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DOOR GUIDE

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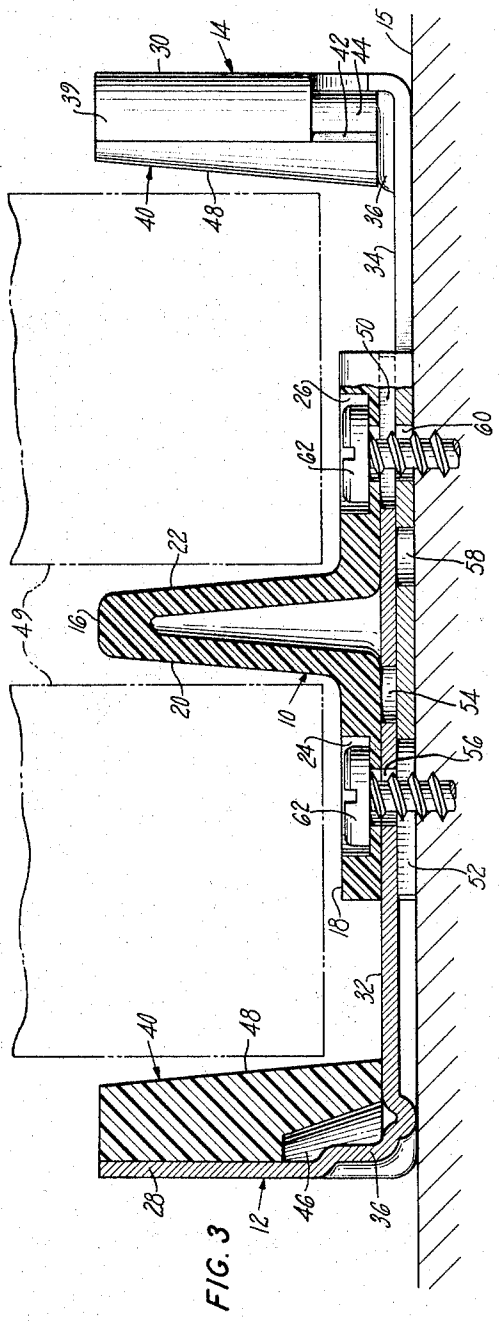


FIG. 3

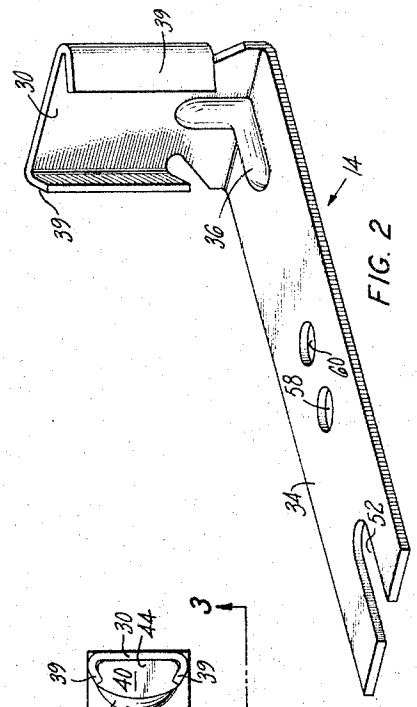


FIG. 2

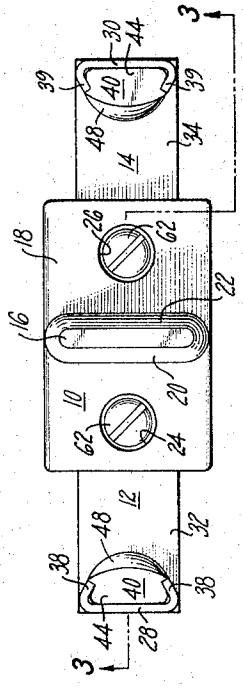


FIG. 1

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DOOR GUIDE

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This invention generally relates to hardware for sliding doors and is more specifically directed to a door guide of the type which is mountable on a floor for guiding the movement of a pair of bypassing sliding doors.

A primary object of the present invention is to provide an improved door guide which is particularly suited to maintain a pair of sliding doors a constant distance apart for smooth and quiet control of door movements while at the same time being adjustable for doors of different standard thicknesses.

Another object of the present invention is to provide an improved door guide of the type described which is economical to manufacture, is durable to use and is easy to assemble and secure for rapid installation and adjustment in order to maintain a pair of bypassing sliding doors in spaced, parallel alignment, while preventing the doors from pendulously swinging relative to their line of travel and bumping one another. Included in this object is the provision of a door guide in which a single pair of concealed fastening screws secure the guide assembly to the floor

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereafter set forth, and the scope of the application of which will be indicated in the appended claims.

In the drawing:

FIG. 1 is a top view of a door guide according to the present invention;

FIG. 2 is an enlarged, isometric view illustrating an outer guide member of the door guide of FIG. 1; and

FIG. 3 is a further enlarged, longitudinal view taken along line 3—3 of FIG. 1 and showing a cross section of a pair of bypassing sliding doors illustrated in part in phantom.

Referring now to the drawing in detail, the preferred embodiment of the door guide of the present invention is illustrated as comprising a center guide member, generally designated by numeral 10, and a pair of outer guide members, generally designated by the numerals 12 and 14, positioned at opposite ends of the center guide member 10 and adapted to be secured to a floor 15.

The center guide member 10 includes a center post 16 extending upwardly from a central portion of a base or channel plate 18. The center post 16 and the channel plate 18 are illustrated as being integrally molded of a suitable high strength material providing a relatively rigid construction. In this regard, the nylon resin molding powder sold by E. I. du Pont de Nemours & Co., Inc., under the trade name "Zytel" has been found to be satisfactory.

More specifically, the center post 16 is shown as having a truncated conoidal cross section with opposite side surfaces 20 and 22 converging upwardly and extending substantially across the channel plate 18 transversely to its longitudinal axis or center line. A pair of counterbores 24 and 26 on the center line of the channel plate 18 are respectively spaced apart adjacent side surfaces 20 and 22 of the center post 16, the counterbores extending downwardly through the plate and communicating with a cutout or channel longitudinally extending between the ends of channel plate 18 along its underside.

The outer guide members 12 and 14 are generally L-shaped and respectively include vertical walls 28 and 30 at opposite ends of center guide member 10 with elongated blades 32 and 34 extending horizontally from the bottom of the walls 28 and 30 so as to be received in the channel of channel plate 18. As illustrated, the blade 32 of outer guide member 12 (at the left of center guide member 10 as viewed in the drawing) is stepped adjacent its vertical wall 28 to provide a raised blade portion extending substantially the length of blade 32 and offset from the floor 15 to overlap the meeting blade 34 of the opposite outer guide member 14 in the channel of channel plate 18.

As thus described, each outer guide member is formed of a rigid high strength material, such as cold rolled steel, and the bend between the wall and blade of each outer guide member is upset to provide stiffening ribs 36 for increasing its rigidity.

In order to secure bumpers which are more specifically described hereafter, the lateral edges of walls 28, 30 are shown as being bent over toward one another forming a pair of side flanges 38, 39, each of which form a V shape with the inner surface of its respective wall and are angularly directed toward the center post 16.

A pair of substantially identical bumpers, generally designated by the numeral 40 and formed of a resilient, durable material requiring no lubrication such as nylon, are provided for the walls of the outer guide members 12, 14. Each bumper 40 is shown as having vertically grooved or fluted side edges (as shown at 42 in FIG. 3) defining a dovetail 44 at the back of the bumper which is relieved in the middle near its bottom as at 46.

The fluted side edges of the bumpers engage the side flanges 38, 39 upon sliding insertion of the dovetails 44 into fixed position on the outer guide members, and a wall portion of rib 36 is received by each bumper within the relieved bottom 46. It will be noted that, in the illustrated specific embodiment, the bumper for outer guide member 14 is seated on a blade portion of rib 36 thereby raising the bottom of the bumper from the surface of blade 34 into alignment with the bottom of the other bumper which partly rests on the raised offset portion of blade 32 of the other outer guide member 12. Thus, it will be apparent that the bumpers 40 can be easily mounted on the outer guide members merely by sliding the dovetails 44 along the inner surfaces of the walls.

The external surfaces or crowns 48 of the bumpers 40 face toward one another in spaced, opposed relationship with the side surfaces 20, 22 of the center post 16. The crowns 48 are preferably convexly curved between the side edges of the bumpers and are tapered in cross section to diverge upwardly with respect to the opposed side surface of the center post 16, the taper on the crown 48 of each bumper being in the order of 5° from the vertical which closely corresponds with the inclination of the upwardly converging side surfaces 20, 22 of the center post. The center and outer guide members thus provide a pair of diverging guideways for the bypassing sliding doors which are illustrated in part in phantom at 49.

In order to adjust the illustrated door guide to vary the size or width of the guideways, a pair of slots 50, 52 are formed to axially extend from the meeting ends of blades 32, 34. In addition, a pair of holes are shown as being formed in blade 32 at 54, 56 and in blade 34 at 58, 60 such that each pair of holes are spaced apart on the longitudinal axis of their respective blade in alignment with its elongated slot and with the center line of channel plate 18. The slots 50, 52 are of sufficient length to register with either of the pair of holes on the blades 34, 32. The blades 32, 34 thus may be longitudinally adjusted within the channel plate 18 such that a slot of one blade and a

hole of the other blade are registered with each counterbore 24, 26 whereby a vertically extending opening is formed at each side of the center post 16 for receiving a suitable fastener such as the clamping screw 62.

By virtue of the described structure, each clamping screw 62 is driven directly into the floor to press the channel plate 18 downwardly upon the lapping portions of the blades 32, 34 and to clamp or lock the outer guide members 12, 14 to one another in assembled relationship with the center guide member 10.

The holes in each blade may be spaced apart a predetermined distance corresponding to any measure of adjustment desired between the center post and the bumpers. Any number of holes may be formed on each blade to provide the desired degree of adjustability, or the holes may be replaced by a slot to further increase the adjustability. In the preferred embodiment, the holes are set at ⅜ inch spacing on each blade in accordance with the difference in standard size doors of 1⅜ inch and 1¾ inch thickness. Thus, if it were desired to increase the width of the guideways shown in the drawing, the outer guide members 12, 14 need only be pulled apart after removing the screws 62 and, upon aligning apertures 54 and 58 with counterbores 24 and 26, the slots 52 and 50 will automatically be aligned at the left and right sides of center post 16, respectively, to form the openings for receiving the clamping screws 62.

The illustrated embodiment additionally provides independent adjustment of one outer guide member without requiring that the other of the outer guide members be moved, if it were desired to increase the width of only one guideway to accommodate warping, e.g., such as when one of the doors is bowed with respect to the vertical. In this regard, the diverging guideways formed by the taper of the center post and of the crown of each bumper provide additional lateral clearance in the guideways and also assure that the longitudinal edges at the bottom of the doors are not marred over an extended period of use.

Finally, the door guide of the present invention may be readily manufactured at low cost and may be easily installed in a desired adjusted position for smooth and quiet control of the movement of a pair of bypassing sliding doors.

As will be apparent to persons skilled in the art, various modifications and adaptations of the structure above described will become readily apparent without departure from the spirit and scope of the invention, the scope of which is defined in the appended claims.

I claim:

1. A door guide for bypassing doors comprising a pair of L-shaped outer guide members respectively having a wall and an elongated blade extending therefrom, the blade of each outer guide member extending toward the other outer guide member in lapping engagement with the blade thereof, a center guide member having a base overlying the lapping blades and a center post supported on the base, the base having a pair of apertures respectively positioned between the center post and opposite ends of the base, each blade having first and second aperture means registrable with the second and first aperture means of the other blade, respectively, in at least two positions and with one of the pair of apertures in the base to provide longitudinal adjustment of the blades relative to the center guide member and a vertically aligned opening at opposite sides of its center post, and a fastener received in each opening locking the outer guide members to one another in assembled adjusted relation to the center guide member.

2. The door guide of claim 1 wherein each outer guide member includes on its inner wall surface a bumper spaced opposed to the center post, the bumpers and the center post having opposing surfaces of nylon-type material tapered toward their upper ends to form a pair of upwardly diverging guideways for guiding the movement of a pair of bypassing doors.

3. The door guide of claim 1 wherein the first aperture means in the blade of each outer guide member includes an elongated slot longitudinally extending from the end of the blade remote from the wall, and wherein the second aperture means includes a plurality of holes spaced apart a predetermined distance from one another in alignment with the elongated slot and which holes are selectively registrable, upon relative longitudinal movement of the blades, with the slot of the other blade and with an aperture of the base whereby each outer guide member is independently adjustable to vary the distance between its wall and the center post.

4. A door guide for bypassing doors comprising a center guide member having a center post and a base for the center post, the base having an aperture intermediate the center post and each of the opposite ends of the base respectively, a pair of outer guide members having walls adjacent the opposite ends of the base and blades extending from the walls and meeting in lapping relationship with each other and the base, the blades having slotted meeting ends in longitudinal alignment with one another and with a pair of holes spaced apart a predetermined distance in each blade, the holes in each blade being selectively registrable, upon longitudinal adjustment of the blades, with the slotted end of the other blade and with an aperture of the base thereby to provide a vertically aligned opening at opposite sides of the center post, and a clamping screw received in each opening pressing the base downwardly to lock the blades in adjusted position.

5. The door guide of claim 4 wherein the pair of holes in the blade of each outer guide member are spaced apart ⅜ inch to provide a similar longitudinal adjustment between the center post and the wall of each outer guide member respectively, and wherein the meeting ends of the blades are each slotted a sufficient length to register with either of the pair of holes in the other blade to accommodate such longitudinal adjustment.

6. The door guide of claim 4 wherein the walls of the outer guide members respectively have lateral edges bent over to provide side flanges forming a V shape with the inner wall surface, and wherein each outer guide member includes an insertable bumper of nylon-type material having vertically fluted side edges engageable with the side flanges such that each bumper is firmly seated on the inner wall surface of its respective outer guide member, and wherein each bumper includes a tapered crown surface diverging upwardly with respect to the opposed surface of the center post whereby the center and outer guide members collectively define a pair of guideways for guiding the movement of a pair of bypassing doors.

References Cited by the Examiner

UNITED STATES PATENTS

2,949,626	8/1960	Blackmer	16—90
3,205,529	9/1965	Vintan	16—90

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