upon the inside and against the inner face of the door entirely, and in such a way as to hold the door with but little force, the screws or rivets being so small as to be easily torn loose.

In another respect my fastener is superior to the spring-catches last above mentioned, as the bolt projects entirely through the body of the door, so that no key is required for withdrawing it, and it can be sealed conveniently, all of the parts of the fastener being mounted upon and carried by the door itself. As I utilize the rear post of the doorway, I provide thereby the strongest abutment in the cars as ordinarily constructed for resisting the strain of the door. If desired, a metal wearing-plate may be fastened against the face of the post at the point receiving the impact of the bolt, though this is not essential to the main features of the invention.

Figure 1 is a side elevation of as much of a car as is necessary to illustrate the method of applying my invention to the door thereof. Fig. 2 is a vertical section on the line *x x*, Fig. 1. Fig. 3 is a similar section, showing the bolt withdrawn. Fig. 4 is a vertical section of a modified form of bolt, it having a straight slot to permit the reciprocating of the bolt. Fig. 5 shows another slightly-modified form, in which two circular slots are used to permit the rotation of the bolt both while in its innermost position and in its outermost. Fig. 6 shows another modified form of the invention, in which the fastening of the bolt is effected by means of a cam and an inclined surface of the handle. Figs. 7 and 8 illustrate another fastening device, Fig. 8 showing a bolt polygonal in cross-section, the faces of which are arranged on helical lines to provide reciprocation when they engage with the correspondingly-shaped socket or bearing-piece shown in Fig. 9. Fig. 9 is an outer face view of the fastener shown in Fig. 6.

This invention provides a means of fastening the sliding door of freight or other cars by means of a reciprocating bolt carried by the door itself and adapted to engage with and



bear directly against the vertical post at the rear side of the doorway.

In the drawings I have shown several forms of devices embodying my invention, all being intended to be mounted in substantially the same manner, and to bear against the aforesaid rear post of the doorway in the car.

The sliding door itself is represented by A, and in the details of construction it may be of any of the ordinary or of any preferred form. It is shown to be mounted in ways provided by the upper and lower grooved rails, B B. The door is inclosed by the vertical posts D D'.

C is an abutment or stop-piece for the door at the front edge of the doorway.

The bolt is mounted in the rear end of the door. It is provided with a metallic socket or bearing piece, which is preferably constructed, as shown, with a longitudinal part, E, and the outer plate, E', by means of which outer plate it is securely riveted in position, there being ears or expanded parts E<sup>2</sup> formed with it for receiving the rivets. If desired, a corresponding plate may be attached to the inner face of the door around the bearing-piece E, though with doors as ordinarily constructed this supplemental inner plate will not be found necessary.

In the construction shown in Fig. 1 the longitudinal part E is substantially cylindrical in form, and through it passes the fastening-bolt F, which in this construction is also cylindrical. The part E of the bearing-piece has preferably an expanded part, E<sup>3</sup>, formed by a thickened piece of metal cast with or attached to the part E. This serves both as a holder for a pin or screw, G, and also to assist in keying the bearing-piece E in the wood to prevent its being loosened or turned.

The bolt F in the construction shown in the last aforesaid figure has a spiral groove formed in its surface, adapted to engage with the pin or screw G.

It will be seen that if the bolt F be rotated the pin engaging with it by means of the slot will cause the bolt to slide longitudinally. The bolt is long enough to project through the bearing-piece sufficiently far to engage with the rear door-post, D, when it is desired to lock the door.

At the outer end the bolt carries a handle, H, preferably cast or formed in one piece therewith. The handle is curved or bent downwardly, and at the lower end is provided with an eye, h, which, when the bolt is in its innermost position, registers with an eye, i, carried by a locking-piece, I, which passes through the door, and is fastened, preferably by riveting, on the inside. When the eye h thus registers with the eye i the handle can be locked or sealed in such way as to hold the bolt in engagement with the post. The slot f is of such length that when the handle H is turned a little more than half of a revolution the bolt is in its outermost position, and in this position it will be held by means of the gravity of

the handle, which at this time is beyond the central vertical line, as shown in dotted lines in Fig. 1.

By these devices a simple but very strong and durable fastener is provided, and when arranged as shown and described it holds the door in place with the greatest available power, and is much superior to those in which the locking devices or fasteners have been carried by the car, or those attached to the door at the lower end and arranged to engage with the rail.

It will be readily understood that the devices may be varied without departing essentially from the spirit of my invention. Thus the bolt may be arranged to reciprocate without rotation, as shown in Fig. 4, in which case the slot f is straight or parallel with the axis of the bolt, the pin being preferably on the upper side. When the handle is extending downward it is impossible to withdraw the bolt. If it be rotated until the pin G registers with the slot, it can be drawn out and will be held in its drawn position by the walls of the slot; or there may be a circular or annular slot, f', formed at the inner end of the slot f, as shown in Fig. 5, so that after the bolt is withdrawn the handle may be brought down to a vertical position.

The bolt may be locked in its innermost position by means of a rotating handle, H, loosely mounted on a spindle, H', projecting from the bolt, as shown in Figs. 3, 6, and 9, and the handle may be utilized to seal lock the bolt in position by having its outer edge or perimeter beveled, as shown at h<sup>2</sup>, and having a lug, h<sup>3</sup>, arranged to engage with said beveled edge.

A very cheap though strong and durable fastening may be formed by means of a bar polygonal (preferably octagonal) in cross-section, the faces being situated in spiral paths. The corners or angles operate after the manner of screw-threads to produce a longitudinal movement of the bolt when it is situated in the socket or bearing piece, the inner surface of which is in this case made to conform to the outer surface of the bolt.

For some reasons it is better to make the bolt hollow, as it can be made in that way much lighter and with assurances of a better casting without appreciably diminishing the strength or durability.

I have before mentioned the fact that use has been made of spring-fasteners, one end of the springs being screwed or riveted to the inner face of the door and the other bent to provide a locking-arm, and I do not claim such devices as my invention.

I am also aware that use has been made heretofore of a sliding bolt mounted on a line parallel with the plane of the door and combined with a surrounding metal bearing-piece, the bolt and bearing-piece being provided with a pin and spiral slot arranged to hold the parts in proper position, and I do not claim such devices as my invention; but I am not aware



that use has ever been made of a bolt sliding in and out through the body of the door itself to engage with the rear door-post, and provided with a surrounding metal bearing-piece, also situated transversely through the body of the door itself, and provided with connecting devices adapted to accomplish the purposes at which I aim.

I am further aware that use has been made of a stationary eye-piece attached to the door, and a swinging or vibratable handle having its end arranged to pass through the eye-piece for sealing the lock, and I do not broadly claim as my invention a lock having a swinging handle adapted to register with an eye-piece for locking or sealing; but I am not aware that use has ever been made of a bolt passing directly through the door to move in and out, that its inner end may be utilized to fasten the door against a post and its outer end provided with a handle adapted to register with a stationary eye piece for receiving the seal. In the constructions heretofore used the swinging handle always vibrates in only one plane, for it has not been the purpose to have the axial part attached to said handle operate as a bolt on the inside of the door, and also have the handle operate as a support for a seal. If the axial part be capable of these two functions, it is necessary that the vibrating handle should swing in more than one plane—that is to say, there is a combined rotating and rectilinear reciprocation of the fastener.

I know also that cars have been constructed with locks situated in chambers formed in the side or wall of the car at or near the rear edge of the door. These, however, have been more or less of the ordinary kind of locks—that is to say, they have consisted of numerous parts, and have not been particularly related to that part of the car upon which I rely to effect a

fastening—to wit, the rear door-post. By bringing the abutment provided by said post into use I can effect all that is required by means of a simple bolt or bar of iron passing directly through the door, one end effecting the fastening and the other carrying the seal or lock.

I do not herein claim anything but what is specifically set forth in the following claims, reserving the right to claim any other patentable features which I have herein shown in another application which I am about to file.

What I claim is—

1. The combination, with the sliding door, the stationary abutment or stop for the door at one edge, and the rear post at the opposite edge, of the sliding bolt mounted in the body of the door itself, at the rear edge thereof, on a line transverse to the path of the door, and arranged to have its inner end engage directly with said rear door-post, whereby the door abuts directly against said rear post when locked, and to have its outer end project beyond the outer face of the door, whereby it can be utilized to carry the seal or lock, substantially as set forth.

2. The combination, with the stationary eye-piece I, attached to the door, of the bolt, which both rotates and slides in and out relatively to said eye-piece to carry its inner end into and out of engagement with the post, and is provided with a laterally-projecting handle having an eye which, when the bolt is moved in, registers with the eye-piece I, substantially as set forth.

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

WALTER JOHNSON.

Witnesses:

ALBEE NORTON,  
ROBT. D. KNOWLES.