No. 775,618. PATENTED NOV. 22, 1904.

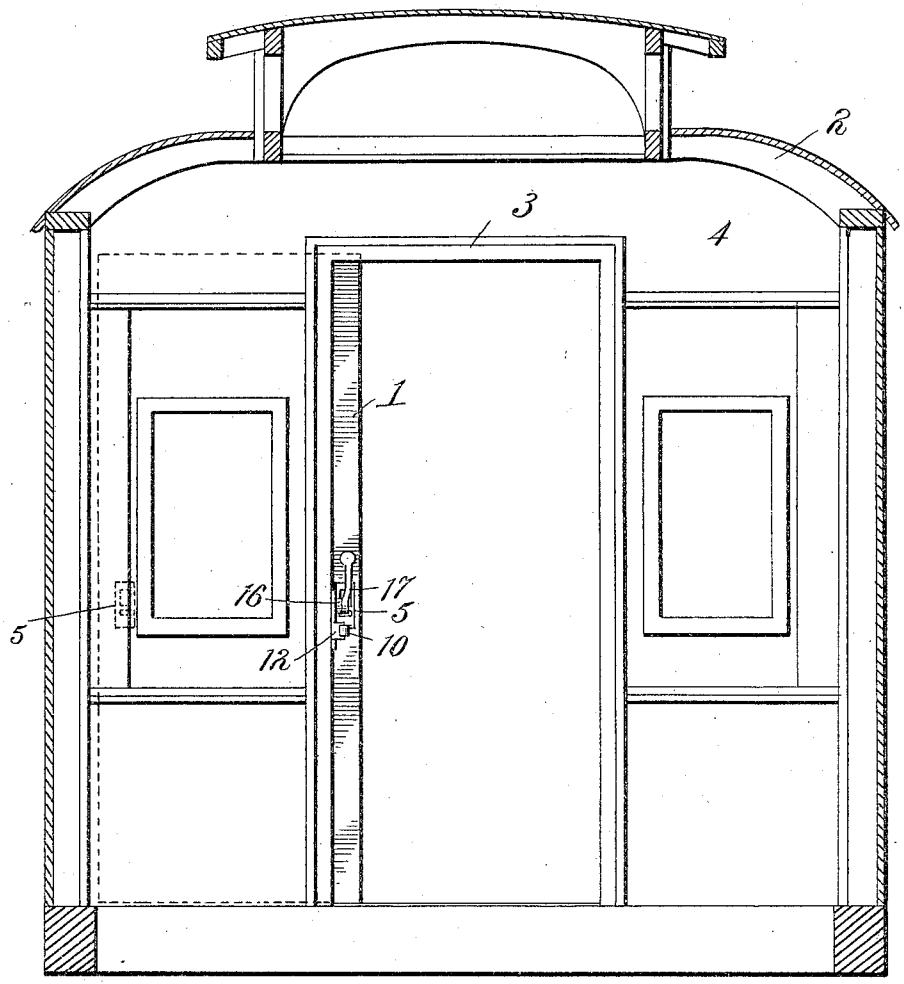
A. W. ZIMMERMAN.

SLIDING DOOR FASTENER.

APPLICATION FILED JULY 7, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.



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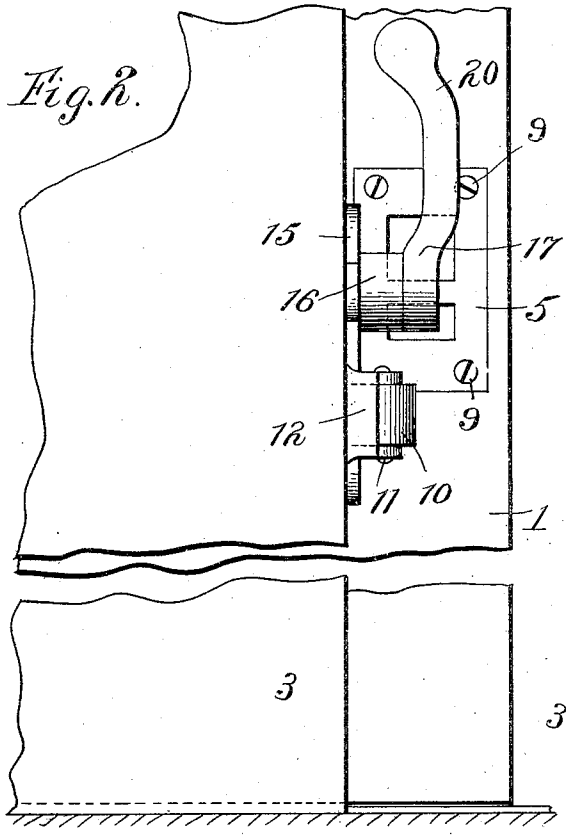
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SLIDING DOOR FASTENER.

APPLICATION FILED JULY 7, 1904.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 2.



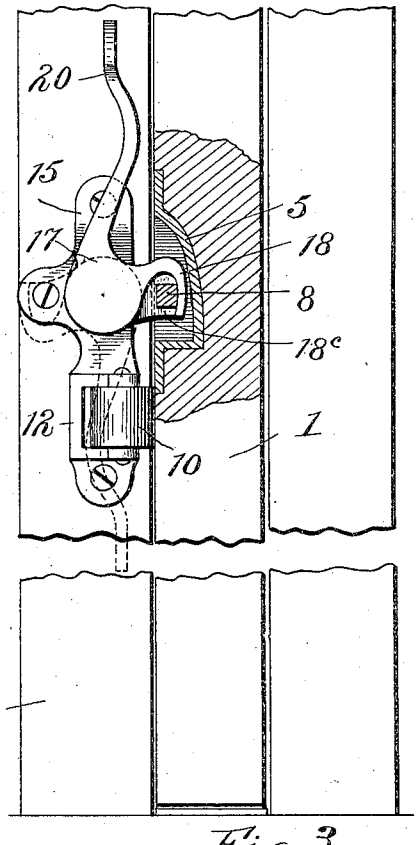


Fig. 3.

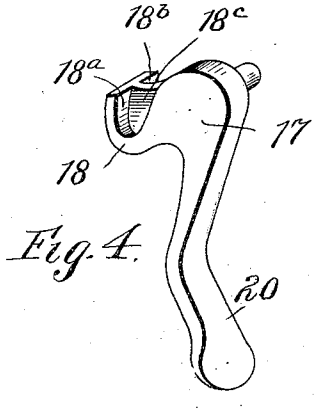


Fig. 4.

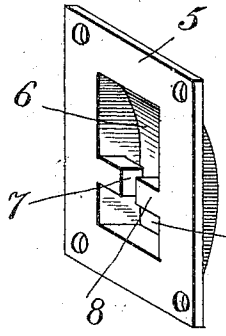


Fig. 5.

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No. 775,618. Patented November 22, 1904.

UNITED STATES PATENT OFFICE.

ARNOLD W. ZIMMERMAN, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO PETER M. KLING, OF ELIZABETH, NEW JERSEY.

SLIDING-DOOR FASTENER.

SPECIFICATION forming part of Letters Patent No. 775,618, dated November 22, 1904.

Application filed July 7, 1904. Serial No. 215,615. (No model.)

To all whom it may concern:

Be it known that I, ARNOLD W. ZIMMERMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sliding-Door Fasteners, of which the following is a specification.

The present invention is particularly applicable to the sliding doors of street-cars, the main purpose being to provide a simple and effective latching device for locking the door in opened or closed position and securely holding it in either position, so as to prevent the rattling of the door from the vibrations of the car.

The invention consists of the combination with a yielding buffer or cushion, preferably in the form of a rubber roller mounted upon the door-frame in position to engage the face of the door, of a cam hook or latch pivoted upon the door-frame adjacent to said buffer or cushion and adapted to engage a socketed latching plate or keeper mounted upon the door and by its engagement force the door into intimate contact with the buffer or cushion, thereby locking the door against movement into open or closed position and at the same time firmly secure the door against the rattling in the door-frame. I prefer to provide the door with two latching plates or keepers, one arranged adjacent to each edge of the door, so that the single latching or locking device can engage either one of said latching plates or keepers for securing the door in opened or closed position.

In order that my invention may be more fully understood, I will first describe the same with reference to the accompanying drawings and afterward point it out with more particularity as to novelty in the annexed claims.

In said drawings, Figure 1 is a vertical transverse sectional view of a street-car, representing my invention applied to the sliding door. Fig. 2 is a detail front elevation of my improved fastening device. Fig. 3 is a detail side elevation of the same, the latching plate or keeper being shown in section. Fig. 4 is a detail perspective view of the cam-latch removed from its support. Fig. 5 is a detail perspective view of the latching plate or keeper.

In Fig. 1 of the drawings I have shown the invention applied to a sliding door 1, mounted to slide transversely of the car 2 in a centrally-arranged door-frame 3. In this representation in Fig. 1 the door-frame 3 forms a part of a partition 4 of a compartment-car such as is now commonly employed on suburban roads. The invention is represented as applied to such a sliding door, because these doors are usually the most troublesome to hold securely in the door-frames. I would have it understood, however, that I do not limit my invention to this application of the particular kind of sliding door, since it will be clear from the description of the same that it may be applied to all kinds of sliding doors which are subject to the objectionable rattling caused by the vibration of a moving car.

The sliding door 1 is provided upon its face with one or two latching plates or keepers, such as 5. Only one of these plates is needed when it is desired to secure the door in only one position; but I prefer to provide the door with two such plates, one arranged upon the face of the door adjacent to its inner or closing edge, while the other is arranged upon the face of the door adjacent to its rear edge. Each of these latching plates or keepers is preferably constructed, as shown in the drawings, in the form of a mortise-plate adapted to be mortised into the face of the door, so as to bring the plate flush with the door-surface. The latching-plate has a socket 6 for the reception of the cam-hook of the latch hereinafter described and two inwardly-projecting latching-lugs 7 and 8, which project from the side walls of the socket 6 and are separated at their inner ends by a small space to allow the passage of the central web of the cam-hook, presently to be described. The latching-plates 5 are secured in the surface of the door by means of screws 9, as shown.

10 is a soft-rubber roller journaled upon a vertical pin 11, mounted in a yoke-shaped bracket 12, which is suitably secured to one

of the vertical side rails of the door-frame. This rubber roller 10 is so mounted upon the door-frame that its periphery projects a little beyond the door-frame in the recess in which the sliding door 1 is mounted.

Formed integral with the yoke-shaped bracket 12 is a bracket-plate 15, having a stud or hub 16, in which is journaled the latching-hook. The latching-hook comprises a hub portion 17, upon which is journaled a cam-hook 18, formed with two cam-surfaces 18^a and 18^b, and a central strengthening-web 18^c. A suitable operating handle or lever 20 is also formed integral with the cam-latching hook. The latching-hook is journaled upon the vertical face of the door-frame sufficiently close to the door-recess to project over into and engage the locking-plate.

The operation of the improved fastening device will be clear from the following explanation: When it is desired to securely fasten the door in either open or closed position, the door is placed in the desired position, and the lever 20 of the latch is thrown up to cause the cam-hook 18^a and 18^b to enter the socket 6 of the latching-plate 5 and engage beneath the latching-lugs 7 and 8, the strengthening-web 18^c of the hook passing through the space which separates the lugs 7 and 8. The lever 20 is forced over against the face of the door, causing the cam-hook to draw the door over to the door-frame on which the cam-hook is mounted and forcing the face of the door into intimate engagement with the rubber buffer-roller 10, thereby securely clamping the door between the cam-hook and the buffer to prevent rattling and at the same time secure the door against movement in the door-frame.

It will be observed that the operating-handle 20 is so shaped that when the latch is unlocked the lever will project around the buffer-roller 10 and will not interfere with the free rotation of the roller 10, caused by the sliding of the door in the door-frame.

I am aware that I am not the first to provide a rubber buffer-roller for engaging the face of a sliding door to prevent rattling; but I am not aware that it ever has been proposed to combine with said buffer-roller a latching device such as illustrated and described for securely clamping the door against the buffer-roller and effectively preventing objectionable rattling.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The combination of a door-frame, with a door movably mounted in the frame, a latching-lug upon the door, a buffer secured to the door-frame in position to engage the door, and a latch mounted upon the door-frame adjacent to the buffer in position to engage the latching-lug for securely clamping the door against the buffer, substantially as set forth.

2. The combination of a door-frame, with a door movably mounted in the frame, a latching-plate mortised into the door and formed with a latching-lug, a buffer-roller journaled upon the door-frame in position to engage the door, and a cam-latch mounted upon the door-frame adjacent to the buffer-roller and adapted to engage the lug of the latching-plate to clamp the door against the buffer-roller, substantially as set forth.

3. The combination of a door-frame, with a sliding door mounted in the frame, a latching-plate mortised in the door and formed with a latch-receiving socket and two inwardly-projecting separated latching-lugs, a buffer mounted upon the door-frame in position to engage the door, and a cam-latching hook formed with two cam-faces 18^a and 18^b, and a web 18^c, substantially as set forth.

4. The combination of a door-frame, with a sliding door mounted in the frame, a latching-lug secured to the door, a buffer mounted upon the frame in position to engage the door, a latching-hook formed with a cam-latch which is adapted to engage the latching-lug, and an operating-lever, substantially as set forth.

5. The combination of a door-frame, with a sliding door mounted in the frame, a latching-plate secured to the door, a buffer mounted upon the door-frame in position to engage the door, a latching-hook also journaled upon the door-frame adjacent to the buffer and adapted to engage the latching-plate, and an operating-handle on the latching-hook shaped to fit around the buffer when the latch is in released position, substantially as set forth.

6. The combination of a door-frame, with a sliding door movably mounted in the frame, two latching-plates secured to the door, one adjacent to each of the front and rear edges of the door, a buffer mounted upon the door-frame in position to engage the door, and a latching-hook also mounted on the door-frame adjacent to the buffer and adapted to engage either one of said latching-plates, substantially as set forth.

7. The combination of a door-frame, with a sliding door mounted in said frame, a latching-plate secured to the door, a buffer adapted to engage the door, a latch adapted to engage the latching-plate, and a bracket-plate secured to the door-frame and supporting both the buffer and the latch, substantially as set forth.

ARNOLD W. ZIMMERMAN.

Witnesses:
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WM. E. KNIGHT.