

[54] **LATERALLY ADJUSTABLE DOOR HANGER**

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[58] Field of Search 16/98-106

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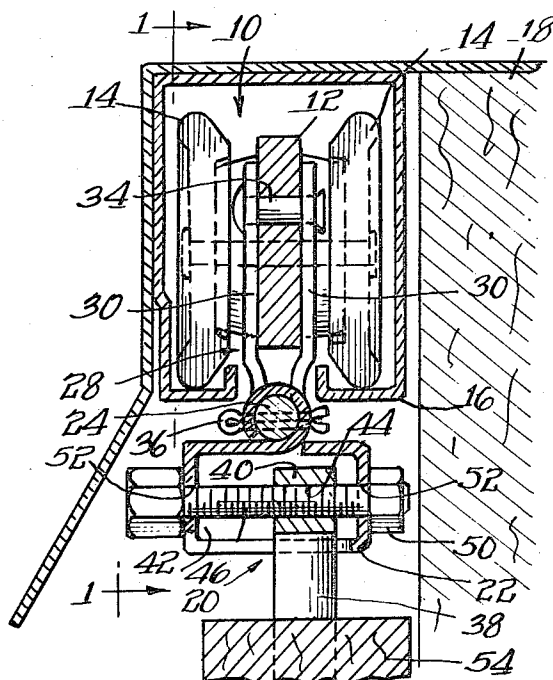
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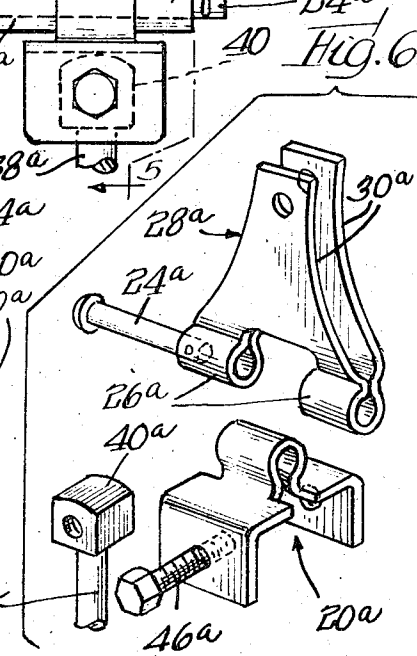
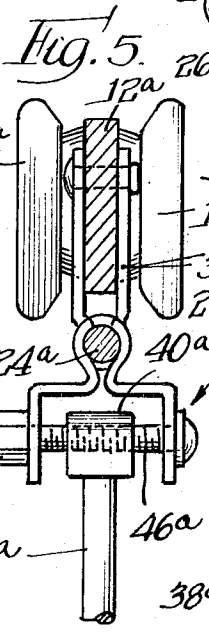
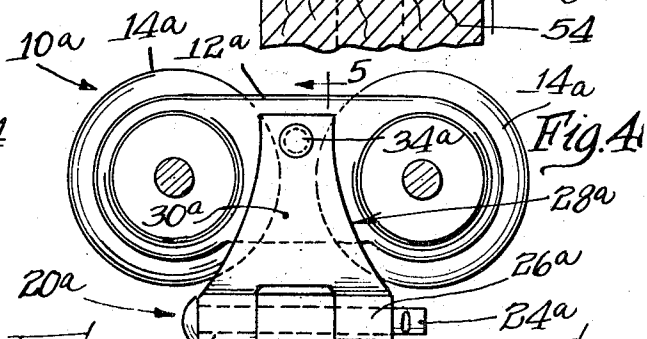
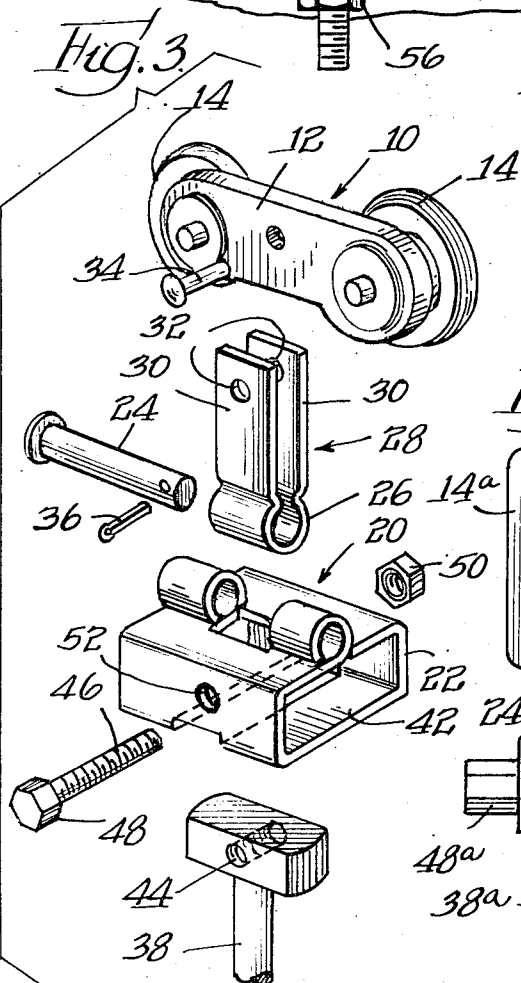
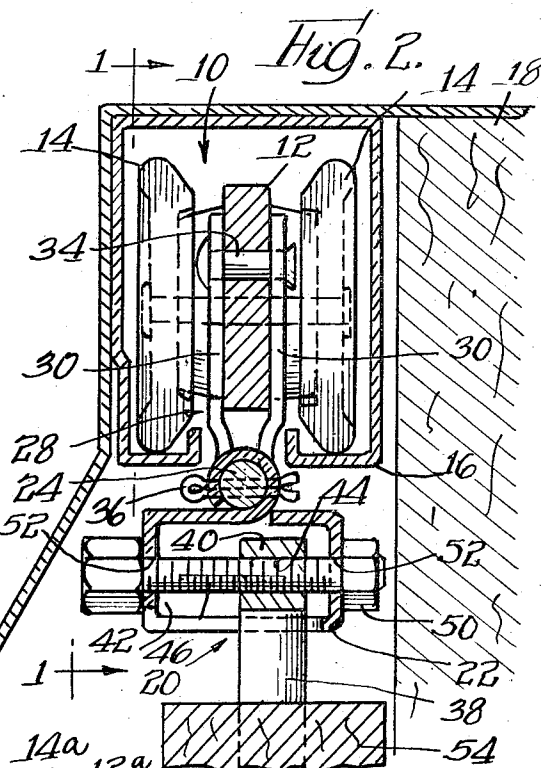
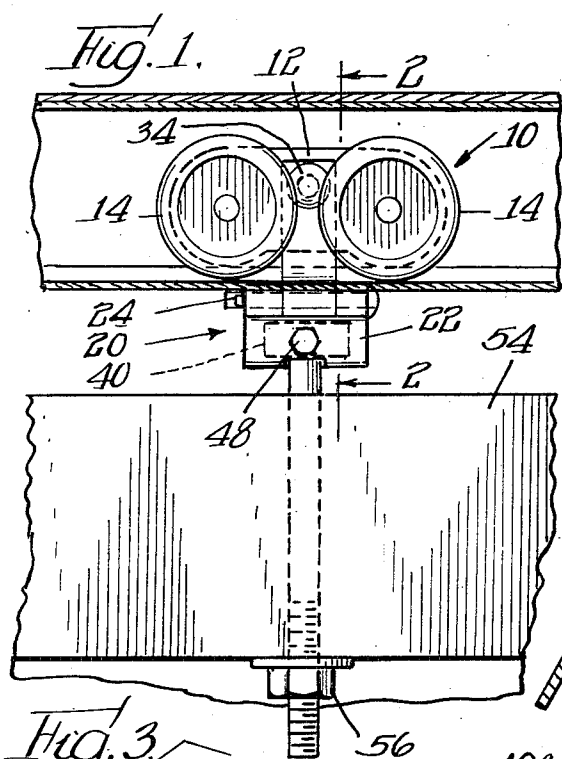
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[57] **ABSTRACT**

The present invention relates generally to improvements in slideable door-suspending devices and more particularly to novel structural improvements which will greatly facilitate the ease with which a horizontally slideable door member may be laterally adjusted. The present application discloses in combination with a carriage horizontally slideable within an overhead track, a frame pivotally suspended from the underside of a carriage device, a rotary threaded shank traversing said frame and a vertically disposed door hanger member or rod having a threaded aperture at its upper extremity for telescopically accommodating the threaded shank, and means at the opposite extremity thereof for attachment to the upper portion of a door member.

4 Claims, 6 Drawing Figures





LATERALLY ADJUSTABLE DOOR HANGER

BACKGROUND OF THE INVENTION

It is not uncommon in the process of installing a horizontally slideable door in association with a door-suspending carriage of an overhead guide track to require lateral adjustment of the suspended door. In other words, a suspended horizontally slideable door member should be mounted in relatively close superimposed relation with respect to the outer wall surface of the building or structure to be accommodated thereby. Obviously, if the inside surface of a suspended door is positioned too close to the plane of the outer wall surface difficulty may be experienced in horizontally shifting the door. Likewise, if the door member is placed outwardly a considerable distance from the outer wall surface of the building, the satisfactory functioning of the door is seriously impaired. Door-suspending carriage devices may consist of two pairs of rollers supported by a frame, said rollers being accommodated by an elongate sheet metal track. The present invention has a very practical application for use with door-suspending carriages of the aforesaid type.

SUMMARY OF THE INVENTION

It is an important object of the present invention to facilitate the ease with which a door member suspended from a horizontally shiftable carriage device may be laterally adjusted to obtain the desired spacing of the door from the building wall but assuring the required degree of weather tightness.

More specifically, the present invention contemplates in combination with a door suspending carriage device a relatively simple, yet very practical, adjustable door supporting structure which may be suspended from the underside of said carriage device.

The present invention also contemplates a unique pivotal door-supporting arrangement which makes it possible to adjust the lateral positioning of a suspended door member by the simple expedient of a turning tool.

It is also an object of the present invention to provide an improved door-supporting and laterally adjustable means, a portion of which lends itself for convenient production from sheet metal, thereby assuring economical manufacturing costs.

BRIEF DESCRIPTION OF THE DRAWING

The foregoing and other objects and advantages will be more apparent from the following detailed description when considered in connection with the accompanying drawing wherein:

FIG. 1 is a side elevational view of a carriage device having in association therewith and suspended therefrom the novel structural features contemplated by the present invention, the horizontal guide track shown in section as viewed along the line 1—1 of FIG. 2,

FIG. 2 is an enlarged fragmentary vertical sectional view taken substantially along the line 2—2 of FIG. 1;

FIG. 3 is an exploded view disclosing in perspective the constituent elements of the carriage device and the structure suspended therefrom;

FIG. 4 is a side elevational view similar to the upper portion of FIG. 1, disclosing the modified door-supporting arrangement, pivotally suspended from the frame of the carriage device;

FIG. 5 is a vertical transverse sectional view taken substantially along the line 5—5 of FIG. 4; and

FIG. 6 is an exploded view of the pivotally suspended door-supporting elements shown in FIGS. 4 and 5.

DESCRIPTION OF THE PREFERRED EMBODIMENTS OF THE INVENTION

Referring now to the drawing more in detail, wherein like numerals have been employed to designate similar parts in the various views, it will be seen that FIGS. 1, 2 and 3 disclose a door-suspending carriage device designated generally by the numeral 10. The device 10 includes a central carriage frame member 12 which supports guide rollers 14. The rollers 14 are supported by and guided within a sidewall or ceiling mounted type horizontal track 16 carried by a header 18, FIG. 2.

A door-supporting section is designated generally by the numeral 20 and includes an integral, hollow sheet metal frame member 22 providing upper sleeve portions which are integral curved extensions of the frame 22 and aligned for accommodating a pivot pin 24. It will be noted that the axis of the pivot pin 24 extends substantially normal to the axes of the rollers 14 and permits limited lateral swinging of the frame 22 transversely with respect to the track 16. The pivot pin 24 is supported by a lower bight portion 26 of a U-shaped supporting member designated generally by the numeral 28, FIG. 3. Upwardly extending arms 30 of the U-shaped member 28 are apertured at 32 to accommodate a pin 34 which traverses the frame member 12 of the carriage device 10. The free extremity of the pin 34 is upset to prevent inadvertent axial dislodgment thereof from the carriage frame member 12. A cotter pin 36 or other suitable means is provided to prevent axial dislodgment of the pivot pin 24 from the bight portion 26 of the U-shaped member 28. The provision of the pin 34 permits limited swinging of the U-shaped member 28 about an axis extending in substantial parallelism with the axes of the rollers 14.

Attention is now directed to an elongate, substantially vertically disposed door-supporting member or rod 38. The upper extremity of the member 38 is enlarged to provide a head section 40. This head section 40 is housed within an area 42 defined by the frame member 22. A threaded aperture 44 accommodates the complementary thread convolutions of a rotatable shank 46 which traverses the frame member 22 and extends between opposed depending wall portions of said frame. A head 48 at one extremity of the bolt shank 46 and a locking nut 50 at the opposite extremity thereof serve to prevent axial displacement of the shank. The free extremity of the threaded shank 46 may be peened or upset so as to prevent dislodgment of the nut therefrom. The shank 46 is freely rotatable within unthreaded oppositely disposed apertures 52 provided in the depending walls of the frame member 22. Thus, as rotation is imparted to the shank 46 by applying a turning tool (not shown) to the head 48, the door supporting member or rod 38 may be shifted laterally in opposite directions. The depending portion of the rod 38 extends into the upper portion of a door member 54, FIG. 1. A nut and washer arrangement 56 associated with the lower threaded extremity of the rod 38 cooperates to secure the door member 54 in proper position of elevation.

In FIGS. 4 to 6, inclusive, a modified structure contemplated by the present invention is disclosed. The

constituent parts shown in FIGS. 4 to 6, corresponding with previously described parts are identified with corresponding numerals bearing the suffix *a*. Thus, the carriage device is designated generally by the numeral 10*a* and incorporates a central carriage member 12*a* which supports guide rollers 14*a*. A door supporting section designated generally by the numeral 20*a* includes an integral hollow sheet metal frame member 22*a* which provides an upper sleeve portion for accommodating a pivot pin 24*a*. Pivot pin 24*a*, like the previously described pivot pin 24, permits limited lateral or transverse swinging of the frame 22*a*. Pivot pin 24*a* is supported by a pair of axially spaced sleeves in the form of bight portions 26*a* of a U-shaped supporting member 28*a*. Upwardly extending arms 30*a* of the member 28*a* are provided with apertures 32*a* which accommodate a pin 34*a* traversing the roller support member 12*a* of the carriage 10. The provision of the pin 34*a* permits limited swinging of the U-shaped member 28*a* about an axis in substantial with wit the axes of the rollers 14*a*.

A vertically disposed door-supporting member or rod 38*a* having an enlargement or head section 40*a* at its upper extremity functions similarly to the previously described rod and head sections 38 and 40. A threaded shank 46*a* extends between opposed depending wall portions of the frame 20*a* and through an internally threaded aperture in the head section 40. The threaded shank 46*a* may be rotated to laterally adjust the position of the door supporting member or rod 38*a*.

From the foregoing it will be apparent that the lateral adjustment of a slideable door member is greatly facilitated if the door suspending device is constructed in accordance with the teachings of the present invention. It should also be understood that the above described laterally adjustable door-supporting device is not limited for use with the particular hanger structure illustrated herein. In other words, the conveniently operable adjustment means described herein is adapted for use with door hangers of various designs.

The invention is claimed as follows:

1. A hanger device for horizontally shiftable door members, including: movable door supporting carriage means; a one piece sheet metal frame to be pivotally suspended from beneath said carriage means, said frame including, opposed depending wall sections with an opening therebetween and integral sleeve means in the form of a curved frame material section along the

upper surface thereof which, sleeve means defines a longitudinal axis, and a pair of spaced wall sections formed integral with said depending wall sections and defining the lower surface of said frame and providing an elongate slot therein; a rotary threaded shank mounted in said depending wall sections and traversing said frame along an axis substantially normal to said longitudinal axis and in general alignment with said slot; a sheet metal support member depending from said carriage means and having at the lower end thereof closed bottom sleeve means aligned with the sleeve means on said frame; a separable pivot pin within and traversing both said sleeve means for supporting the frame from the carriage means and preventing relative rotation between the support member and the frame in a plane parallel to a plane containing said door member; an elongate door hanger member having at one extremity thereof means for attachment to a horizontally shiftable door member and at the other extremity thereof a transversely disposed head portion, the length of which is greater than the width of said slot, said head portion having a threaded aperture formed therein for telescopically accommodating said threaded shank, said hanger member being disposed in said slot such that it may be shifted laterally there along as an incident to rotation of said threaded shank, with said head portion thereof overlying the spaced wall sections of said frame such that pivotal movement of said hanger is limited by said wall sections.

2. A hanger device for horizontally shiftable door members as set forth in claim 1, wherein the support member comprises a generally U-shaped pivot pin accommodating member with arms connected with said carriage means and a lower bight portion providing the sleeve means receiving the pivot pin, to couple with the lower bight portion of said U-shaped member with the upper portion of said frame member.

3. A hanger device for horizontally shiftable door members as set forth in claim 2, wherein the sleeve means of said frame member is in the form of axially spaced sleeves for accommodating said pivot pin.

4. A hanger device for horizontally shiftable door members as set forth in claim 2, wherein the bight portion of said U-shaped member is in the form of axially spaced sleeves for accommodating said pivot pin.

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