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2,957,197

DOOR HANGER

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2 Sheets-Sheet 1

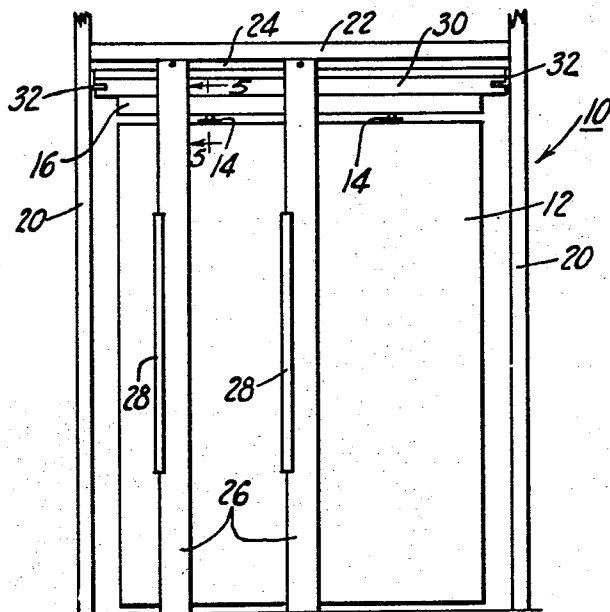


FIG. 1

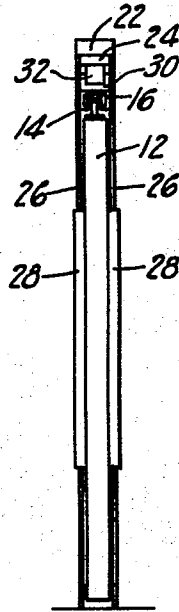


FIG. 2

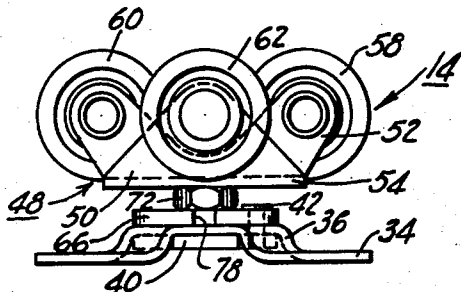


FIG. 3

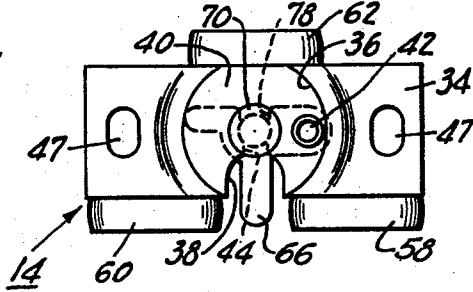


FIG. 4

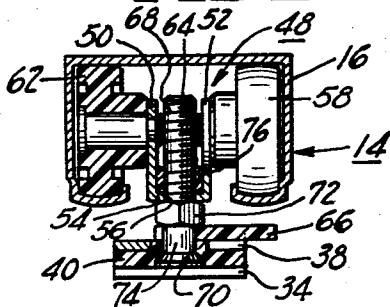


FIG. 5

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2 Sheets-Sheet 2

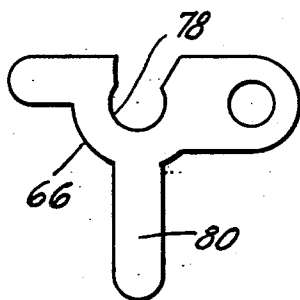


FIG. 6

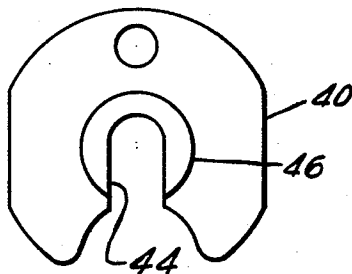


FIG. 7

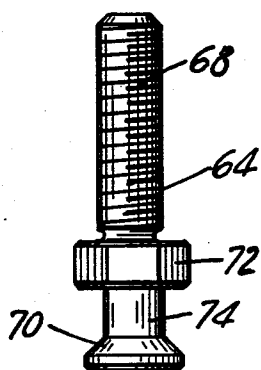


FIG. 9

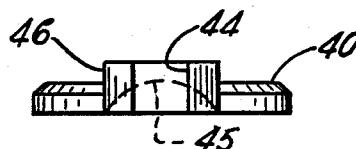


FIG. 8

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DOOR HANGER

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4 Claims. (Cl. 16-105)

The present invention relates to door hangers for suspending a sliding or folding door from an overhead track.

A sliding door assembly usually a frame which supports the overhead track and defines a pocket into which the door may slide. The frame is covered with a finish material, such as plasterboard, to conceal the greater portion of the frame, track and door hangers. It is desirable that the door be easily installed in and removed from its operative position within the frame. It is also desirable that the door hanger be adjustable while suspending the door from the track and while at least partially concealed by the finish material.

It is accordingly an object of the present invention to provide a door hanger for a sliding door which may be easily adjusted in a partially concealed position and which permits the door to be easily installed and removed from its operative position.

It is a further object of the invention to provide a door hanger having a part which may be attached to and detached from the door without affecting the adjustment of the hanger.

It is a still further object of the invention to provide a latch for a sliding or folding door hanger which is easily actuated without tools and which is subject to little or no unlatching force due to movement of the door.

Another object of my invention is to provide door hangers for a folding door which may be telescoped to permit compact folding of the door panels or segments.

Another object of the invention is to provide a door hanger for a sliding door which is easily manufactured and which is smooth, quiet and reliable in operation.

Other objects and advantages of the invention will become readily apparent from the following detailed description taken in connection with the accompanying drawings, in which:

Figure 1 is an elevation view of a frame assembly and sliding door incorporating door hangers of my invention;

Figure 2 is an end view of Figure 1;

Figure 3 is an enlarged elevation view of a door hanger shown in Figure 1;

Figure 4 is a bottom view of the door hanger shown in Figure 3;

Figure 5 is a sectional view taken along line 5-5 of Figure 1;

Figure 6 is a top view of a latch member;

Figure 7 is a top view of a bearing member;

Figure 8 is a front view of the bearing member shown in Figure 7; and

Figure 9 is an enlarged view of the stem shown in Figures 3 and 5.

Referring now to the drawings, numeral 10 designates a frame assembly, 12 a sliding door, 14 a pair of door hangers for suspending the door from a track 16 mounted in the frame assembly.

The frame assembly 10 includes a pair of spaced studs 20 having a rough header 22 mounted therebetween. The rough header is recessed at 24 to receive a pair of spaced vertical members 26 each of which is provided with U-

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shaped metal stiffener 28 which clampingly engages the medial portion of the members 26. Located below the rough header 22 is a finished header 30 which is slotted at either end to receive one leg of an L-shaped bracket 32, the other leg of which is adjustably secured to a stud 20. Track 16 comprises a pair of parallel roller tracks and is substantially U-shaped in cross section, as best seen in Figure 5, and is secured to the under surface of the finished header 30 by suitable means, not shown.

As best seen in Figures 3 to 9, door hanger 14 includes a plate 34, having a central, substantially circular raised portion 36 which is provided with a slot 38 having an open end at the edge of said raised portion and a closed end substantially in the center of the raised portion 36. As shown slot 38 extends transverse plate 34, in other embodiments, however, slot 38 may extend to the periphery of the raised portion 36 in any desired direction. A nylon bearing pad 40 is secured to the under surface of portion 36 by a rivet 42 and is provided with a slot 44 which is somewhat smaller than slot 38 and is aligned therewith. The undersurface of pad 40 is provided with a concave socket 45 which is circularly disposed about the closed end of slot 44. The upper surface of pad 40 is provided with a collar 46 which is received within slot 38 of plate 34. Plate 34 is provided with holes 47 to accommodate suitable screws for securing the plate to the top of the door.

A carrier 48 is formed with substantially parallel side members 50 and 52 which are joined at one edge by an integral transverse member 54 having formed therein a threaded perforation or bore 56. A pair of spaced nylon rollers 58 and 60 are rotatably mounted on side member 50 and a single nylon roller 62 is rotatably mounted on side member 52 intermediate rollers 58 and 60. Rollers 58, 60 and 62 are adapted for engagement with track 16. The carriers 48 of adjacent door hangers 14 are oppositely disposed in track 16 so that they may at least partially telescope, i.e. the pair rollers on one hanger may come into engagement with the single roller of the adjacent hanger.

Carrier 48 is detachably and adjustably secured to plate 34 by a stem 64 and latch 66. Stem 64 is partially threaded as at 68 and is formed with first and second spaced lands 70 and 72 which define therebetween a recessed substantially cylindrical bearing portion 74. The first land 70 is formed with a spheroidal surface to ride in socket 45 of pad 40. The second land 72 is polygonal and is adapted to overlap latch 66 as hereinafter described. The recessed bearing portion 74 of stem 64 is formed for insertion into slot 44. The threaded portion 68 of stem 64 is formed to engage the perforation 56 in the carrier 48 and to threadedly engage a nylon nut 76 which resiliently engages the side members 50 and 52 of the carrier. The threading of stem 64 in nut 76 expands the nut into increased engagement with the side members.

Latch 66 is formed of nylon and is pivoted to the upper portion of plate 34 by rivet 42. Latch 66 is provided with a slot 78 having an open end and closed end oppositely disposed to slots 38 and 44 formed respectively in plate 34 and pad 40. Slot 78 is formed to resiliently engage the bearing portion 74 of stem 64 in underlapping relation to the second land 72. Latch 66 is provided with a handle 80 to facilitate rotation thereof to the latched and unlatched position.

In operation a pair of plates 34 are secured to the top of the door 12 in spaced relation. Carriers 48 are mounted in track 16 with stems 64 depending therefrom. The bearing portion 74 of stems 64 are inserted in the slots 44 of the plate bearing pad 40 and the latches 66 rotated to bring slots 78 into resilient engagement with portions 74. A slight clearance is provided between latch 66 and the upper or second land 72 to permit the stem 64

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to move from the vertical and thereby accommodate for misalignment of the hangers on the top of the door. The clearance is, however, insufficient to permit the first land 70 from dropping out of socket 45 in bearing pad 40. In operation latch 66 is subject only to a compressive force. So long as land 70 remains in socket 45 there is substantially no unlatching force exerted on latch 66 due to movement of the doors. The hanger may be adjusted by rotating the polygonal second land 72 with an appropriate tool. It is to be noted that land remains in overlapping engagement with latch 66 throughout the range of adjustment and thereby remains accessible even though partially concealed by the finish material which covers the door frame assembly 12. It is also to be noted that adjustment may be effected by a single tool. This arrangement also permits the carrier to be attached to and detached from the plate without affecting the adjustment of the door. Latch 66 co-operates with pad 40 to absorb the bearing load on stem 64 and provides for smooth reliable operation. The staggered three-wheeled arrangement restrains longitudinally and transverse rocking of the door with a minimum of parts and also permits the hangers to telescope to provide compact folding of the door panels. The nylon construction of the rollers, bearing pad and latch eliminates metal to metal contact, thereby providing substantially noiseless operation and substantially eliminating sticking.

Although only one embodiment of my invention has been shown and described, other modifications and arrangements may be made without departing from the spirit of the invention.

I claim:

1. A door hanger adapted to suspend a door from an overhead track comprising a plate formed with a slot and adapted to be secured to the top of said door, a stem rotatably and removably mounted in said slot and formed with spaced lands which overlap said slot on opposite sides of said plate, a latch rotatably mounted on said plate and having a slot formed therein with resilient side walls to resiliently engage said stem, a carrier adjustably mounted on said stem, and a roller rotatably mounted on said carrier for engagement with said track.

2. A door hanger of the type to suspend a door from an overhead track comprising a plate formed with a slot and adapted to be secured to the top of said door, a partially threaded stem formed adjacent one end thereof with first and second spaced lands defining therebetween a recessed portion, said portion being adapted for insertion into said slot whereby said first and second lands overlap said slot on opposite sides of said plate, a latch rotatably mounted on the upper side of said plate and formed with a slot therein, the side walls of said second mentioned slot being resilient and being separated by a distance smaller than the width of said recessed portion whereby when said latch is rotated to a position wherein said slots overlap the side walls of the slot in said latch

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resiliently engage said recessed portion, a carrier adjustably mounted on said stem, and a roller rotatably mounted on said carrier for engagement with said track.

3. A door hanger adapted to suspend a sliding or folding door from an overhead track comprising a member adapted to be secured to the top of said door and formed with a slot therein, a socket formed on the under surface of said member coaxial with said slot, a stem formed with a land adjacent one end having a surface formed for engagement with said socket, said stem having a second land spaced from said first mentioned land, a recessed bearing portion formed on said stem between said lands, said portion being adapted for insertion into said slot with said second land in overlapping relation to said slot, a latch pivotably mounted on said member to engage said portion in underlapping relation to said second land whereby said first mentioned land is held in engagement with said socket, and a roller operatively connected to said stem for engagement with said track.

4. A door hanger assembly for suspending a folding door from parallel overhead tracks comprising a pair of members adapted to be secured to the top of said door in spaced relation, each of said members having a slot formed therein, a pair of carrier members each having a pair of substantially parallel side members, a pair of rollers mounted on one side member of each carrier member for rotation in a plane parallel to a plane through said one side member, a single roller mounted on the other side member of each carrier member intermediate said pair of rollers for rotation in a plane parallel to a plane of said other side member, said rollers being arranged so that the pair of rollers on one carrier member and the single roller of the other carrier member engage a common overhead track, a socket formed in the undersurface of each of said first mentioned members, said sockets being coaxial with said slots, a pair of stems, each of said stems being formed with a socket engageable head, said stems being adapted for respective insertion into said slots, means respectively connecting said stems to a carrier member, and a latch pivotally mounted on each of said first-mentioned members for resilient engagement with a respective stem whereby said heads are held in said sockets.

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