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ADJUSTABLE FLOOR GUIDE FOR BYPASSING SLIDING DOORS

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FIG. 1.

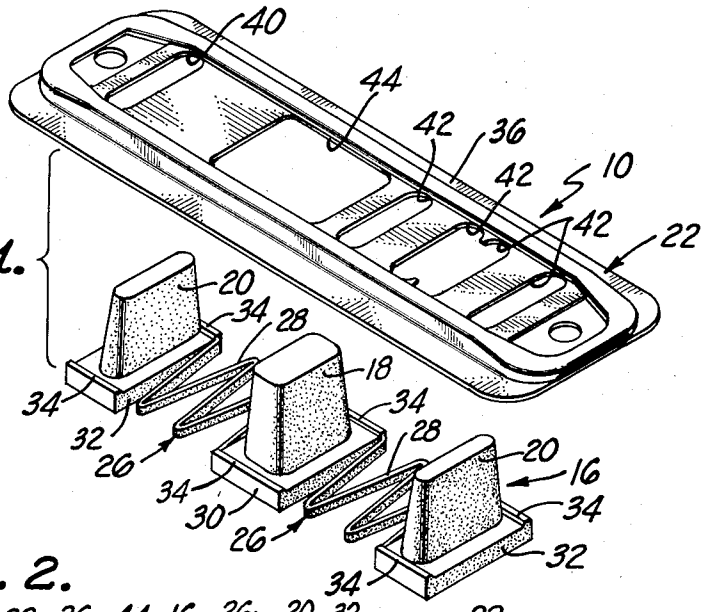


FIG. 2.

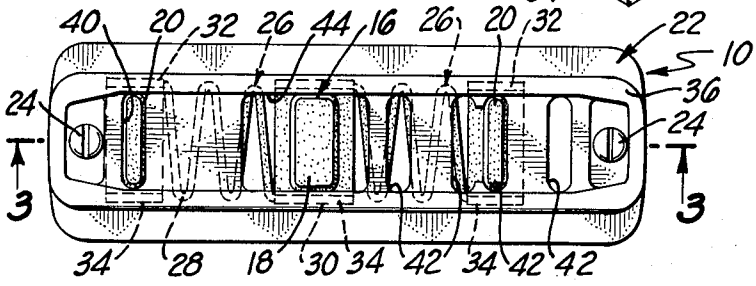


FIG. 3.

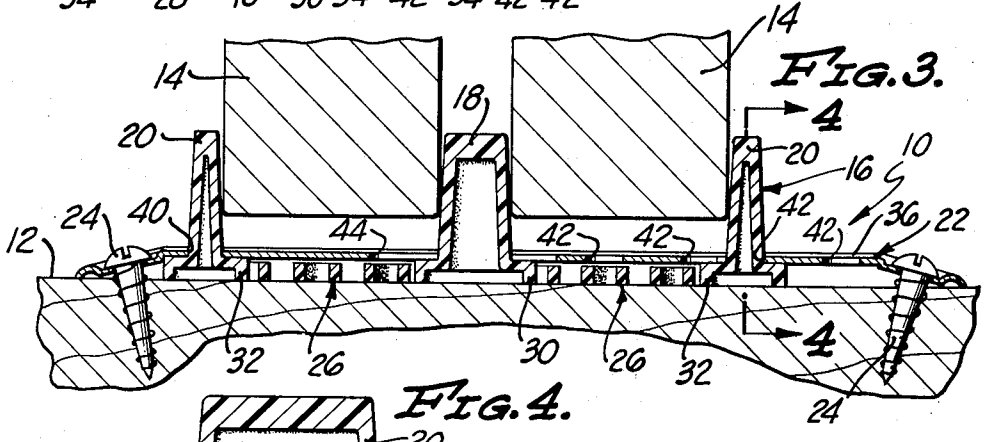
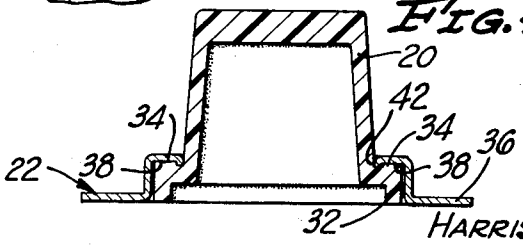


FIG. 4.



INVENTORS
HAROLD B. ENOS,
KENNETH K. KELLEMS
BY THEIR ATTORNEYS
HARRIS, KIECH, RUSSELL & KERN

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ADJUSTABLE FLOOR GUIDE FOR BYPASSING SLIDING DOORS

Harold B. Enos, Whittier, and Kenneth K. Kellems, Ontario, Calif., assignors to Acme Appliance Manufacturing Company, Monrovia, Calif., a corporation of California

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The present invention relates in general to a floor mounted guide for the lower edges of bypassing sliding doors suspended from overhead tracks, as by means of rollers engageable with the tracks.

A general object of the invention is to provide a sliding door guide which is capable of a substantial number of width adjustments over a wide range to accommodate any door thicknesses in common use.

The primary object of the invention is to provide an adjustable guide for bypassing doors comprising a central guide member disposable between the doors, two outer guide elements respectively located on opposite sides of the doors from the central guide member, two connecting means which respectively connect the outer guide elements to the central guide member and which are flexible to vary the spacings between the central guide member and the outer guide elements to accommodate doors of different thicknesses, and means for securing the guide means composed of the central guide member and the outer guide elements, to the floor beneath the doors with the outer guide elements spaced predetermined distances from the central guide member.

An important object is to provide a hold down means for securing the aforementioned guide means to the floor which includes means for securing one of the outer guide elements in a fixed position relative to the hold down means, means for securing the other of the outer guide elements in one of a plurality of fixed positions relative to the hold down means, and means providing for floating movement of the central guide member into a neutral position substantially half way between the outer guide elements.

With the foregoing construction, the guide means of the invention is adjusted readily by locating one of the outer guide elements in its fixed position, locating the other of the outer guide elements in that one of its possible fixed positions which corresponds to the thickness of the doors to be used, and permitting the central guide member to seek an intermediate, neutral position substantially midway between the outer guide elements.

Another object is to provide a guide means which is of one-piece construction, the outer guide elements, the central guide member, and the two flexible connecting means between the outer guide elements and the central guide member, all being integral. Preferably, these components of the guide means are all integrally molded from a suitable plastic material, such as nylon.

Another object of the invention is to provide a molded one-piece guide means wherein the flexible connecting means between the outer guide elements and the central guide member are of an accordion-like or pleated construction.

A further object of the invention is to provide a bypassing door guide wherein the hold down means comprises simply a hold down plate adapted to overlie the guide means and having an opening adapted to snugly receive one of the outer guide elements, spaced openings each adapted to snugly receive the other of the outer guide elements, and an enlarged intermediate opening adapted to loosely receive the central guide member so that the latter can seek a neutral position substantially midway between the outer guide elements.

With the exception of screws, or other means for fastening the hold down plate to the floor, the invention requires only two pieces, viz., the adjustable guide means and the hold down plate for securing the guide means in its adjusted position, these two parts accommodating a wide range of door thicknesses, which is an important feature.

The foregoing objects, advantages, features and results of the present invention, together with various other objects, advantages, features and results thereof which will be evident to those skilled in the art in the light of this disclosure, may be achieved with the exemplary embodiment of the invention described in detail hereinafter and illustrated in the accompanying drawing, in which:

FIG. 1 is a perspective view showing the guide means and the hold down means of the bypassing door guide of the invention prior to assembly;

FIG. 2 is a top plan view of the bypassing door guide as assembled to accommodate bypassing doors of one thickness;

FIG. 3 is an enlarged sectional view taken along the arrowed line 3—3 of FIG. 2; and

FIG. 4 is a sectional view taken as indicated by the arrowed line 4—4 of FIG. 3 of the drawing.

Referring to the drawing, the bypassing door guide of the invention is designated generally by the numeral **10** and is securable to a floor **12** beneath bypassing doors **14** to guide same in their movement along overhead supporting tracks, not shown.

The bypassing door guide **10** includes two basic components, one being a guide means **16** comprising a central guide member **18** positionable between the doors **14** and two outer guide elements **20** positionable on the opposite sides of the doors **14** from the central guide member, and the second being a hold down means **22** for securing the guide means **16** to the floor **12** with each of the outer guide elements **20** spaced from the central guide member **18** a distance corresponding to the thickness of the doors **14**. The hold down means **22** is secured to the floor **12** in any suitable manner, as by two screws **24** on opposite sides of the bypassing doors **14**.

The guide means **16** includes, in addition to the central guide member **18** and the outer guide elements **20**, two flexible connecting means **26** flexibly connecting the respective outer guide elements to the central guide member. More particularly, each connecting means **26** includes an accordion-like or pleated connector **28** which flexibly interconnects a base **30** for the central guide member **18** and a base **32** for the corresponding outer guide element **20**. The bases **30** and **32** are provided with two spaced, parallel rows of aligned ribs **34** for a purpose to be described, the two rows of ribs **34** respectively being located on opposite sides of the central guide member **18** and the outer guide elements **20** and extending lengthwise of the bypassing door guide **10**, i.e., extending transversely of the bypassing doors **14**. The function of the ribs **34** will be discussed hereinafter.

It will be apparent that, by virtue of the flexible interconnections between the central guide member **18** and the outer guide elements **20** which are provided by the connectors **28**, the spacing between the outer guide elements and the central guide member may be varied as required to accommodate bypassing doors **14** of a particular thickness. Preferably, the guide means **16** is of one-piece construction and is molded from a suitable plastic material, such as nylon. This one-piece, molded construction greatly simplifies manufacture of the guide means **16** and makes for a very economical bypassing door guide **10**.

The hold down means **22** has the form of a hold down plate **36** extending longitudinally of the bypassing door guide **10** and adapted to overlie the bases **30** and **32** of the central guide member **18** and the outer guide elements

20. The hold down plate 36 completely encloses the bases 30 and 32 of the central guide member 18 and the outer guide elements 20 and, as best shown in FIG. 4 of the drawing, is provided with two downwardly facing, longitudinal grooves or channels 38 respectively receiving therein the two rows of ribs 34 on the bases 30 and 32. With this construction, the central guide member 18 and the outer guide elements 20 are firmly keyed against pivoting about their respective vertical axes, but the positions of the central guide member and one of the outer guide elements are variable longitudinally of the hold down plate, i.e., laterally of the bypassing doors 14, for adjustment purposes to accommodate doors of different thicknesses.

The hold down plate 36 is provided adjacent its front end, i.e., adjacent the end thereof which is located on the front side of the bypassing doors 14, with an opening 40 of a size to snugly receive one of the outer guide elements 20 therein. This provides a fixed location for the corresponding, front guide element 20 relative to the hold down plate 36. Such fixed location for the front guide element is selected to provide a minimum projection of the bypassing door guide 10 forwardly of the doors 14.

The hold down plate 36 is provided adjacent its rearward end with a plurality, e.g., four, openings 42 each adapted to snugly receive therein the other, or rear, outer guide element 20. The various openings 42 correspond to various conventional thicknesses for the bypassing doors 14, such as ¾ inch, 1 inch, etc. In the drawing, the rear guide element 20 is shown in the opening 42 corresponding to the next to the thickest doors for which the guide 10 is designed.

The central guide member 18 is merely loosely disposed in an enlarged opening 44 having a dimension, in the lengthwise direction of the hold down plate 36, sufficient to accommodate all of the possible positions for the rear guide element 20. The central guide member 18 merely assumes a position in the enlarged opening 44 such that it is substantially midway between the two guide elements 20, and thus in a position to receive the two bypassing doors 14 on opposite sides thereof.

The flexible connectors 28 may have sufficient inherent resilience to automatically center the central guide member 18 between the guide elements 20 prior to clamping the central guide member in place upon securing of the hold down plate 36 to the floor. If not, the guide member 18 may be centered manually. Alternatively, sufficient clearance can be provided between the hold down plate 36 and the base 30 of the central guide member 18 to permit automatic centering of the guide member by the doors 14.

Although an exemplary embodiment of the invention has been disclosed herein for purposes of illustration, it will be understood that various changes, modifications and substitutions may be incorporated in such embodiment without departing from the spirit of the invention as defined by the claims which follow.

We claim:

1. In an adjustable floor guide for bypassing sliding doors, the combination of:

(A) a guide means including

(*a*) a central guide member,

(*b*) two outer guide elements respectively located on opposite sides of and spaced from said central guide member,

(*c*) two flexible connecting means respectively connecting said outer guide elements to said central guide member, and

(*d*) said connecting means being bendable to vary the spacings between said central guide member and said outer guide elements; and

(B) a hold down means for securing said guide means to a floor with said outer guide elements spaced from said central guide member.

2. In an adjustable floor guide for bypassing sliding doors, the combination of:

(A) a guide means including

(*a*) a central guide member,

(*b*) two outer guide elements respectively located on opposite sides of and spaced from said central guide member,

(*c*) two flexible connecting means respectively connecting said outer guide elements to said central guide member, and

(*d*) said connecting means being bendable to vary the spacings between said central guide member and said outer guide elements; and

(B) a hold down means for securing said guide means to a floor with said outer guide elements spaced predetermined distances from said central guide member.

3. In an adjustable floor guide for bypassing sliding doors, the combination of:

(A) a guide means including

(*a*) a central guide member,

(*b*) two outer guide elements respectively located on opposite sides of and spaced from said central guide member,

(*c*) two flexible accordion-like connecting means respectively connecting said outer guide elements to said central guide member, and

(*d*) said connecting means being bendable to vary the spacings between said central guide member and said outer guide elements; and

(B) a hold down means for securing said guide means to a floor with said outer guide elements spaced predetermined distances from said central guide member.

4. In an adjustable floor guide for bypassing sliding doors, the combination of:

(A) a one-piece guide means including

(*a*) a central guide member,

(*b*) two outer guide elements respectively located on opposite sides of and spaced from said central guide member,

(*c*) two flexible accordion-like connecting means respectively integrally connecting said outer guide elements to said central guide member, and

(*d*) said connecting means being bendable to vary the spacings between said central guide member and said outer guide elements; and

(B) a hold down means for securing said guide means to a floor with said outer guide elements spaced predetermined distances from said central guide member.

5. In an adjustable floor guide for bypassing sliding doors, the combination of:

(A) a guide means including

(*a*) a central guide member,

(*b*) two outer guide elements respectively located on opposite sides of and spaced from said central guide member,

(*c*) two flexible connecting means respectively connecting said outer guide elements to said central guide member, and

(*d*) said connecting means being bendable to vary the spacings between said central guide member and said outer guide elements; and

(B) a hold down means for securing said guide means to a floor with said outer guide elements spaced predetermined distances from said central guide member, said hold down means including

(*a*) means for securing one of said outer guide elements in a single fixed position,

(*b*) means for securing the other of said outer guide elements in one of a plurality of fixed positions, and

(c) means providing for floating movement of said central guide member into a position substantially halfway between said outer guide elements.

6. In an adjustable floor guide for bypassing sliding doors, the combination of:

(A) a guide means including

(a) a central guide member,

(b) two outer guide elements respectively located on opposite sides of and spaced from said central guide member,

(c) two flexible connecting means respectively connecting said outer guide elements to said central guide member, and

(d) said connecting means being bendable to vary the spacings between said central guide member and said outer guide elements; and

(B) a hold down means for securing said guide means to a floor with said outer guide elements spaced predetermined distances from said central guide member, said hold down means including a hold down plate adapted to overlie said guide means and to be seated on a floor and having

(a) a single opening adapted to snugly receive one of said outer guide elements,

(b) spaced openings each adapted to snugly receive the other of said outer guide elements, and

(c) an enlarged opening between said single opening and said spaced openings, adapted to loosely receive said central guide member.

7. In an adjustable floor guide for bypassing sliding doors, the combination of:

(A) a one-piece guide means including

(a) a central guide member,

(b) two outer guide elements respectively located on opposite sides of and spaced from said central guide member,

(c) two flexible, accordion-like connecting means respectively integrally connecting said outer guide elements to said central guide member, and

(d) said connecting means being bendable to vary the spacings between said central guide member and said outer guide elements; and

(B) a hold down means for securing said guide means to a floor with said outer guide elements spaced predetermined distances from said central guide member, said hold down means including a hold down plate adapted to overlie said guide means and to be seated on a floor and having

(a) a single opening adapted to snugly receive one of said outer guide elements,

(b) spaced openings each adapted to snugly receive the other of said outer guide elements, and

(c) an enlarged opening between said single opening and said spaced openings, adapted to loosely receive said central guide member.

References Cited in the file of this patent

UNITED STATES PATENTS

2,750,622	Stark	June 19, 1956
2,898,623	Johnson	Aug. 11, 1959
2,939,167	Preston	June 7, 1960
2,949,626	Blackmeer	Aug. 23, 1960
3,000,046	Foltz	Sept. 19, 1961
3,017,656	Hillson et al.	Jan. 23, 1962
3,030,654	Migneault et al.	Apr. 24, 1962