March 20, 1928.

1,663,428

E. R. VIBERG

BUFFER MECHANISM FOR CAR DOORS

Filed July 8, 1925

2 Sheets-Sheet 1

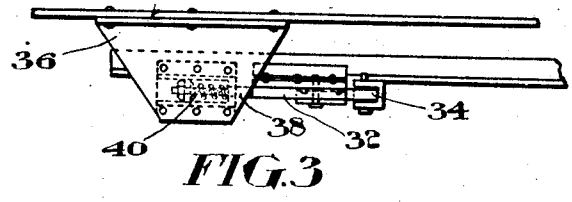


FIG. 3

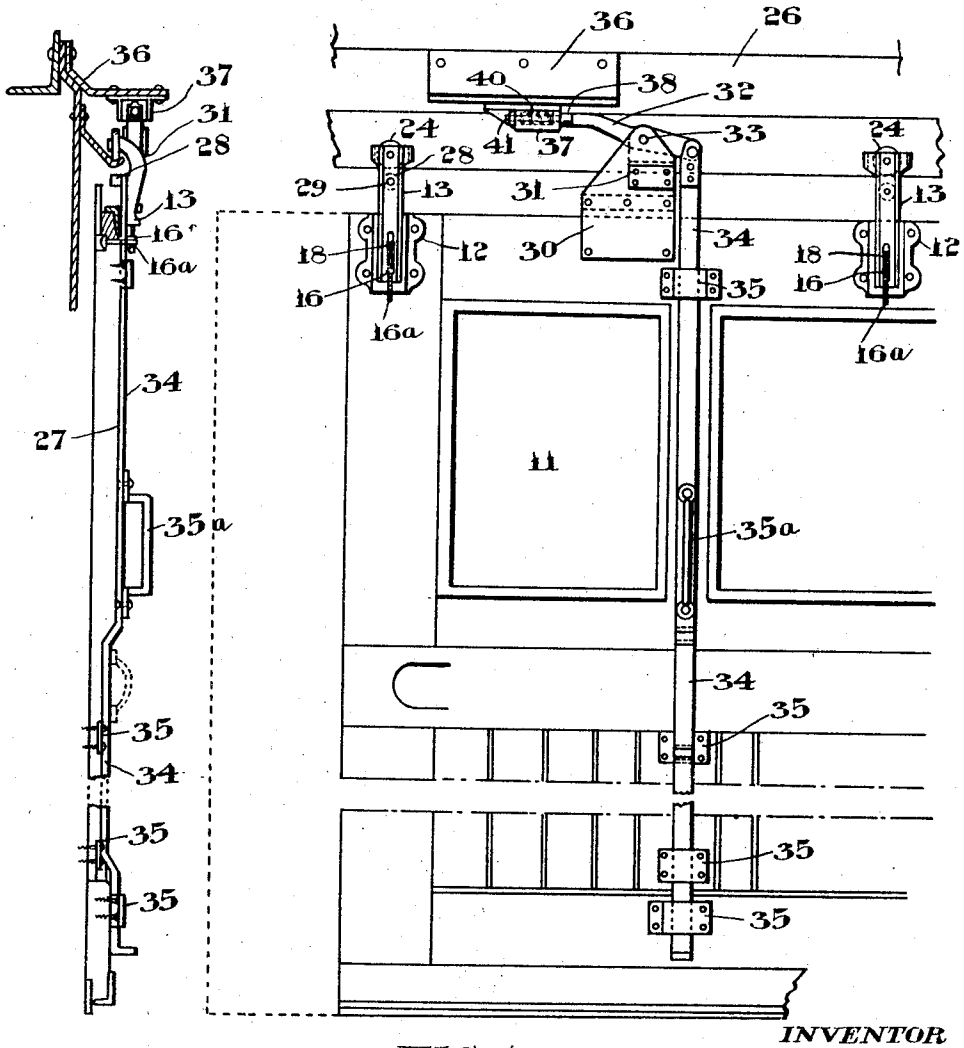


FIG. 2

FIG. 1

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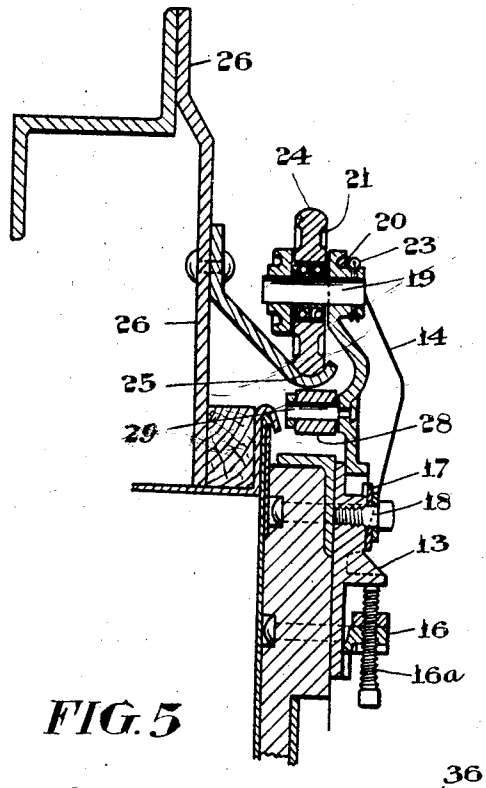


FIG. 5

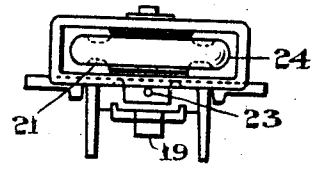


FIG. 6

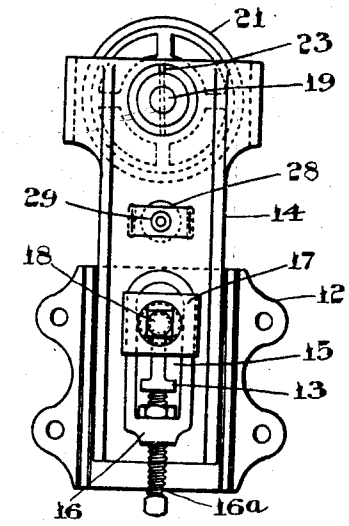


FIG. 4

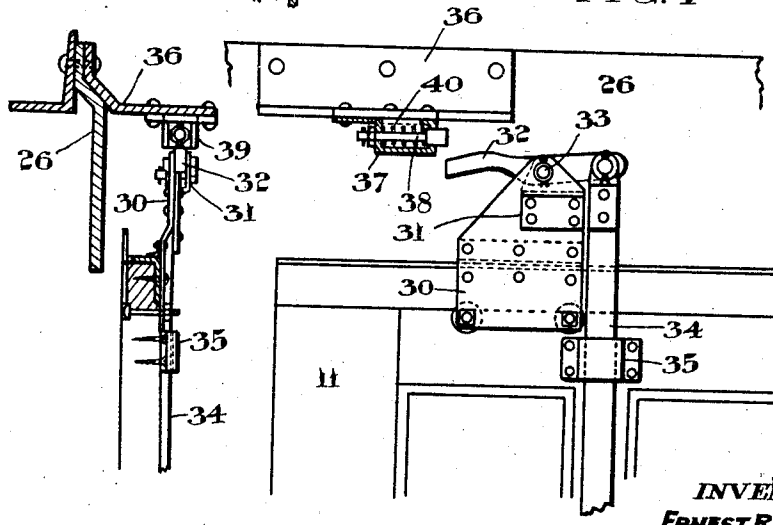


FIG. 8

FIG. 7

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UNITED STATES PATENT OFFICE.

ERNEST R. VIBERG, OF MONTREAL, QUEBEC, CANADA.

BUFFER MECHANISM FOR CAR DOORS.

Application filed July 8, 1925, Serial No. 42,257, and in Canada August 4, 1923.

This invention relates to new and useful improvements in sliding doors and is specially adapted for use in railway baggage and mail cars or the like.

The object of the invention is to provide a sliding door of the self-centering type, which will be simple, smooth and safe in operation.

Another object is to provide a sliding door which will not bind during operation.

A further object is to provide a sliding door which will automatically remain open when shunting or shifting open cars in the yards, or when the brake is suddenly applied, as in emergency brake action.

A still further object is to provide a sliding door which may be adjusted on its hangers to allow free movement of the door.

In my invention, I provide a sliding door with ball bearing runners rotatably mounted on adjustable hangers fastened to the door. The runners are mounted on a grooved runway securely attached to the lintel of the door. Small guide rollers are fitted to the hangers and are adapted to engage with the underside of the runway when the door tends to lift clear of the runway. Automatic means are also provided to prevent an open door from closing during shunting or shifting operations in the yards or during emergency brake action, and said means is provided with a manually operated device for releasing the automatic means when closing the door.

In the drawings which illustrate my invention;—

Fig. 1 is a front elevation of a sliding door for a baggage car.

Fig. 2 is an edge elevation of the door.

Fig. 3 is a plan view of the buffer stop.

Fig. 4 is a front elevation of the hanger.

Fig. 5 is a sectional elevation of the hanger.

Fig. 6 is a plan view of the hanger.

Fig. 7 is a front elevation of the automatic stop.

Fig. 8 is an end elevation of the stop.

Referring more particularly to the drawings, 11 designates a door, which is provided with supporting guide brackets 12 having projections 13. Slidably mounted and guided in the brackets 12 are the hangers 14, which are provided with slots 15 through which the projections 13 extend. Cast integral with the hangers and positioned at the bottom of the slots are the bosses 16, through which adjusting screws 16ª are passed and are adapted to engage with the projections 13 for adjusting the height of the door. The hanger brackets are kept from outward movement by means of the washers 17 engaging with the edges of the slots, said washers being held in position by the screws 18 engaging with the guide brackets. Rotatably mounted on pins 19 passing through bearings 20 cast integral with the hangers are the runners 21, between which and the pins, ball bearings 22 are mounted. The pins 19 are fastened in position by means of the split pins 23. The runners have transversely curved treads 24 which run in a grooved runway 25 riveted or otherwise secured to the lintel 26 of the door. The door is supported by the runners, so that it frictionally engages with the door framing. To prevent upward movement of the door, rollers 28 are provided and rotatably mounted on spindles 29 which are riveted to the hanger brackets, said rollers being so positioned that they engage with the underside of the runway on the least upward movement of the door. As will be readily understood, the door being mounted on ball bearings is very easy in its movement and, when shunting or shifting operations are in progress, an open door is apt to close very rapidly due to the sudden starting and stopping of the train and this may cause injury to the baggage man or car attendant. To prevent any accidents of this type, the door is provided with an automatic stop, which is constructed as follows:—Securely attached to the door are the brackets 30 and 31, in which a lever 32 is oscillatably mounted on a pin 33. Attached to the end of the lever is the handle bar 34, which is slidably held in position by the brackets 35. The handle 35ª is securely attached to the handle bar in a convenient operating position. The weight of the handle bar holds the lever in the position shown in Figure 1. Riveted to the lintel of the door is the angle bracket 36 which supports the plunger bracket 37. The plunger 38 is slidably mounted in the bracket 37 and is provided with a shoulder, between which and the web 39 a compression spring 40 is placed. The position of this bracket is such that when the lever engages with the end of the plunger, the door will be slightly open. The end 41 of the bracket 37 is bevelled so that the lever when passing said bracket will

gradually raise the handle and also prevent any jamming movement.

The operation of the device is as follows:—

The door, being mounted on ball bearings, is very easy to move backwards and forwards in the runway. The runway is grooved to receive the transversely curved tread of the runners and is therefore self-centering, the maximum diameter of the runners always tending to ride in the bottom of the groove. If through any inadvertence the door should tend to rise, the rollers engage with the underside of the runway and thus prevent the runner from riding clear of the groove. When opening the door, the plunger bracket engages with the upper edge of the lever and raises the handle. Immediately the lever passes the plunger bracket, the weight of the handle pulls the lever into engaging position with the plunger, as shown in Figure 1, and prevents the door from closing until the lever is placed in the inoperative position by raising the handle bar. The plunger is provided with a spring to reduce or cushion the shock caused by the door tending to close during sudden starting or stopping of the travelling of the car in which the door is mounted.

Having thus described my invention, what I claim is:—

1. A buffer mechanism for car doors and the like comprising latch means which will allow the door free movement in the opening direction when said latch means is in a predetermined position and means engaging with the latch means to keep the door open at least a predetermined amount during yard operations.

2. A buffer mechanism for car doors and the like comprising, a latch bar mounted on the door and spring buffer mechanism secured to the car and adapted to automatically allow the latch bar to pass it when the door is moved in the opening direction but to restrict the movement of the door to a predetermined amount in the closing direction by engaging with the latch bar.

3. A buffer mechanism for car doors and the like comprising a latch bar slidably mounted on the door, a lever pivotally mounted on the door and pivotally secured at one end to the end of the latch bar, while the other or free end of the lever extends beyond the pivot mounting, a spring buffer mechanism secured to the car and positioned to allow the door to move freely in the opening direction but to engage with the free end of the lever to keep the door open at least a predetermined amount during yard operations.

4. A car door safety mechanism comprising a spring buffer mechanism secured to the car, a latch bar slidably attached to the door, a lever pivotally attached to the door and to the latch bar and adapted to clear the buffer mechanism by the weight of the latch bar to restrict the closing of the door a predetermined distance and keep same open during yard or shunting operations.

In witness whereof, I have hereunto set my hand.

ERNEST R. VIBERG.