The present invention relates to floor guides for sliding doors and particularly to the type of sliding door which is provided on its bottom edge with a groove extending the width of the door.

The present invention provides a guide which is received in the bottom groove of a door or doors of the by-pass type and which guide is not outwardly visible under normal operation of the door or doors.

An object of the invention is the provision of a floor guide for the bottom edges of by-pass sliding doors which permits its removal and ready replacement in its original position.

A further object is the provision of a floor guide for by-pass sliding doors which permits a door to be removed and to be reinstalled without redetermination of the correct position of the floor guide.

A further object is the provision of a floor guide for by-pass doors which may be easily installed by workmen and in which a single screw holds the guide assembled.

A further object is the provision of a floor guide for by-pass sliding doors which is inexpensive in cost of manufacture, easily fabricated and assembled on the floor for use, and which is superior to floor guides for sliding doors now known to the inventor.

In the drawing:

FIGURE 1 is a fragmentary elevation of a pair of by-pass sliding doors utilizing the floor guide of the invention;

FIGURE 2 is a fragmentary sectional view on an enlarged scale, taken on the line 2—2 of FIGURE 1;

FIGURE 3 is a fragmentary partially sectional view on the line 3—3 of FIGURE 2;

FIGURE 4 is a fragmentary enlarged view taken on the line 4—4 of FIGURE 1;

FIGURE 5 is a rear elevation of the floor guide;

FIGURE 6 is a separated transverse sectional view of the two sections of the floor guide;

FIGURE 7 is a top plain view of the base plate of the floor guide; and,

FIGURE 8 is a fragmentary sectional view of the floor guide and by-pass doors, the view being similar to that of FIGURE 2.

At the present time door guides for by-pass sliding doors may comprise a U-shaped member for each door or a single U-shaped member positioned between grooves in the bottoms of the doors to guide movement of the bottom of a door or doors. Present practice bonds the guides to the floor rendering removal thereof difficult. Usually such a floor guide is either nailed or held by screws to the floor and if the floor guide is to be removed and replaced, care must be exercised that the floor guide is returned to its original position in order that the by-pass doors move in proper relationship.

My invention differs from present practice in that I provide a floor guide comprising two sections and members one of which constitutes a base plate adapted to be secured to the floor in a predetermined location between the doors and a second section held to the base plate by a single fastening means such as a screw and which fastening means is so positioned as to be readily contacted by a workman to remove the means and to release said section from the base plate. Thus, adjustment is always the same for the reason that the base plate remains fixed in position to the floor and a second or guide section for the doors is so formed for cooperation with the base plate that the two sections always assume the same relationship and position when assembled and held by the single securing member. Hence, if a door requires removal or replacement, the guide section may be removed from the base section and then replaced with assurance that the original position will at all times be attained.

In FIGURE 11 I have shown a pair of by-pass sliding doors 1 and 2 within a door opening 3. Jambs 4 and 5 are provided at the door opening as well as a header 6. Doors of the type shown by by-pass each other in the door opening and are moved by handles or knobs as shown at 7 for each door. The header 6 is provided with parallel tracks 10 and 11 of any convenient form such as shown in FIGURE 2. The tracks carry wheels 12 secured to hangers 13, which hangders are secured in spaced pairs to each door as shown in FIGURE 1 at 15 and 16. Other types of wheeled hangers may be employed and the type shown is for illustrative purposes only. As it appears in FIGURE 1, the two doors are in overlapped relationship at their adjoining inner edges when the outer vertical edges of said doors abut the jambs.

In a construction of this kind, it is generally necessary to guide the bottom edge of each door so that the doors will not swing against each other or interfere with movement of either door. To accomplish this I have provided a guide for the bottom edge of each door which is substantially not visible in any position of the doors within the door opening. In the present instance both doors are provided with bottom grooves 20 and 21. These grooves extend inwardly from the bottom edge of each door a certain distance and are positioned preferably intermediate the thickness of each door. The grooves extend the width of the doors as shown in FIGURE 1.

The floor guide for the doors is in two parts or sections designated generally as 25 and 26. Section 26 is termed the base plate while section 25 which overlies the base plate I term the guide plate. The base plate in the present instance is substantially rectangular in outline as shown in FIGURE 7 and has two wings 27 and 28 lying in the same plane and an intermediate portion 29 joins the wings which portion is substantially an inverted channel or U-shaped. Thus the channel or U-shaped portion has two flanges at 30 and 31 and a web 32 joining the flanges. However, the flanges and the web do not extend the full width of the wings 26 and 27 as shown in FIGURE 7 but provide a space at 33. A tab 34 extends downwardly at an angle from the web 32, the outer end of the tab terminating at the plane of the wings 27 and 28. This tab is provided with a threaded bore 35. The web 32 is formed with a transverse slot 36 which in the present instance is of isosceles trapezoidal form. The large base of the slot adjoins the tab 34 while the small base faces the front edge of the base plate.

The guide plate is adapted to overlie the base plate and to be detachably connected thereto. The guide plate 25 in-
cludes a base having two wing portions 40 and 41 which lie in the same plane with an intermediate inverted channel portion 42 joined to the wing portions and which inverted channel portion, as before, has flanges 43 and 44 and a web 45 joining the flanges. The wing portions and the inverted channel portion are preferably formed with full-length wing portions which are provided with a pair of parallel blades 46 and 47 which extend upwardly with respect to the wing portions. The spacing between the blades 46 and 47 is substantially the same as the spacing between the grooves 20 and 21 of the doors 1 and 2, as shown in FIGURE 2. The inverted channel portion does not extend for the full width of the wing portions but has a cut-out portion at 48 and the web 45 is provided with a downwardly extending uniform width tab 49 which terminates at the plane of the wing portions 40 and 41 as shown in FIGURE 6. The tab 49 is provided with a hole 50. The web 45 is purposed to provide a downwardly extending uniform width tab 51 the outer end of which extends as far as the plane of the wing portions 40 and 41.

The construction is such that the guide plate overlies the base plate and the inverted channel member of the base plate fits within or overlaps the inverted channel member of the guide plate with the wing or base portion for both members engaging as shown in FIGURE 5. The tabs 34 and 49 are in overlying relationship as shown in FIGURE 3 while the tongue or tab 51 is received in the slot 36 for engagement between the sides thereof. When the guide plate overlies the base plate, a screw 52 may be passed through the hole 50 for threaded engagement with the bore 35 to hold the parts against separation. It will be observed from FIGURE 6 that the screw angle is substantially 45° relative to the plane of the base plate or guide plate so that the kerf of the screw faces upwardly between the doors for easy access by a screwdriver, and particularly for the reason that the screw kerf is adjacent the outer edges of the base plate and guide plate.

The operation, uses and advantages of the invention are as follows.

Assuming an area which includes two by-pass sliding doors and a carpeted floor, as indicated in the several figures, the location for the base plate having been determined, the guide plate may be released from said base plate by removing the screw 52 from engagement with the base plate and moving the guide plate upwardly to release the overlapping portions of the doors 1 and 2 as shown in FIGURE 1 at 64. The guide plate is then placed on the base plate with the blades 46 and 47 straddling and received within the grooves 20 and 21 of the doors. To accomplish this the doors are generally moved so as to lie adjacent each other which opens one-half of the door opening. The tab or tongue 51 is passed through the slot 36 and, as shown in FIGURE 3, the tab is of greater length than the altitude of the slot. As a consequence, the tab or tongue which is substantially uniform as to width moves along the sides of the slot toward the small base to the large base portion of the groove on the sides of the slot at which time the tabs 34 and 49 will be in overlying relationship as said tabs have the same angle with respect to the web portions of the inverted channel portions. The screw 52 is then inserted through the large bore 50 which allows for slide screw movement relative to the tab 49 for threaded engagement with the threads of bore 35 to hold the two tabs together against separation. Thus the guide plate is secured to the base plate not only by the overlapped relationship between the inverted channels of said plates but in addition by the tab 51 reception in the slot 36 and the securing of the tabs 34 and 49 by the screw 52. This provides a very firm non-shiftable relationship between the plates. As has been pointed out, the head of the screw 52 and particularly the kerf portion extends outwardly at an edge of the plates at substantially a 45° angle so that the kerf may have ready contact with the kerf of the screw by means of a screwdriver. When the floor guide for the doors is in the position shown in FIGURE 1, it is evident that it is not visible to an observer from the front or rear of the doors nor is it visible when the doors are moved together as it is effectively hidden between the overlap at 64 of said doors. If, for some reason a door needed to be replaced, the workman, by removing the screw 52 from engagement between the tabs 34 and 49, may then slide the tab 51 from the slot 36 which, of course, releases the blades from the slots 20 and 21 in the bottom edges of said doors and allows independent removal of the doors from the tracks supported by the wheeled hangers for the doors. Upon replacement of a door with its wheeled hangers upon a track, the guide plate may again be positioned on the base plate as the base plate has a fixed position on the flooring and the guide plate is secured to the base plate both by the tab 51 and the screw 52 passed through the tabs 34 and 49.

It is evident that this system using as it does but a single screw for securing both the guide plate and the base plate together, assures proper alignment of the floor guide at all times without requiring the extra care which is generally required and which for these reasons is removed from the floor and then replaced each time a door is removed from its track. In the latter case, it is absolutely essential that such a guide, if fully removed, must be replaced and secured at the identical position on the floor. By providing a fixed base plate having a definite adjustment which is pre-ascertained and then with the base plate secured to the flooring against removal, together with a guide plate which is removable from the base plate and which may be replaced in the same position as originally provided, I provide a structure which is superior to structures now known to the inventor and one which is saving of time and expense in installation. The inverted channel portion of the base plate closely fits within the inverted channel portion of the guide plate and this close fit between the two inverted channel portions together with the tongue 51 which engages the sides of the slot 36 with the screw 52 further means for co-engagement of the two tabs 34 and 49 provides a structures which resists stresses such as may be set up wherein the door is moved relative to the blades 46 and 47.

In commercial adaptations it has been found that the floor guide of the invention may be delivered to its point of use in assembled condition. That is to say, the base plate and guide plate are secured together by tab 51 being passed through the slot 36 and the screw 52 securing the tabs 49 and 34. The installer places mastic on the base surface of the base plate followed by placing the assembly between the doors with the blades 46 and 47 received in the bottom slots 20 and 21 of the doors. The mastic secures the assembly to the floor.

I claim:

1. A guide for the grooved bottom edges of by-pass sliding doors, said guide including: a base plate adapted to be secured to flooring beneath the bottom edges of the doors and a guide plate for connection with said base plate; said guide plate provided with a pair of spaced apart blades for reception within the grooves of said doors, said base plate formed with an intermediate transverse inverted channel portion and said guide plate formed with an intermediate inverted channel portion intermediate the blades, the channel portion of the guide plate adapted to overlap the channel portion of the base plate and means for securing the channel portions against separation when in overlapped position.

2. A floor guide for the grooved bottom edges of by-pass sliding doors including: a base plate adapted to be
fixedly secured to a foundation member and a guide plate provided with a pair of blades for entrance in the grooved bottom edges of said doors, both the base plate and the guide plate provided with an inverted channel portion, the channel portions of which are adapted to overlap, the channel portion of the base plate provided with a slot and the channel portion of the guide plate provided with a downwardly extending tongue for entrance in said slot to position the guide plate relative to the base plate.

3. The device as set forth in claim 2, each channel portion of the guide and base plates provided with a single tab adapted to overlap when the guide and base plate are in cooperative relationship and in a definite position, and means for securing the tabs against separation.

4. The device as set forth in claim 3, said inverted channel portions being of lesser width than the width of either the guide plate or base plate, and the width of the cooperating tabs together with the width of said inverted channel portions equalling the width of the base plate and the guide plate.

5. The device as set forth in claim 3, said cooperating tabs extending at an angle toward the respective base plate and guide plate, the base plate tab being provided with a screw threaded opening and the guide plate tab provided with a hole, and the means comprising a headed screw for passage through the hole of one tab for threaded engagement with the other tab.

References Cited

UNITED STATES PATENTS

643,317 2/1900 Schmitt -------------- 160—197
3,000,046 9/1961 Folitz --------------- 16—90

FOREIGN PATENTS

721,884 3/1932 France.

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