G. MADLAND
WEATHERTIGHT SLIDING CAR DOOR
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This invention relates to car door construction and is directed more particularly to structures serving to obtain weathertightness at the front edge of sliding doors of railway cars.

It is an object of this invention to provide structures for the front edge of sliding doors of railway cars which shall improve the weathertightness of this edge in a simple and economical manner.

A further object is to provide weathertight structures for the front edge of sliding doors of railway cars which shall utilize a member on the front edge of the door post of the cars as a weather-excluding and door abutment member and an additional weatherproofing member spaced from the door and post member and cooperating with the latter to form a pocket adapted to trap and discharge foreign matter outwardly of the car.

A further object is to provide weathertight structures for the front edge of sliding doors of railway cars which shall embody members on the car wall so constructed and arranged as to form a pocket that is closed off from the interior of the car.

A further object is to provide weathertight structures for the front edge of sliding doors of railway cars which shall include a pocket for trapping foreign matter and a flange serving as a door abutment and as means for preventing communication between said pocket and the interior of the cars.

Other objects of the invention will become clear as the description thereof proceeds.

In the drawings forming part of this specification:

Fig. 1 is a fragmentary elevation of a wall of a railway car showing the adjacent portion of a sliding door and embodying the instant invention.

Fig. 2 is a horizontal section taken on line 2—2 of Fig. 1.

Fig. 3 is a horizontal section similar to Fig. 2 showing a different embodiment of the invention.

Fig. 4 is a horizontal section similar to Fig. 2 showing another form of the invention.

Referring first to the embodiment of the invention illustrated in Figs. 1 and 2 of the drawings, the numeral 10 designates a portion of one of the side walls of a railway car adjacent to the front edge of a door opening 11 formed in said wall. The indicated portion of the car wall embodies a front door post 12 to which nailing blocks 13, 14, and 15 may be secured in any desired manner. Inner lining 16 constitutes a part of the wall of the car and is fastened as by means of nails to the nailing block 16. The car wall also includes metallic sheathing 17 which is secured to the web 18 of the door post as by means of rivets 19.

With particular reference to Fig. 2 it will be observed that the door post 12 is substantially Z-shaped in section and arranged with its web 18 parallel to the wall. In addition to the web the door post embodies an inwardly extending flange 20 and an outwardly extending flange 21 which defines the front edge of the door opening 11. Flange 21 is flanged forwardly as indicated at 22 and then outwardly as shown at 23 to form an abutment flange for limiting closing movement of a sliding door 24 mounted on the car wall in any desired manner. For the purpose of the instant invention the door 24 is made of well-known construction may be described as embodying a metallic panel 25 formed with spaced horizontal corrugations 26 which merge into an outwardly and forwardly offset portion 27 of the panel. This portion of the panel is bent forwardly to provide a flange 28 parallel to the door.

The front portion of the panel is reinforced by means of a vertical substantially Z-shaped member 29 having a flange 30 overlapping and secured to panel flange 28 as by means of rivets 31, an inwardly extending web 32 and a forwardly extending flange 33 which is bent outwardly to form a flange 34 adapted to abut flange 23 of the door post 12. Additional reinforcement for the front portion of the door is provided by means of a backing plate 35 secured to the panel rearwardly of panel flange 27 as by means of rivets 36 and to flange 33 of the reinforcing member as by means of rivets 37.

As illustrated in Fig. 2 of the drawings, it is preferred that when the door is in its fully closed position flange 34 of the vertical door reinforcing member 29 project outwardly beyond the door post flange 23.

A substantially Z-shaped weatherproofing member 38 is secured to the car wall 10 by means of the rivets 19 which serve to fasten the metallic sheathing 17 to the door post. Weatherproofing member 38 embodies a flange 39 through which the rivets 19 extend, an outwardly extending web 40 and a rearwardly and outwardly inclined flange 41 which overlaps the forward margin of the door when the latter is closed. It will be observed from Fig. 2 of the drawings that weatherproofing member 38 is so related to the door post and the front edge of the door that its web 42 is spaced substantially from door post flange 23 and its outwardly and rearwardly inclined flange 41 is spaced from flange 34 of the vertical door.
By this relationship it will be apparent that a free unimpeded passage-way is provided for air, dust, cinders, rain, snow and the like into a pocket 42 formed by the door post and the weatherproofing member. Such member will be trapped in the pocket outwardly of the door opening.

It will be observed, moreover, that the outwardly extending flange 23 on the door post extends across the joint 43 between the inner face of the door and the forwardly extending door post flange 22, thereby forming a barrier to the entry of the noted matter into the car through the door opening.

Another form of the invention is illustrated in Fig. 3 of the drawings. In this form the door post 44 is substantially channel-shaped in section and embodies an outer flange 45, an inwardly extending web 46 and an inner flange 47. Secured to the flange 45 by means of the rivets 19 which serve to fasten the metallic sheathing 17 to said flange is a substantially channel shaped member 48 which has spaced forwardly extending flanges 49 and 50 connected by means of an outwardly extending web 51 at the forward edge of the door opening. The rivets 19 pass through the flange 45. Flange 50 is bent outwardly to form a flange 51a which serves as an abutment to limit the closing movement of the door.

A substantially Z-shaped weatherproofing member 52 similar to member 38 is secured to the car wall by means of rivets 19 which extend through a flange 53 of said member. Member 52 also embodies an outwardly extending web 54 spaced substantially forwardly of flange 51 and a rearwardly and outwardly inclined flange 55 spaced from the door 24.

A third embodiment of the instant invention is illustrated in Fig. 4 of the drawings. In this embodiment the door post is formed of an angle member having a flange 57 which is parallel to the car wall and to which the metallic sheathing 17 is secured as by means of the rivets 19 and an inwardly extending flange 58. To the latter flange a substantially channel-shaped member 59 is secured as by means of rivets 19 which pass through the web 61 of the member. Extending forwardly of the web 61 are inner and outer flanges 62 and 63, the latter being bent outwardly to form a door abutment flange 64. The considered embodiment of the invention utilizes the weatherproofing member 36 whose web 40 is spaced from door post flange 64 and whose flange 41 is spaced outwardly of the said portion of the door.

It will be apparent from the foregoing description of the embodiments illustrated in Figs. 3 and 4 of the drawings that pockets 56 and 58 are provided to which free access is had by foreign elements through the passage provided by the relationship between the door post members, the front margin of the door, and the weatherproofing member. In these embodiments as well as in the best described embodiment, the web 40 is spaced from door post flanges 51a and 54, respectively, to bridge the joint between the inner face of the door and the outer forwardly extending flanges 50 and 63, respectively, so as to prevent foreign matter from entering the car.

It will be apparent that numerous changes and modifications in the details of the invention will be clear to those skilled in the art. It is intended, therefore, that all such modifications and changes be comprehended within this invention, which is to be limited only by the scope of the claims appended hereto.

I claim:

1. In a railway car having a wall provided with a door opening, said wall embodying a flange at the forward edge of said door opening, said flange extending outwardly, then forwardly and then outwardly to form a door abutment, a member secured to said wall, said member having an outwardly extending flange spaced forwardly of said wall flange and a rearwardly extending flange spaced outwardly of said wall flange, and a longitudinally sliding door on said wall for closing said opening, said abutment being adapted to engage said door to limit closing movement thereof, said rearwardly extending flange having outwardly spaced overlapping relationship with said door.

2. In a railway car having a wall provided with a door opening, said wall embodying a flange at the forward edge of said door opening, said flange extending outwardly, then forwardly and then outwardly to form a door abutment, a member secured to said wall, said member having an outwardly extending flange spaced forwardly of said wall flange and a rearwardly extending flange spaced outwardly of said wall flange, and a longitudinally sliding door on said wall for closing said opening, said outwardly extending flange at the forward edge of said door engageable with said abutment to limit closing movement of said door, said member extending beyond said abutment, said rearwardly extending flange having outwardly spaced overlapping relationship with said door.

3. In a railway car having a wall provided with a door opening, said wall embodying a flange at the forward edge of said door opening, said flange extending outwardly, then forwardly and then outwardly, a member secured to said wall, said member having an outwardly extending flange spaced forwardly of said wall flange and a rearwardly extending flange spaced outwardly of said wall flange, and a longitudinally sliding door on said wall for closing said opening, an outwardly extending flange at the forward edge of said door engageable with said abutment to limit closing movement of said door, said member extending beyond said abutment, said rearwardly extending flange having outwardly spaced overlapping relationship with said door.

4. In a railway car having a wall provided with a door opening, said wall embodying a flange at the forward edge of said door opening, said flange extending outwardly, then forwardly and then outwardly, a member secured to said wall, said member having an outwardly extending flange spaced forwardly of said wall flange and a rearwardly extending flange spaced outwardly of said wall flange, and a longitudinally sliding door on said wall for closing said opening, said outwardly extending flange at the forward edge of said door engageable with said abutment to limit closing movement of said door, said member extending beyond said abutment, said rearwardly extending flange having outwardly spaced overlapping relationship with said door.

5. In a railway car having a wall provided with
a door opening, a door post on said wall at the forward edge of said door opening, said door post having a flange parallel to said wall, a member having a flange secured to said post flange and a flange extending outwardly therefrom, said latter flange being bent forwardly and then outwardly, a member secured to said wall, said latter member having an outwardly extending flange spaced forwardly of said outwardly extending flange of said first mentioned member and a rearwardly extending flange spaced outwardly of said first mentioned member, and a longitudinally sliding door on said wall for closing said door opening, said outwardly bent portion of said outwardly extending flange of said first mentioned member being adapted to engage said door to limit closing movement thereof, said rearwardly extending flange having outwardly spaced overlapping relationship with said door.

6. In a railway car having a wall provided with a door opening, an angle member on said wall at the forward edge of said door opening, said angle member having a flange parallel to said wall and an inwardly extending flange, a plate member secured to said latter flange, said plate member extending outwardly and being bent forwardly and then outwardly, a member secured to said wall, said latter member having an outwardly extending flange spaced forwardly of said plate member and a rearwardly extending flange spaced outwardly of said plate member, and a longitudinally sliding door on said wall for closing said door opening, said outwardly bent portion of said plate member being adapted to engage said door to limit closing movement thereof, said rearwardly extending flange having outwardly spaced overlapping relationship with said door.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,108,139</td>
<td>Comee</td>
<td>Aug. 25, 1912</td>
</tr>
<tr>
<td>1,380,671</td>
<td>Ekland et al.</td>
<td>Nov. 13, 1934</td>
</tr>
<tr>
<td>2,245,612</td>
<td>Omer et al.</td>
<td>June 17, 1941</td>
</tr>
<tr>
<td>2,316,321</td>
<td>Ditchfield</td>
<td>Apr. 12, 1943</td>
</tr>
<tr>
<td>2,404,384</td>
<td>Wasberg</td>
<td>July 20, 1946</td>
</tr>
</tbody>
</table>