

Jan. 31, 1939.

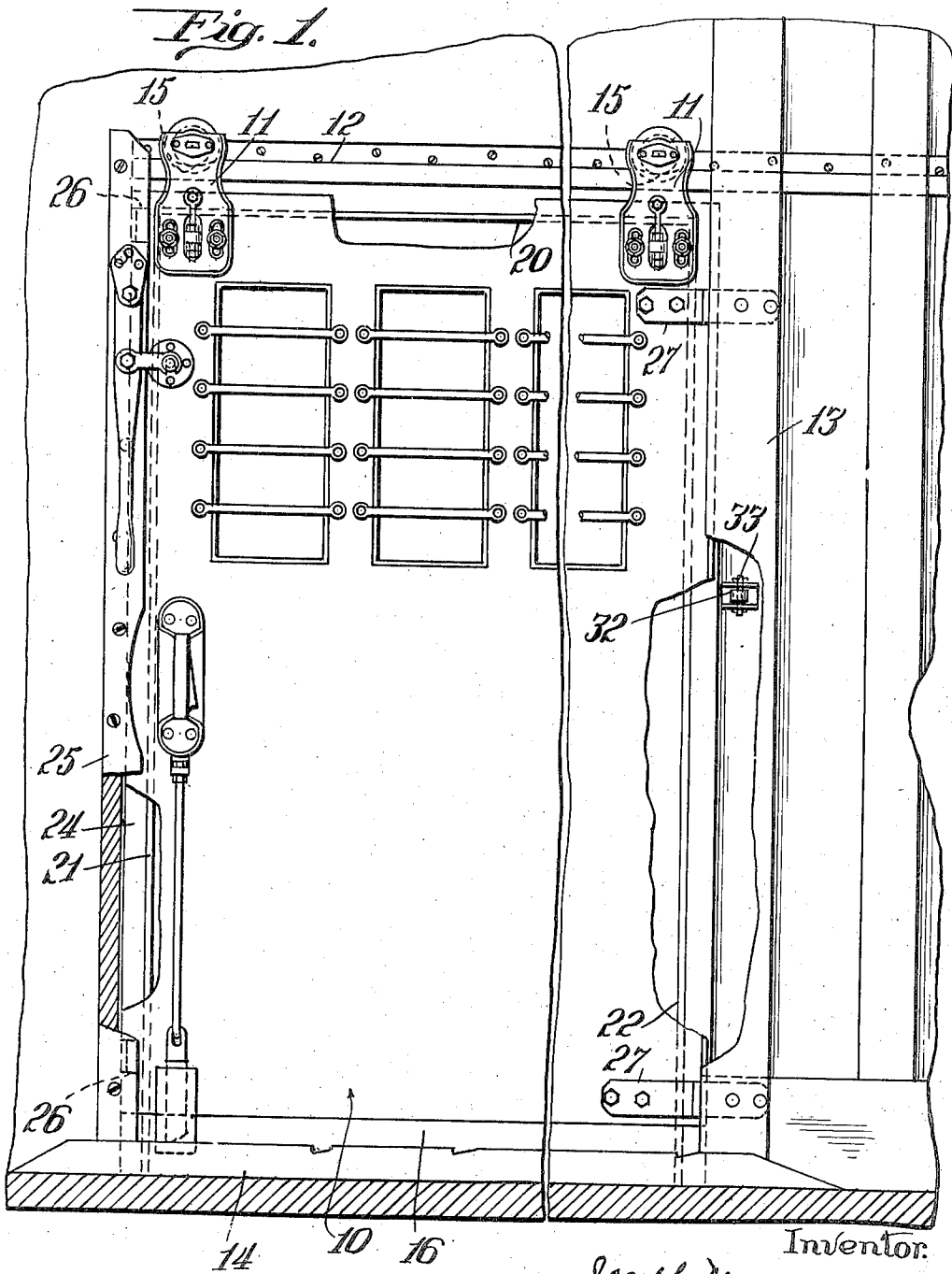
J. NEMEC

2,145,403

CAR DOOR CONSTRUCTION

Filed Feb. 11, 1937

3 Sheets-Sheet 1.



Inventor.

By *Joseph Nemeš*  
*Ernst Heidner*

Attorney

Jan. 31, 1939.

J. NEMEC

2,145,403

CAR DOOR CONSTRUCTION

Filed Feb. 11, 1937

3 Sheets-Sheet 2

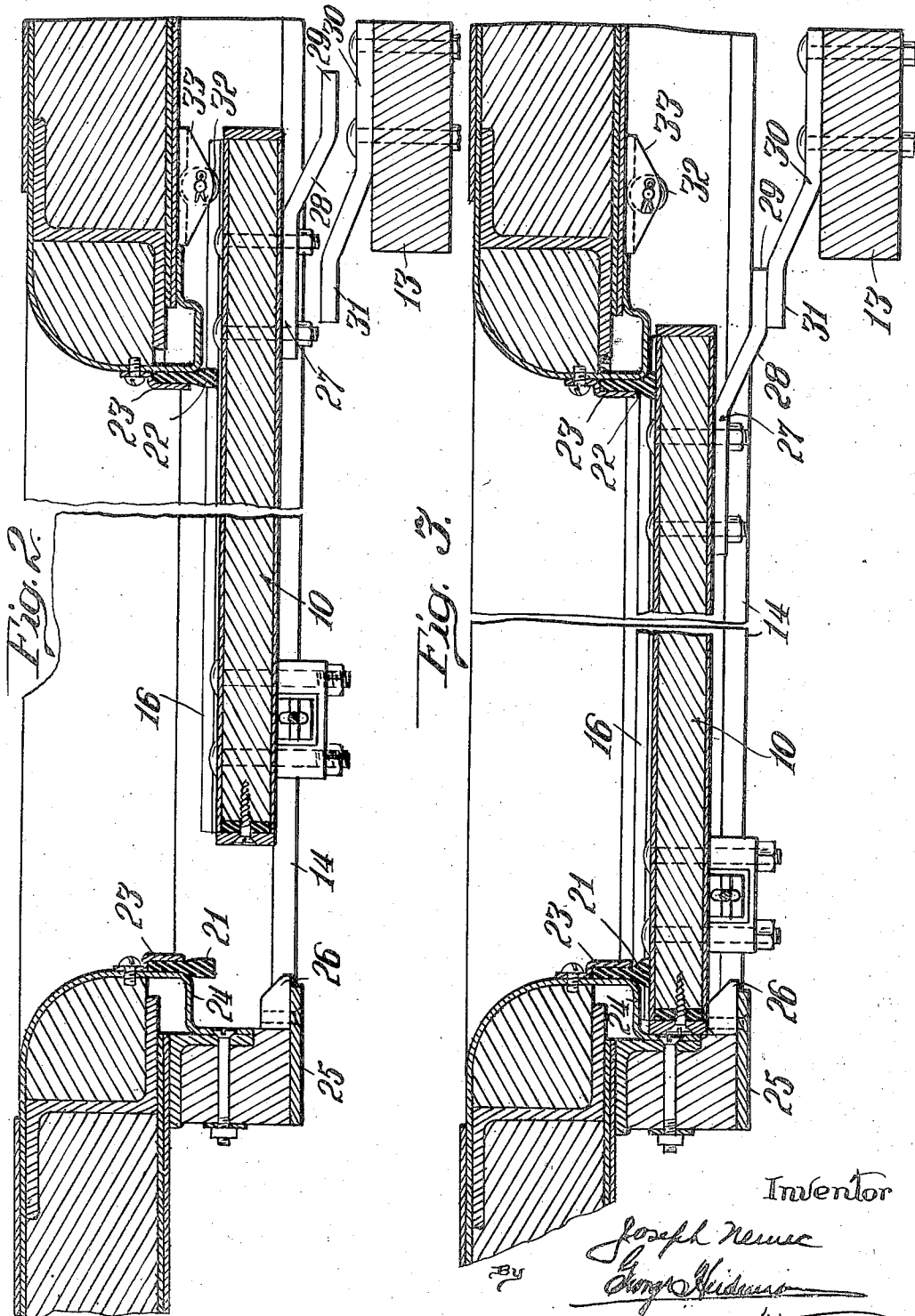


Fig. 2.

Fig. 3.

Inventor

Joseph Neme  
Long & Widman

Attorney

Jan. 31, 1939.

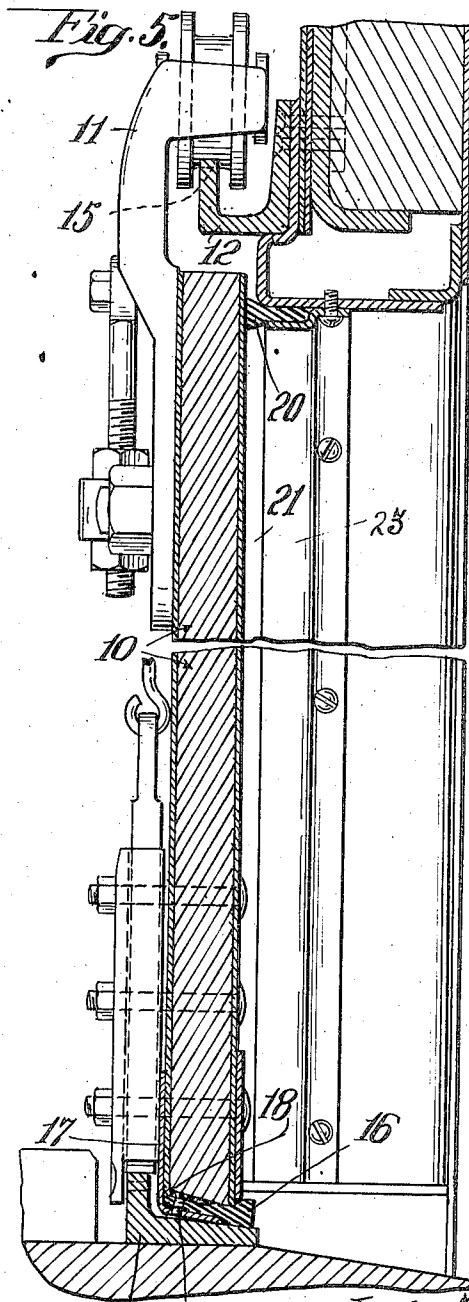
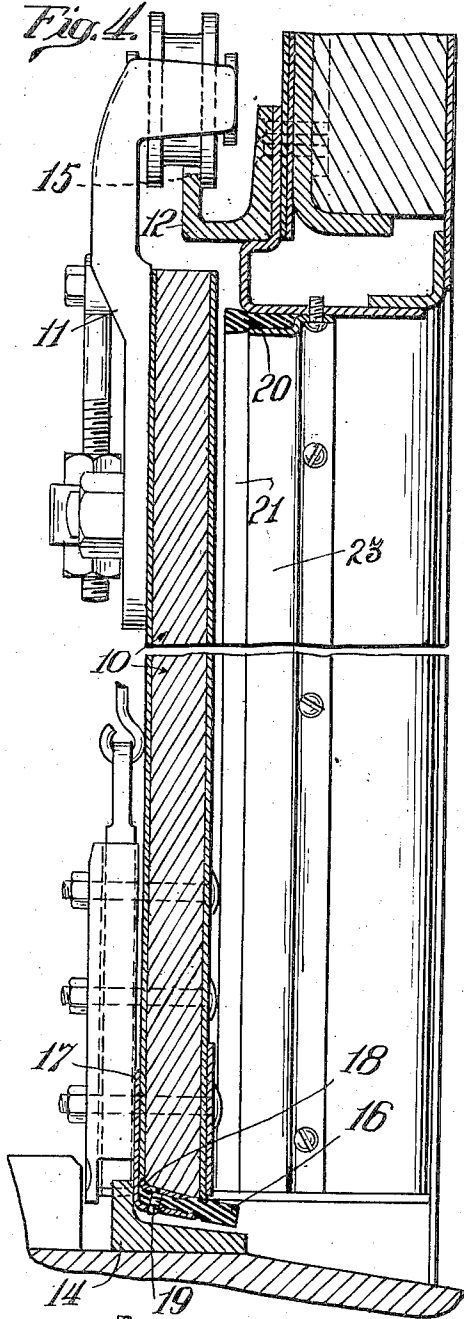
J. NEMEC

2,145,403

CAR DOOR CONSTRUCTION

Filed Feb. 11, 1937

3 Sheets-Sheet 3



Inventor  
Joseph Nemecek,  
By George Heidman  
Attorney.

# UNITED STATES PATENT OFFICE

2,145,403

## CAR DOOR CONSTRUCTION

Joseph Nemeec, Western Springs, Ill., assignor to  
The Midland Company, South Milwaukee, Wis.,  
a corporation of Wisconsin

Application February 11, 1937, Serial No. 125,269

3 Claims. (Cl. 20—23)

My invention relates to railroad baggage or combination club and mail car doors of the slidably mounted type and has to do more particularly with means for weather sealing the doors when in closed position; said means involving elements which are adapted to relieve the weather sealing portion of the means of undue friction or rubbing action during operation of the door.

The invention contemplates means whereby the door will be forced into firm relation with the sealing strips when moved into closed position, while providing for the easy operation of the door into open position; the structure being such that snow, ice, cinders and the like will not interfere with the operation and the weather sealing function.

The objects and advantages of my invention will all be more fully comprehended from the following detailed description of the accompanying drawings, wherein—

Figure 1 is a side elevation of a baggage car door in closed position with sections of the car side and intermediate portions of the door broken away and other parts partially in section.

Figure 2 is a horizontal sectional view of a portion of the car wall at the door opening and illustrating my improved weather sealed door in partly open position; intermediate parts of the car and door being broken away.

Figure 3 is a similar horizontal sectional view illustrating the door in complete closed position.

Figure 4 is a vertical sectional view of the car wall at the door opening and of my improved door, the latter being in partly open position, with intermediate portions broken away.

Figure 5 is a view similar to Figure 4 illustrating the door in closed position.

Figure 6 is a detail sectional view of the lower weather sealing portion of the door.

For purposes of exemplification I have illustrated my invention in connection with the well known sliding type of door as employed more especially in baggage cars and mail and combination club cars, wherein the door 10 is slidably suspended by suitable roller carrying hangers or brackets as at 11 with the rollers mounted on an overhead trackway or rail 12, which extends across the top of the door opening and for a predetermined distance beyond one side and rearward of the door-guard of which a portion is shown at 13; the guard being spaced sufficiently from the car side wall to permit the door to slide freely into the pocket.

The bottom of the door-opening is generally provided with a weather shedding sill and door

holding threshold as at 14, see Figures 4 and 5, whereby rain, sleet and the like will be drained or shed toward the outer side of the car.

My improved door construction contemplates a weather-sealing relation between this sill 14 and the bottom of the door 10 when the latter is in closed position and in order that this condition may obtain the slide or roller guide rail 12 is provided with dished portions or valleys as indicated in dotted lines at 15 in Figures 4 and 5 adapted to accommodate the contacting portion of the perimeters of the rollers carried by the brackets 11, 11 when the door is in complete closed position.

The bottom of the door 10 throughout its width is provided with a weather-strip 16 of rubber or other suitable material and thickness adapted to be compressed into snug weather-sealing relation with the door-sill 14 when the door is in closed position as shown in Figure 5. The weather strip 16 may be secured in any suitable manner to the bottom of the door, being preferably held in place by an outer angular plate 17, whose one side laps the inner side of the door 10 while the other leg or side of the plate 17 extends beneath the rubber or other suitable weather stripping 16 and is preferably of width commensurate with the thickness of the door 10, see Figures 4 and 5.

The weather stripping 16 is firmly clamped or held in place between the lower leg or side of plate 17 and a metal strip 18 which is secured to the lower side or leg of plate 17 by means of screws 19. The screws 19 are preferably driven downwardly through strip 18, through the resilient weather strip or rubber 16, and into plate 17 as more clearly shown in Figure 6. With this arrangement it is apparent that accidental removal of the screws will be impossible.

The bottom of the door 10 is beveled outwardly to conform with the slope of the bottom rail 14. The weather-strip 16 will be firmly held against the bottom of the door 10 by the angularly disposed side of the plate 17 when the vertical side is secured against the inner side of the door 10; the lower laterally disposed side of strip 17 is arranged at a downward inclination like the bottom of the door and like the threshold 14.

As the rubber or weather-strip 16 extends beyond the outer edge of the lower laterally disposed portion of the plate 17, it is apparent that the strip 16 will engage the threshold 14 and be compressed into sealing relation with the outer side of the door as shown in Figure 5.

When the door is moved to open position, the

rollers of the suspending brackets 11 will immediately move out of the valleys 15 in the track-rail, thereby elevating the door 10 slightly and moving the compressed weather stripping 16 out of contact with the bottom rail 14 (as shown in Figure 5) into the slightly elevated position shown in Figure 4. This relieves the weather stripping 16 at the bottom of the door from frictional or rubbing contact with the bottom rail 14 during the sliding operations of the door and as a result eliminates the rapid wear otherwise encountered.

The door-opening at the top and at both sides is provided with strips of rubber, or other suitable weather stripping, as indicated at 20, 21 and 22. The weather stripping at these three places may consist of a continuous rubber strip secured to the car wall at the outside by means of angle plates or clips 23 which may be of similar construction throughout and screwed or otherwise secured to the car-wall about the opening, as shown in Figures 2 to 5.

The weather stripping 20, 21 and 22 is preferably of rubber or other resilient material and is intended to be in compressed relation with the outer side of the door 10 when the latter is in complete closed position, as shown in Figures 3 and 5; the rubber strips being held so as to extend toward and somewhat into the path of the door.

In order to force the forward end of the door into proper closed position and into the vertical channel produced by the side wall plate 24 and into weather-strip engaging relation I provide the vertical door-post member or plate 25 with wedge blocks or members 26 whose beveled edges cause the forward end of the door to move outwardly into the channel of member 24 and hence into the weather-strip compressing position indicated in Figure 3.

The rear end of the door 10, adjacent the top and bottom thereof, is provided with a pair of wedge members 27, 27, whose free ends extend into a plane substantially parallel with each other, while the intermediate portion 28 slopes outwardly so that the free end 29 will be disposed in spaced relation with the door 10. The wedge members 27 are secured to the inner or car-side of the door as shown in Figures 2 and 3.

The inner side of the door-guard 13 is also provided with a pair of wedge elements or bars 30, 30 which are similar in construction to the wedge elements 27, except that the free ends 31 of the wedge elements 30 are disposed toward the door and are intended to engage with the free ends 29 of the elements 27 and combinedly force the door in an outward direction. The wedging relation between the ends 29 and 31 is obtained by the diagonally disposed intermediate portions of the wedge elements riding on each other and into the door wedging position indicated in Figure 3 during door closing movement.

As shown in Figure 3, the door strip 25 with the wedge elements 26 at the forward end of the door, not only overlap this end of the door when the latter is in closed position, but also forces the forward end of the door 10 into firm relation with the rubber weather strip 21. This causes the strip 21, as well as the rubber strip 20 at the top of the door to be compressed into weather sealing relation, while the wedge elements or strips 27 and 30 adjacent the upper and lower parts of the door and at the rear end force this end of the door into compressing relation with the rubber strip 22.

It is apparent, therefore, that a tight weather sealing condition about all sides of the door is provided; at the bottom of the strip 16 and at the top and both ends by strips 20, 21 and 22 and that this weather sealing condition is obtained through compression after the door has been brought into closed position, with the result that a better sealing condition not only is provided and maintained but the frictional or rubbing relation between the door and the weather stripping as heretofore constructed is eliminated.

In order that the door may move out of rubbing relation with the weather stripping during door operation, the car side wall, rearward of the door-guard 13, is provided with a roller 32 mounted on a vertically disposed axis in a suitable roller-housing 33. This roller is mounted preferably in proximity to the entrance to the chamber or pocket formed by the door-guard 13 as shown in Figures 1, 2 and 3. In the exemplification merely one roller is shown mounted intermediate of the top and bottom of the door. The roller housing 33 is preferably provided with the tapering walls disposed in the direction of door travel and the perimeter of the roller extends slightly beyond the housing so as to engage the approaching end of the door and cause it to ride up on the roller and therefore force the door inwardly or away from the weather-stripping 20, 21 and 22, with the result that the weather stripping will not be subjected to the rubbing action of the sliding door.

The structure illustrated and described is believed to be the best embodiment of my invention, but certain modifications may be made without, however, departing from the spirit of my invention as set forth in the appended claims.

What I claim is:—

1. In a car door construction, the combination of a slidably mounted door adapted when at closing position to move downwardly toward the door-sill and laterally toward the car wall, a door-guard arranged adjacent the door-opening in spaced relation with the inner car wall, resilient weather sealing strips disposed about the door-opening and at right angles to the normal path of the door and removably secured in place, wedge members secured to the inner side of the door adjacent the rear end of the door, wedge members secured to the inner side of the door-guard adjacent the path of the wedge members on the door, the members on the door and on the door-guard having cooperating surfaces adapted to ride up on each other and thereby force and hold the door laterally when at closing position, and a wedge block secured to the forward door-post in the path of the closing door whereby the forward end of the door is forced laterally against the free edge of the sealing strips.

2. In a car door construction, the combination of a slidably suspended door arranged on the car interior, a door-guard arranged in spaced relation with the car side wall, weather sealing strips secured on the exterior of the car-wall about the opening so as to contact the outer side of the door when the latter moves to closing position, a plurality of co-operating wedge bars arranged on the inner side of the door and on the door-guard, the bars on the door and those on the door-guard having opposingly sloping surfaces adapted to ride up on each other and thereby force the door laterally into compressible contact with the weather strips, said bars being adapted to be operatively effective when the door approaches

closed position, and means secured to the car side wall rearward of the door-guard and adapted to engage the outer face of the door during the initial sliding movement of the door toward open position whereby the door is forced out of rubbing engagement with said weather strips.

3. In a car door construction, the combination of a slidably suspended door arranged on the car interior and adapted to move downwardly and laterally toward closing position, a door-guard arranged in spaced relation with the car inner side wall, weather sealing strips secured to the car wall about the door opening so as to engage the outer side of the door when the latter moves to closed position, opposingly sloping bars ar-

ranged on the inner side of the door and on the door-guard, the bars on the door being adapted to ride up on the bars on the door-guard when the door approaches closed position and the latter thereby forced into engagement with the sealing strips, anti-friction means secured to the car sidewall rearward of the door-guard and adjacent the path of the door whereby the latter is forced laterally out of contact with said sealing strips during movement of the door in opening direction, a weather strip secured on the bottom of the door adapted to be compressed on the threshold of the door opening when the door moves downwardly.

JOSEPH NEMEC.