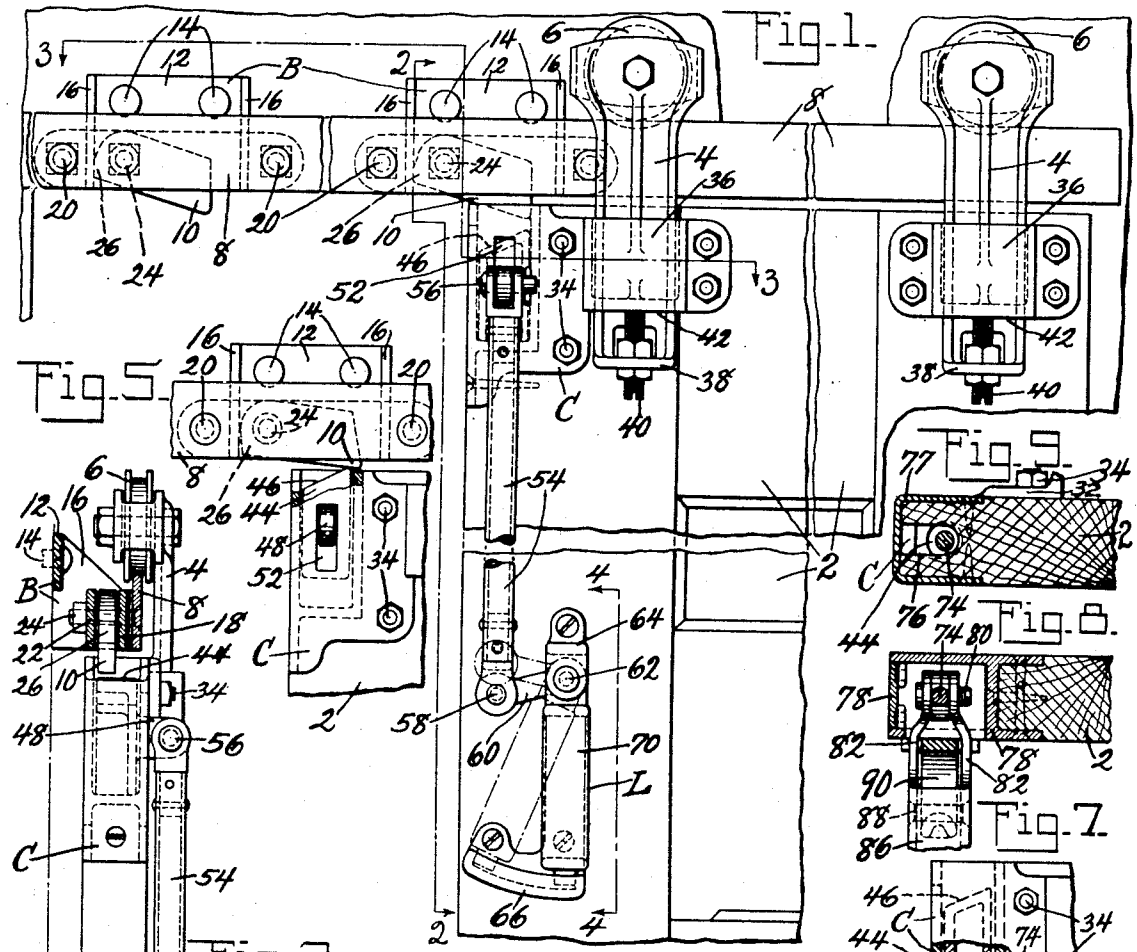
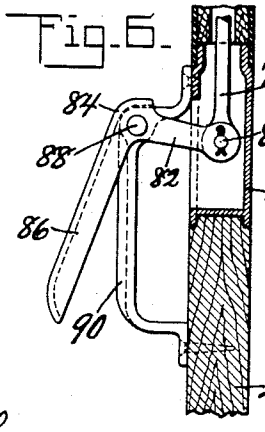
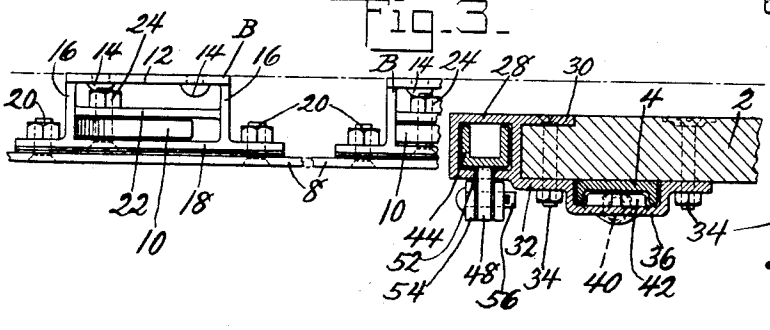
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BUFFER MECHANISM FOR CAR DOORS

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BUFFER MECHANISM FOR CAR DOORS

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This invention relates to new and useful improvements in sliding doors for railway cars and has particular reference to a buffer mechanism which will prevent complete closing of the car doors when the car is being shunted or shifted or when the brakes are suddenly applied.

More particularly, the present invention contemplates a device for holding sliding doors of railway cars in a predetermined position relative to the door opening, that is, the provision of a device for retaining car doors in either fully or partially opened positions, said device being manually releasable to effect complete closing of the door.

Another object of this invention is the provision of a door stop and actuator therefor which is easy and inexpensive to manufacture and strong and durable in operation.

Other objects and advantages of this invention will be apparent from the following description taken in conjunction with the accompanying drawing in which

Figure 1 is a front view showing a portion of a car body and car door slidably connected to the body; the view showing the present invention applied in position.

Fig. 2 is a sectional view on the line 2—2, Fig. 1.

Fig. 3 is a sectional view on the line 3—3, Fig. 1.

Fig. 4 is a side view of the operating lever for the device, the view being taken on the line 4—4, Fig. 1.

Fig. 5 is a fragmentary view, partly in section, showing a portion of the door casting with the plunger in elevated position.

Fig. 6 shows a side elevation of a modified form of the invention, applied to a car door shown in section, the view being taken on the line 6—6, Fig. 7.

Fig. 7 is a broken front elevation of the modified form of the invention shown in Fig. 6.

Fig. 8 is a sectional view taken on the line 8—8, Fig. 7, and

Fig. 9 is a sectional view on the line 9—9, Fig. 7.

Referring now more particularly to the drawing, in which similar characters of reference designate similar parts in the several views, the invention is shown as applied to a railway car having a sliding door 2 adapted to close an opening in a car body, the door being provided with hangers 4, secured as hereinafter more fully described, and carrying the rollers 6 which engage a track 8. The track 8 is secured to the car body adjacent the upper edge of the door opening by suitable means which in the present instance include brackets indicated generally at B, of which two are shown; the two brackets shown being those supporting the door stops or dogs 10. Other brackets, of course, may be provided for supporting the track 8 and they may be of any preferred or desired construction, the brackets B shown herein being arranged in such a position that the dogs 10 may function to retain the door 2 in partially opened position.

The brackets B each include a base or attaching portion 12 by which the brackets may be secured to the car body by means of suitable fasteners 14, side walls 16 and a front wall 18, to which latter the track 8 is secured by suitable fasteners such as the bolts 20. Each bracket B also includes a partition 22 parallel to the front wall 18 and between said wall 18 and partition 22 the locking dog 10, heretofore mentioned, is arranged; the dog 10 being pivotally secured to a pin or bolt 24 supported by wall 18 and partition 22, as clearly shown in Figs. 2 and 3. The dogs 10 are pivoted adjacent one end whereby they normally depend from the bracket into the path of movement of the door 2, as shown clearly in Fig. 1, and the pivot ends of the dogs are rounded to provide heels 26 adapted to contact with the adjacent side walls 16 of the brackets B whereby the latter serve as abutments to limit the downward pivotal movement of the dogs and hence to position the latter.

The upper corner of the door 2 is cut away to receive a door casting, indicated generally at C, with which the dogs 10 are adapted to contact, as presently to be described, the casting C comprising a tubular housing 28 provided with substantially parallel extensions 30 and 32, respectively, forming attaching

flanges overlying the front and rear surfaces of the door 2 (see Fig. 3) and secured to said door by means of suitable fasteners such as the bolts 34, extension 32 being recessed, as shown at 36, to provide a housing for the adjacent door hanger 4. The door hanger 4, just mentioned, is provided with a base 38 receiving an adjusting screw 40 which bears against the lower edge 42 of the housing member 36 and which may be adjusted to adjust the height of the door 2, as will be apparent.

The housing 28 is shown as substantially rectangular in section, though this is merely by way of example, and receives a plunger 44 having its upper edge beveled as at 46 and provided with a lug 48 which projects through a slot 52 formed in the front wall of the housing 28 and to which the upper end of an actuating rod or lever 54 is pivoted by means of a pin 56.

In the construction shown in Figs. 1, 2 and 3, the lever rod 54 is arranged on the outer surface of the door 2 and its lower end is pivotally connected as at 58 to the short arm 60 of a bell crank lever L pivoted as at 62 to a bracket 64 secured to the outer face of the door 2. The bracket 64 is provided with a flanged extension 66 at its lower end which defines a guide-way 68 for arm 70 of bell crank L, said arm 70 being preferably U-shaped to define a handle and having an integral lug 72 at its lower end arranged in the guide-way 68.

Figs. 6 to 9, inclusive, illustrate a modified form of the invention in which the lever rod 74 is concealed, and, as shown clearly in Fig. 9, the edge of the door 2 is vertically recessed as at 76 and said edge of the door is covered by a channel shaped nosing strip 77, the recess 76 receiving the rod 74. The lower end of the rod 74 extends into a metal housing 78 inset in the door as shown clearly in Fig. 6, and said lower end is arranged between and pivotally connected as at 80 to spaced arms 82 of a lever 84, the latter including a long arm 86 pivotally connected for movement by a horizontal axis as shown at 88 to a handle bracket 90 secured to the door. As will be apparent from the drawing, the arm 86 is recessed in order to fit the handle 90 when the arm 86 is shifted on its pivot to raise the short arm 82 of the lever. The upper end of rod 74 extends through an opening 92 in casting C and is connected to the plunger 44 in any suitable or desired manner. In the instance shown the rod extends into and threadedly engages the plunger 44, but this is merely by way of example, as obviously the rod 74 may be connected in any suitable manner to the plunger 44.

In use, with the door in fully opened position, the dogs 10 depend into the path of movement of the door in such a position as to prevent complete closing of the door. If for any reason the door should be moved from fully opened position towards a closed position it will be apparent that the dogs 10 will engage the inner wall of the housing 44 in a manner such as shown in the dotted lines in Fig. 1 and thus prevent the door from being completely closed. To close the door with the device shown in Fig. 1, the lever arm 70 is shifted from its normal position on the pivot 62 to lift the short arm 60 of the bell crank thereby lifting the rod 54 and consequently elevating or lifting the plunger 44 to lift the dog 10 out of engagement with its casting C, the lever arm 70 furnishing a handle for shifting the door after the dog 10 has been released. With the device illustrated in Figs. 6 to 9, inclusive, the lever arm 86 is shifted on its horizontal pivot 88 to lift rod 74 and to urge the plunger 44 upwardly to disengage the dog 10 from its engagement with the housing.

From the above description it is believed that the construction and operation of the device of the present invention will be fully apparent to those skilled in the art. The drawing is for illustrative purposes only and it is to be understood that various changes in the form and proportions of the device may be made within the scope of the appended claims without departing from the spirit of the invention.

What is claimed is:

1. A buffer mechanism for car doors comprising a pivoted element normally arranged in the path of movement of the door and with which the door contacts when moved in the closing direction whereby to limit closing movement of the door, plunger means carried by the door and normally arranged out of contacting relation with the pivoted element, and a lever for shifting the plunger means to release the engagement of said pivoted element and door to permit further closing movement of said door.

2. In a railway car having a side doorway, a door adapted to close the doorway, a track on which said floor is slidably supported, and a bracket secured to the car adjacent the doorway and to which the said track is secured, the combination of a door buffer mechanism comprising a dog pivotally supported by said bracket and normally arranged in the path of movement of the door, said dog being so arranged in said bracket as to contact therewith to normally position said dog, a door casting with which said dog contacts when the door is moved in the closing direction to limit closing movement of the door, a plunger in said casting, and lever actuated means secured to the door for shifting the plunger in the casting into contacting relation with the dog whereby to shift the dog out of the path of movement of the door.

3. In a railway car having a side doorway and a door adapted to close said doorway,

and a track on which said door is slidably supported, the combination of m ans limiting movement of the door in the closing direction comprising a track supporting bracket secured to the car adjacent the doorway, a pivot in said bracket, and a dog mounted on the pivot, said pivot being arranged in said bracket in a position such that the pivot end of said dog is adapted to contact with a bracket part to retain said dog in normal position.

4. A buffer mechanism for sliding doors comprising a pivotally mounted dog normally extending into the path of movement of the door, a door casting secured to the door and with which said dog contacts when the door is moved in the closing direction, said door having the free edge thereof recessed, a lever rod arranged in the recess, a plunger arranged in said casting and normally out of contacting relation with the dog, said plunger being connected to said lever rod, a nosing for the free edge of said door covering the recess, and a pivotally mounted lever to which the lower end of the lever rod is pivotally connected for actuating the lever rod and said plunger whereby the latter urges the dog out of engagement with the door casting to permit full closing movement of the door.

5. In a car door buffer mechanism, a track supporting bracket comprising a base, side walls and a front wall, a partition in said bracket between said side walls and parallel to the front wall, a pivot pin supported by said partition and front wall adjacent one of said side walls, and a dog mounted on the pivot pin, the pivot end of said dog being curved to define a heel portion adapted to contact with the adjacent side wall to limit pivotal movement of the dog in one direction.

6. In a car door buffer mechanism, a dog normally arranged in the path of movement of the car door, and means pivotally supporting said dog comprising a track supporting bracket secured to the car and having a pivot pin extending through a part thereof, said dog being so formed as to contact with a bracket part whereby it is retained in normal position.

7. A buffer mechanism for sliding doors comprising a dog arranged adjacent the door opening and normally projecting into said opening, a bracket to which the dog is pivoted in such a manner as to limit pivotal movement of said dog in the direction of closing movement of the door so that said dog constitutes an abutment with which the door is adapted to contact when moved in the closing direction, and manually shiftable means on the door adapted to shift the dog out of the path of movement of the door to permit complete closing of the latter.

8. A buffer mechanism for sliding doors comprising a dog normally extending into the path of movement of the door, means pivotally mounting the dog in such a manner as to limit pivotal movement thereof in the general direction of closing movement of the door, said means being so formed as to permit free pivotal movement of the dog in the opposite direction, a door casting secured to the door and with which the dog contacts when the door is moved in the closing direction to limit closing movement of said door, a plunger in said casting normally positioned out of contacting relation with the dog, and lever actuated means for shifting the plunger in the casting to swing the dog on its pivot out of the path of movement of the door.

9. In a buffer mechanism for sliding doors, a buffer casting comprising a tubular housing adapted to receive a plunger and provided with spaced attaching flanges adapted to overlie portions of the door, one of said flanges being recessed to receive a bracket.

10. In combination with a horizontally slidable door, safety means for preventing complete closing of said door comprising a dog normally extending into the path of movement of the door, means pivotally supporting the dog in such a manner as to prevent pivotal movement thereof in the general direction of closing movement of the door whereby said dog constitutes an abutment with which the door contacts when moved in the closing direction, and lever operated means on the door adapted to shift the dog out of the path of movement of the door.

In witness whereof I have hereunto set my hand.

ALLEN W. CLARKE.