May 8, 1956 G. A. VIOLA, JR 2,744,301

SECTIONAL THRESHOLD FOR SLIDING DOORS

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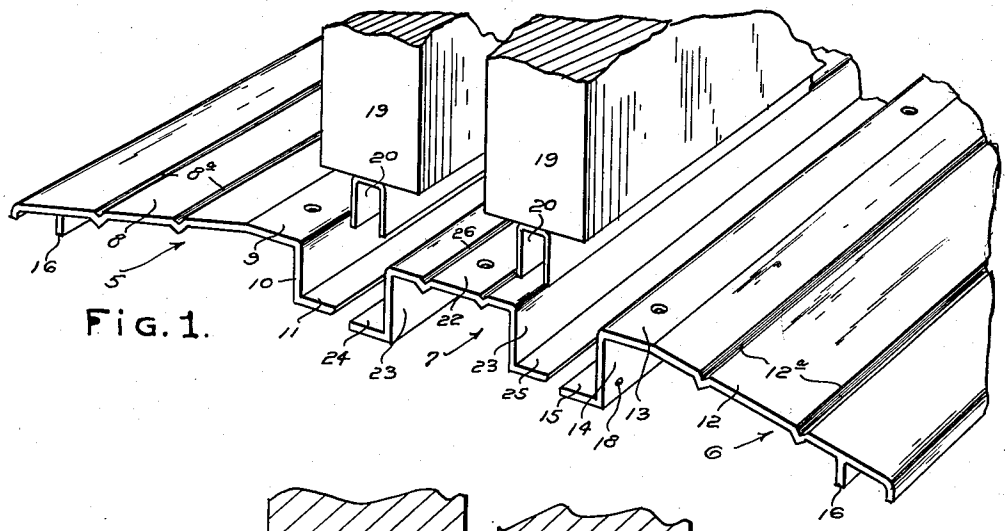


Fig. 1.

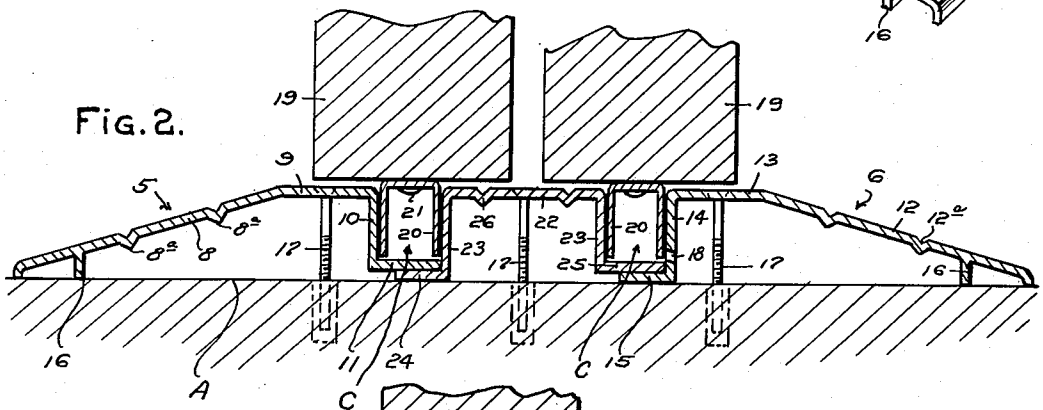


Fig. 2.

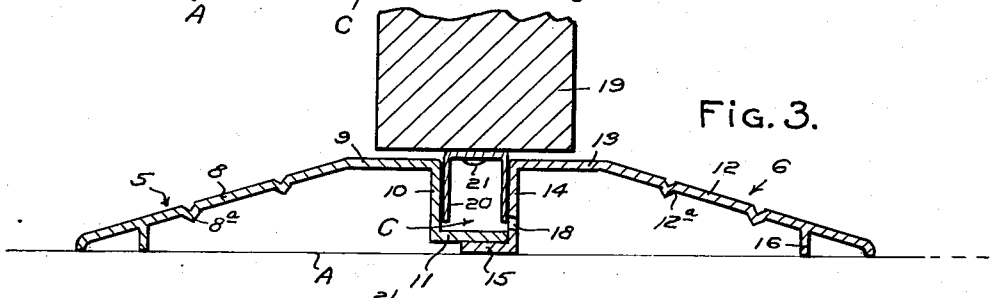


Fig. 3.

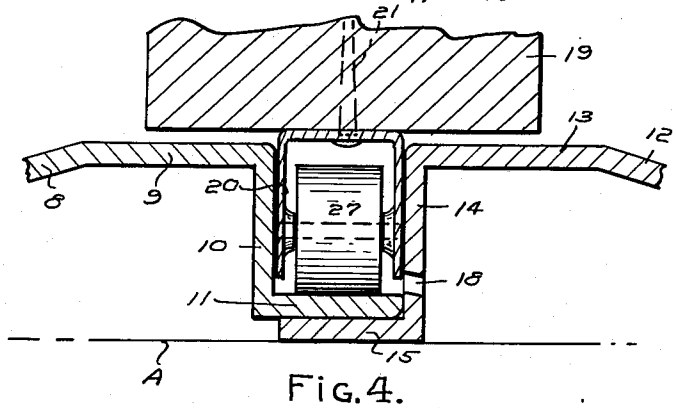


Fig. 4.

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SECTIONAL THRESHOLD FOR SLIDING DOORS

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2 Claims. (Cl. 20—64)

This invention relates to improvements in thresholds or saddles for sliding doors.

It is an object of the present invention to provide a threshold that is formed in sections that have interfitting relation to jointly create a channel for the reception of a channel member that is fixed upon and co-extensive with the bottom edge of a sliding door to effectively provide a weather baffle against the entry of foreign matter beneath the door.

A further object of the invention resides in a sectional threshold that is formed in mating sections, with the sections capable of being multiplied to form any desirable number of parallel channels for multiple overlapping sliding doors and with the sections comprising inner and outer inclined sections that have mating overlapping relation to each other when only a single channel is desired and one or more inner mating sections that have overlapping engagement with the inner and outer sections when multiple channels are desired.

Another object of the invention resides in forming the improved threshold of preferably extruded light weight metal, such as aluminum with each of the sections flanged to have an overlapping engagement with the adjacent member to accurately form upwardly opening channels for the sliding reception of downwardly opening channel bars fixed upon the bottom edge of the sliding door or doors to effectively guide the door in its sliding movement and to prevent lateral movement of the door.

The invention further contemplates the use of traction rollers journalled in the channel bar of the door to traverse the channels of the threshold to facilitate the shifting of the door.

Other novel features of construction and arrangement of parts will be more clearly apparent by reference to the following description, coupled with the accompanying drawings, wherein has been illustrated a preferred embodiment of the device and wherein like characters of reference are employed to denote like parts throughout the several figures.

In the drawings:

Figure 1 is a fragmentary perspective view of a threshold constructed in accordance with the invention and with the parts and associated sliding doors being separated.

Figure 2 is a transverse section through the assembled threshold and associated sliding doors with the parts forming multiple channels,

Figure 3 is a similar view with the parts forming a single channel for a single sliding door and,

Figure 4 is an enlarged fragmentary transverse section illustrating the use of traction rollers for the sliding door.

Referring specifically to the drawings, the numerals 5 and 6 designate inner and outer threshold members and 7 designates an intermediate member for co-operative assembly with the inner and outer members. The inner member 5 is preferably extruded to form an inclined tread portion 8, a flat horizontally arranged tread portion 9, a vertical wall portion 10 and a right angle flange 11 that is parallel with the tread 9.

The outer threshold member 6 is also preferably extruded to provide an inclined tread portion 12, a flat tread portion 13, a vertical wall 14 and a right angle flange 15. Each of the tread portions 8 and 12 are preferably provided with reinforcing ribs 8*a* and 12*a* and each of the tread portions 8 and 12 are also provided with downwardly extending webs 16 that have contacting engagement with the floor of the building and serve to reduce the flexing of the treads. The tread portions 8 and 12 terminate at their outer marginal edges in rounded corners.

The inner and outer threshold members 5 and 6 have co-operative mating engagement with each other longitudinally and when employed to form a single guide channel, as in Figures 3 and 4, the flange 15 has resting engagement upon the floor (A) while the flange 11 overlaps and rests upon the upper surface of the flange 15 for its full width. The width of the flange 11 has been accurately designed to properly space the walls 10 and 14 to provide a channel (C) of the desired width throughout the length of the threshold. Each of the sections 5 and 6 are suitably apertured at spaced points throughout the length of the treads 9 and 13 for the passage of hold-down fastening screws 17 that engage within the floor surface. The wall 14 is preferably provided with weep holes 18 at spaced points throughout its length to drain away any water which might accumulate in the channel C. The screws 17 firmly press the flange 11 upon the flange 15 to effectively prevent the passage of water therebetween.

The channel C provides an accurate guide for the sliding door device 19, as in Figures 3 and 4, with the door being supported in the usual manner upon a conventional overhead trackways. To prevent lateral shifting of the door in the presence of side pressures, the bottom edge of the door has been provided with an inverted channel bar 20 extending for the full width of the door and rigidly secured thereto by any desirable means, such as screws 21. The channel bar 20 has a width that permits it to slidably engage within the channel C for its major height, the depth of engagement being determined by the amount of clearance between the bottom edge of the door and the treads 9 and 13. The clearance between the side walls of the channel bar 20 and the walls 10 and 14 is just sufficient to permit freedom of sliding movement but also sufficiently close to retard the entry of water or other foreign matter past the bottom of the door and the threshold. Any water which might penetrate past the channel bar 20 will be effectively drained through the weep holes 18.

Since multiple sliding doors are frequently employed in overlapping relation, it becomes necessary to multiply the number of channels C to correspond therewith and to illustrate such multiplication, two overlapping doors 19 have been shown in Figures 1 and 2. Each of the doors 19 are provided with identical channel bars 20. In order to multiply the channels C, the intermediate threshold member 7 has been provided. The member 7 embodies a flat horizontally arranged tread portion 22 that is extruded to form vertical walls 23 at a right angle to the tread 22, with the walls terminating in right angle and outwardly directed flanges 24 and 25. When but a single intermediate member is employed to form two channels C, the flange 24 has resting engagement upon the floor and underlies the flange 11 of the member 5, while the flange 25 overlies the flange 14 of the member 6. The wall 23 and flange 24 are identical in dimensions with the wall 14 and flange 15 of the member 6, while the wall 23 and flange 25 are identical in dimensions with the wall 10 and flange 11. Thus, the inter-

mediate sections 7 may be multiplied in accordance with the number of channels C desired. In assembled relation, with the flanges 11 and 24 and 25 and 15 in overlapping and abutting relation, the tread 22 is disposed at an identical height with the treads 9 and 13. Suitable screws 17, passing through apertures in the tread 22, serve to effectively bind the flanges in firm overlapping engagement against shifting. The tread 22 may also be reinforced by ribs 26.

It has been found in certain instances, that the door 19 be antifrictionally supported at bottom to facilitate its traverse and, to provide for this contingency, antifriction and preferably non-metallic rollers 27, are suitably journalled in the channel bars 20 at spaced points in its length and have rolling engagement with the bottom of the channel C, as defined by the flange 11. Thus, in unusually heavy doors, the rollers 27 will greatly facilitate the sliding movement, all other novel features of the device remaining the same, including the weathering engagement of the bars 20 within the channels C.

The use of the device is as follows:

The threshold sections 5 and 6 are preferably formed in relatively long lengths to be subsequently cut the desired length for a door opening. Likewise, the intermediate section 7 is formed in relatively long lengths to be cut in lengths as desired thus requiring the stocking of but three extrusions. With the door being suspended in the usual manner from the overhead trackway, the previously cut threshold sections are accurately aligned with the channel bar 20 and with the flanges 11 and 15 in abutting and overlapping relation to provide the channel C. The sections 5 and 6 are then securely held against shifting and the door shifted to a recessed position to expose the openings for the screws 17, after which the screws are engaged and the device firmly anchored in position. As in Figures 1 and 2, where multiple doors and channels are desired, the inner and outer sections 5 and 6 and the intermediate sections 7 are engaged with their flanges in overlapping abutting engagement, as shown in Figure 2 and the channels C thus formed are accurately aligned with the channel bars 20 to permit free and unobstructed sliding of the suspended doors 19. Again, the doors are shifted to expose the several screw openings of the treads 9, 22 and 13, at which time the device is firmly engaged with the floor A. Since the intermediate sections 7 are all identical, as many can be added as desired, increasing the number of channels C in accordance with the number of overlapping sliding doors employed. The assembly of the parts as shown in Figure 4 is identical.

It will thus be apparent that a very simple and most economical threshold has been provided. The parts readily lend themselves to economical manufacture from an extruded light weight metal, such as aluminum and requires, as before pointed out, the stocking of but three separate extrusions, with the inner and outer sections being mated with respect to each other to form a single channel and with the intermediate section being constructed to have mating engagement with the inner and outer sections and to have mating engagement with each

other. Thus, a jobber can furnish a threshold with the desired number of channel forming members by cutting one inner and one outer and any desired number of the intermediate sections from the relatively long strips as furnished by the manufacturer. Thresholds heretofore employed have been complicated and difficult to install, are expensive and require the jobber to stock many separate parts to accommodate the various requirements.

It is to be understood, that the invention is not limited to the precise arrangements shown, but that changes are contemplated as readily fall within the spirit of the invention as determined by the appended claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. The combination with multiple sliding doors and a sectional threshold, the threshold formed in multiple sections including inner and outer sections and an intermediate section, the outer and inner sections each having an elevated flat tread portion and an outwardly and downwardly inclined portion that terminates at substantially a floor level, the flat tread portions at one side being bent downwardly at a right angle to form a channel wall and then outwardly at a right angle to form a flange, the walls and the flanges of the inner and outer sections being parallel and extending for the full length of the threshold, the intermediate section being of inverted channel form having a flat tread portion that is elevated to be flush with the first named flat treads and side walls that are parallel with the side walls of the inner and outer sections, the side walls of the intermediate section being bent outwardly at a right angle to form mating flanges with the flanges of the inner and outer sections, one flange of the intermediate section underlying the flange of the inner section and the other flange of the intermediate section overlying the flange of the outer section, the sliding doors having their lower ends overlying the major portions of the flat treads and with each door being provided with an inverted channel bar along its bottom edge for the full length thereof, the overlying flanges of the sections defining the spacing apart of the channel forming walls of the adjacent section to form a guide for the sliding reception of the channel bars with the channel bars engaging within the channels of the threshold for their major depth, the channel forming walls being provided with weep holes adjacent the overlying flanges.

2. The device according to claim 1, wherein the channel forming bars are provided with antifriction rollers that have riding engagement upon the overlying flanges.

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