Oct. 6, 1942. C. W. OSNER 2,297,977

ADJUSTABLE DOOR STOP AND METHOD OF APPLYING SAME

Filed Aug. 1, 1940

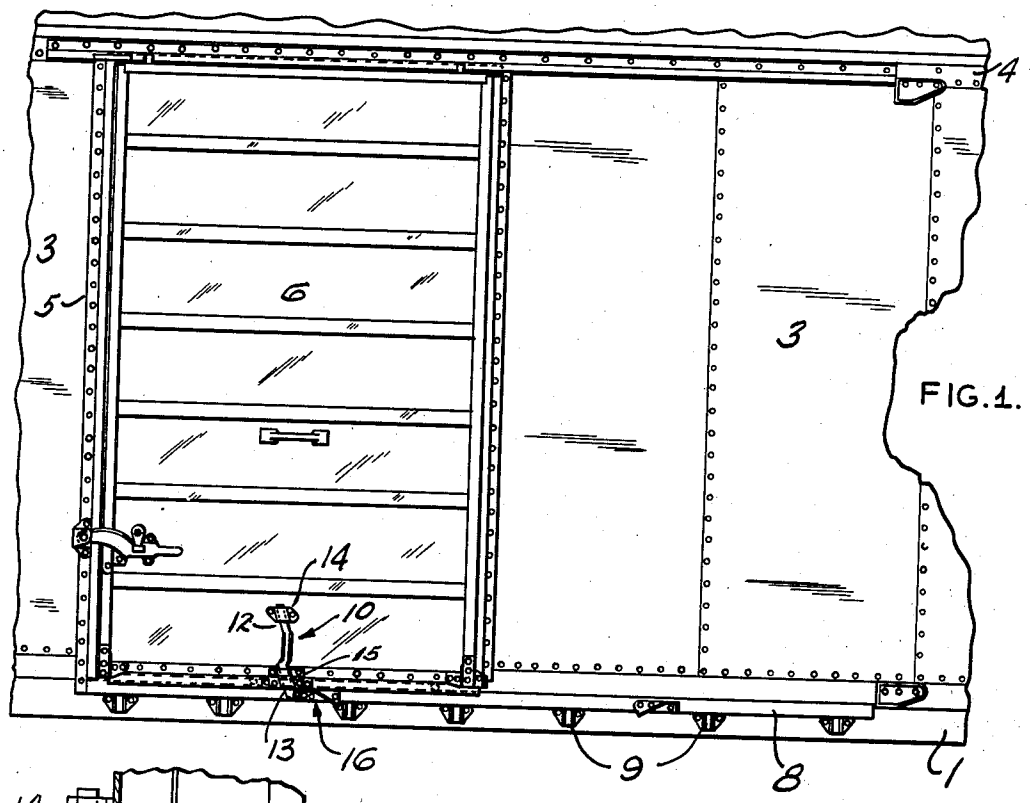


FIG. 1.

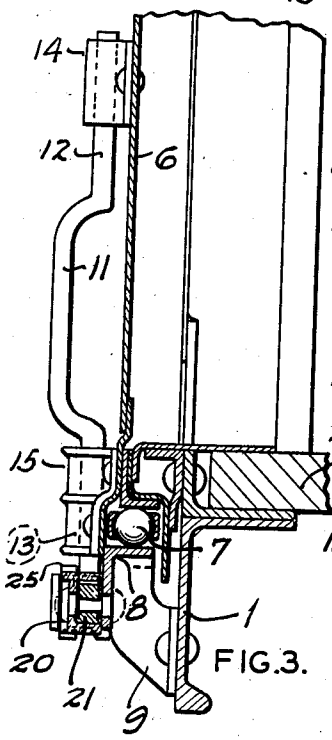


FIG. 3.

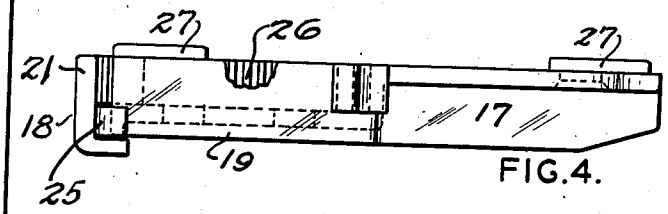


FIG. 4.

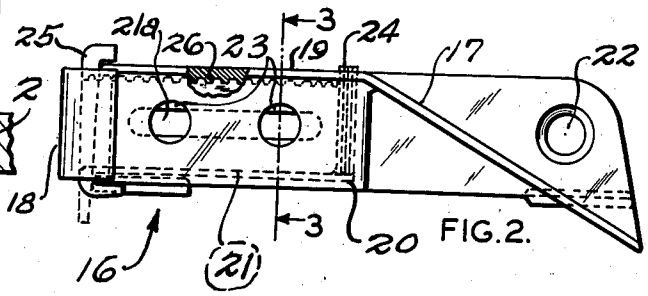


FIG. 2.

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ADJUSTABLE DOORSTOP AND METHOD OF APPLYING SAME

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3 Claims. (Cl. 292—340)

The invention relates to latches for sliding doors and is particularly adapted for use on railway house car sliding doors which are difficult to maintain tightly closed because of inaccuracies in manufacture and assembly, because of the rough handling of the doors by workmen, and because of the jostling the doors are subjected to while the car is traveling and also the "weaving" action of the car body during travel.

In E. G. Busse Patent No. 2,167,707, issued August 1, 1939, there is disclosed a latch and stop arrangement on a door and a car sill which acts automatically to take up play between the car door and the car body, but the effectiveness of the arrangement is partly dependent upon the application of the stop after the door has been mounted upon the door supporting tracks. Normally the door tracks are applied to the car without holes for the rivets by which the latch stop is secured to the track, and after the door, with slidable latch mounted thereon, is mounted on the track, the door is moved to closed position, the latch raised, and then the stop casting is located and clamped to the track and rivet holes burned or drilled and reamed in the track. Due to the fact that the tracks are of high carbon steel to resist wear by the door mounting balls, it is difficult to burn and ream the rivet holes and many reamers are spoiled, making this an expensive job.

The main object of the present invention is to arrange a more convenient and certain assembly of the latch and stop with the door and car body and one which will be more likely to obtain full efficiency out of the automatic feature of the latch.

The invention comprises all of the novel structure illustrated in the accompanying drawing in which—

Figure 1 is a side elevation of a part of a railway car provided with a sliding door and embodying the present inventon.

Figure 2 is a detail section drawn to an enlarged scale of the stop and associated structure.

Figure 3 is a detail vertical section through the structure shown in Figure 2 and is taken on the line 3—3 of Figure 2.

Figure 4 is a top view of the stop shown in Figures 2 and 3.

The car body includes the usual side sill 1, floor 2, side wall 3, side plate 4, and door post including a front stop 5 against which the front edge of the door 6 is thrust when the door is closed. The door is carried by balls 7 on a track 8 mounted on brackets 9 on sill 1.

A latch 10 includes a handle portion 11 and terminals 12 and 13 slidable in brackets 14 and 15 secured to the door. Lower terminal 13 projects below the bottom of the door and alongside of track 8 and is disposed to engage a stop 16 secured to the track. The upper face of stop 16 is inclined downwardly and to the right at 17. The left hand end of stop 16 has an upright face 18.

As the door is closed, the lower end of latch 10 rides up over face 17 and along the horizontal top face 19 of stop 16 and drops down in front of the upright face 18 to positively hold the door against opening movement. The interengaging faces of the latch and its brackets 14 and 15 are inclined to the vertical so that the weight of the latch and the jostling of the same during movement of the car tends to work it downwardly and to the right, thereby thrusting the door to the left and rendering tight the joint at the front edge of the door.

The structure as described above corresponds to that disclosed in the above-mentioned patent and, in itself, does not constitute the present invention which is directed to the stop structure and its assembly with the track in association with latch 10.

Preferably, stop 16 consists of two main parts, a body housing 20 and a latch abutting plunger 21 slidable longitudinally in housing 20 and having an upright end face 18. Housing 20 is provided with rivet holes 22 and 23 and track 8 is provided with rivet holes aligned therewith. Plunger 21 has a slot 21*a* abreast of but of less depth than the diameter of rivet holes 23. Lugs 27 project inwardly from housing 20 to engage the downwardly facing edge of track 8. The manufacturer who supplies the track, door and door fixtures will rivet the housing to the track at 22.

When the track and door are assembled with the car, the door is closed tightly, latch 10 is lifted to a predetermined height, to allow the proper additional forward movement of door in relation to car, and plunger 21 is thrust forward or held by any suitable filler such as shims 24, inserted in the pocket between its inner end and the opposing end of the plunger, or a tapered key 25, inserted between oppositely inclined surfaces on the outer end of housing 20 and the opposing surface of plunger 21. If desired, both the filler and the key may be used. The end of a tapered reamer is then freely inserted through holes 23 in housing 20, and slot 21*a* in plunger 21 and the corresponding holes in track 8 aligned with

holes 23. The reamer will cut the metal forming the sides of slot 21*a* leaving shoulders which will engage rivets inserted through the housing and track and permanently hold latch engaging plunger 21 in proper advanced position.

Preferably, two or more adjacent faces of housing 20 and plunger 21 are provided with coacting serrations 26 which cooperate with the shoulders formed when the slot is reamed out, and the rivets therethrough, to hold the contact element more securely against movement in the housing.

This construction makes it possible to assemble the stop member with the track where the latter is manufactured, and irrespective of the relative time and place of completion of its assembly with the car or of the mounting of the door and without interfering with the possibility of obtaining a tight joint between the door and the door front stop 5.

It is not essential that all of the detail features described above be included in the stop, although they cooperate to provide a secure mounting of the latch contact element. The shims or wedge, or both, may be omitted by otherwise holding the contact element against the door latch, and other changes in the details of the construction may be made without departing from the spirit of the invention and the exclusive use of such modifications as come within the scope of the claims is contemplated.

What is claimed is:

1. In a device of the class described, a stop structure adapted to be mounted upon a car body and including a main member having a horizontal, longitudinal pocket, open at one end, and a plunger slidably inserted in said pocket and having an upright face for engaging a latch on the car door, said main member and plunger having oppositely facing inclined surfaces, and a tapered key inserted between said faces for securely holding said member and plunger against inwardly telescoping movement from the latch engaging position of said plunger.

2. In a holding device for a car door slidable on a car body, a member comprising a main part and a stop part mounted on said main part and projecting therefrom to engage a latch arranged to oppose said stop part, said main part having apertures, elements extending through said apertures to secure said main part to the car body, said elements filling said apertures, said stop part having an elongated slot normally of less width than the diameter of said apertures and extending abreast of and beyond said apertures, said elongated slot receiving said elements when said slot is enlarged transversely of its length adjacent to said apertures to form shoulders opposing the sides of said elements and thereby fixing the position of the stop part relative to the main part.

3. In a device of the class described, a stop structure adapted to be mounted upon a car body and including a main member, with a horizontal longitudinal pocket open at one end, and a plunger member slidably inserted in said pocket and having an upright face exteriorly of said pocket for engaging a latch on the car door, said members having apertures in substantial alignment and extending transversely of the plunger member movement in the pocket, the aperture in one member being narrower than the aperture in the other member and elongated, relative to the latter-mentioned aperture, in the direction of said plunger member movement, and a securing element fitting in said latter-mentioned aperture and insertible through the elongated aperture in the one member at a portion thereof enlarged to the size of the aperture in the other member, whereby said pocket member and plunger member are securely held in assembled relation.

CLARENCE W. OSNER.