

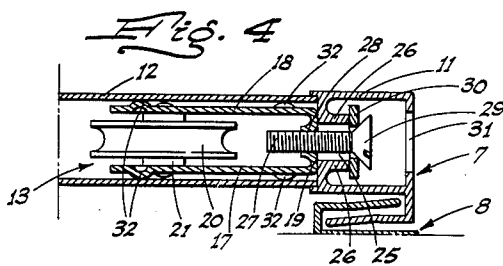
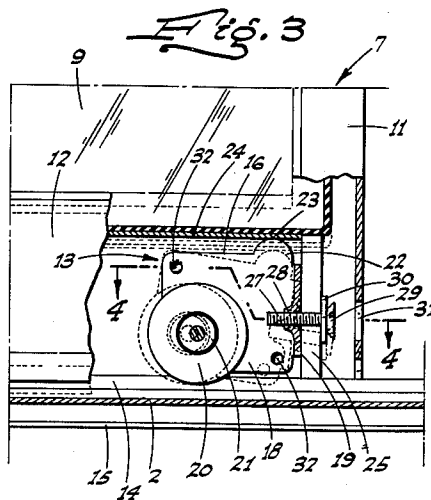
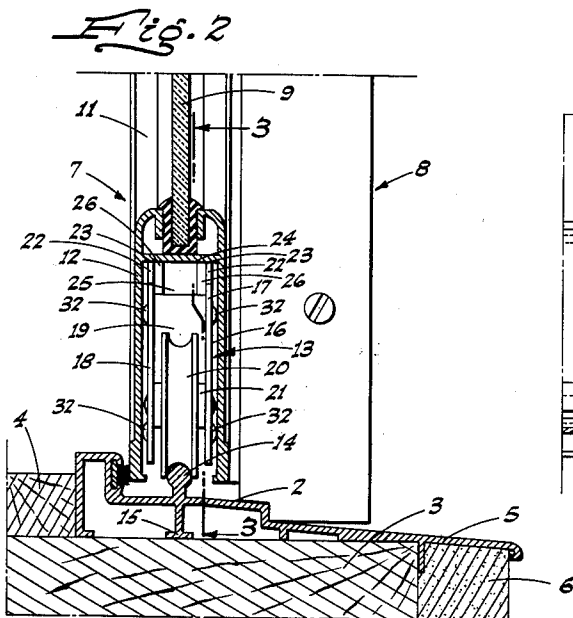
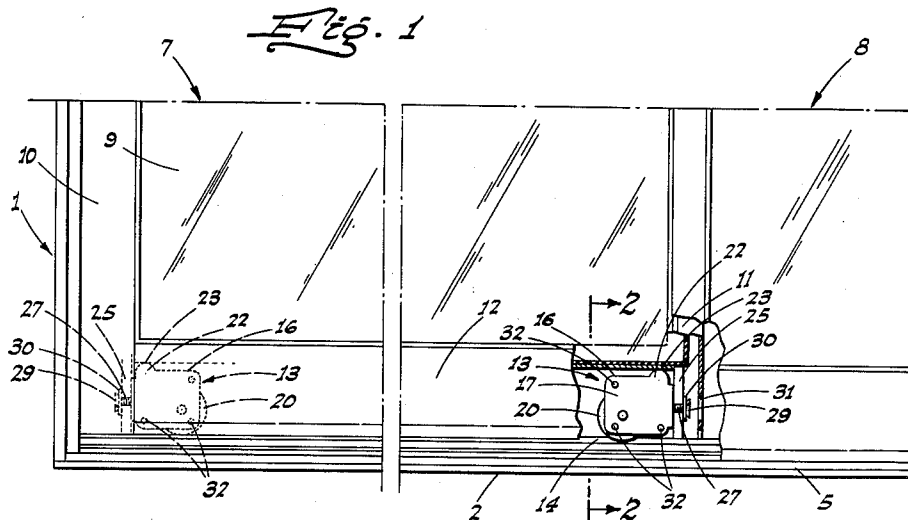
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ROLLER UNIT FOR SLIDING DOOR PANELS

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ROLLER UNIT FOR SLIDING DOOR PANELS

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This invention relates in general to improvements in doors of the type which include a sliding panel supported in a frame for horizontal movement between closed and open positions; the frame embodying a sill having a longitudinal rail thereon, and the sliding panel being fitted adjacent each lower corner with a roller unit which rides such rail in panel supporting and guiding relation.

The major object of the present invention is to provide a novel and improved roller unit for a sliding door panel; the roller unit being especially designed, but not limited, for use in connection with a metal-framed sliding door assembly.

Another important object of the present invention is to provide a roller unit, as above, particularly adapted to be mounted in the metallic bottom bar of a sliding door panel, which is of inverted channel shape; the roller unit being relatively vertically adjustably secured in the channel of said bottom bar in a novel manner.

Still another important object of the invention is to provide a roller unit, as in the preceding paragraph, which includes means to assure of its lateral stability in the channel of the bottom bar of the sliding panel, yet without imposing undue frictional drag between the bottom bar and such unit when the latter is relatively adjusted up or down.

It is also an object of the invention to provide a roller unit, for sliding door panels, which is designed for simplicity and economy of manufacture, ease of installation, and long, trouble-free service.

An additional object of the invention is to provide a practical, reliable, and durable roller unit for sliding door panels, and one which is exceedingly effective for the purpose for which it is designed.

These objects are accomplished by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings:

Fig. 1 is a fragmentary foreshortened elevation, partly broken away, of a sliding door assembly; the view showing particularly the improved roller units as mounted in connection with the sliding door panel.

Fig. 2 is an enlarged fragmentary cross section of one of the roller units; the view being taken on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary longitudinal elevation, partly broken away and partly in section, on line 3—3 of Fig. 2.

Fig. 4 is a fragmentary sectional plan view taken on line 4—4 of Fig. 3.

Referring now more particularly to the drawings, and to the characters of reference marked thereon, the present invention is embodied in a sliding door assembly which comprises a metallic frame, indicated generally and in part at 1, and which frame is provided—at the bottom—with a longitudinal sill 2. Such sill is supported from the sub-floor 3, abutting along its inner edge against the floor 4 and formed along its outer edge with an apron 5 which overhangs the outside finish 6 of stucco or other material.

Additionally, the door assembly incorporates a horizon-

tally sliding panel 7 and a fixed panel 8; the panel 7 when opened sliding behind the panel 8. Both panels are fitted with a pane 9 of glass carried in a metallic frame; the frame for the sliding panel 7 including stiles 10 and 11, and a horizontal bottom bar 12 which abuts at its ends against lower portions of the stiles 10 and 11, with such parts rigidly connected together by means not here shown.

The horizontal bottom bar 12 is of inverted channel shape, and an initially separate roller unit, indicated generally at 13, is mounted in each lower corner of the sliding panel 7 within the confines of said bottom bar 12.

The roller units 13 ride on a longitudinal track or rail 14 formed integral with and upstanding from the sill 2, whereby to support and guide said sliding panel 7. In order to effectively support the sill 2 against downward deflection under the weight of the sliding panel 7, and as transmitted through the roller units 13 and rail 14, said sill is provided—on the under side, and directly below the rail—with a foot 15 which rests on the sub-floor 3.

The present invention is directed to the structure, mounting, and function of the roller units 13, and as the same are identical a description of one will suffice for both.

Each roller unit 13 comprises a generally horizontal or longitudinally extending yoke 16 which includes side plates 17 and 18, and—at the outer end—an integral cross plate 19.

A peripherally grooved, transverse axis roller 20, preferably of plastic such as "nylon," is journaled, as at 21, between the side plates 17 and 18 adjacent the free end of said yoke 16; such roller being of a diameter such that the lower part thereof depends below said yoke 16.

The roller 20 rides the rail 14, and the yoke 16 is mounted—within the confines of the inverted channel shaped bottom bar 12—as follows:

Each of the side plates 17 and 18 are formed—at the upper edge, and adjacent the stile 11—with upstanding rounded ears 22 which bear, at an engagement point 23, against the top 24 of said bottom bar 12. The ears 22, positioned as described, are offset some distance from the axis of the roller 20 in the direction of the stile 11.

The stile 11 is formed—at its inner side and in the lower portion thereof, and against which portion the adjacent end of the bottom bar 12 abuts—with a vertical slot 25 defined by transversely spaced, interned, vertical flanges 26. The cross plate 19 of the yoke 16 lies closely adjacent to and spans the slot 25; a headed screw 27 extending through said slot 25 and being threaded into the cross plate 19, as at 28. The head 29 of screw 27 is disposed within the stile 11, which is hollow; the screw head bearing against a washer 30 which surrounds the screw and rests against the inner edges of the flanges 26. Access to the screw head 29 is had through an enlarged hole 31 formed in the outer side of said stile 11.

By adjusting the screw 27 in one direction or the other, and by reason of the offsetting of the axis of roller 20 from the ears 22 and the engagement of the latter, as at 23, with the top 24 of bottom bar 12, the yoke 16 relatively swings up or down, whereby the adjacent portion of sliding panel 7 is correspondingly vertically adjusted. More particularly, when the screw 27 is run in a threading-out direction, the weight of the sliding panel 7, as imposed through ears 22 on yoke 16, causes the latter to relatively lower about the axis of roller 20, and the adjacent portion of said sliding panel 7 follows. On the other hand, when screw 27 is run in a threading-in direction, the yoke 16 is relatively raised, and—through the ears 22—correspondingly raises said adjacent portion of sliding panel 7. See Fig. 3 wherein the yoke 16 and adjacent portion of the sliding panel 7 is shown in a relatively lowered position in dotted lines and in a relatively raised position in full lines.

Thus, by the simple expedient of adjusting the screw 27 the adjacent portion of the sliding panel 7 can be raised or lowered, and as may be necessary for proper positioning or leveling of said panel; one or both of the roller units 13 being adjusted to this end.

The yoke 16, which is somewhat narrower than the inside transverse width of the channel shaped bottom bar 12, is stabilized in the latter, and prevented against undesirable side play, by a plurality of small nubs 32 which project outwardly from the side plates 17 and 18 into engagement with the corresponding sides of the bottom bar 12.

By the use of such nubs not only is the yoke 16 stabilized against undesirable lateral movement, but additionally such nubs do not impose any appreciable frictional drag on the sides of the bottom bar when such yoke is relatively vertically adjusted.

The roller units 13, each constructed and mounted as described, provide a very effective means for supporting the sliding panel 7 from the rail 14 for easy guided movement therealong; the adjustability of such units being of substantial advantage in the disposition of the sliding panel 7 for proper operation.

From the foregoing description it will be readily seen that there has been produced such a device as will substantially fulfill the objects of the invention, as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described the invention, the following is claimed as new and useful, and upon which Letters Patent are desired:

1. In a sliding door assembly which includes a frame having a sill with a longitudinal rail thereon, and a sliding door panel having a bottom bar fitted with at least one roller unit riding said rail; said roller unit comprising a transverse axis roller, an initially separate mount in which the roller is journaled, the bottom bar being of inverted channel shape, a rigid closure member at one end of the bottom bar, the mount being disposed in the bottom bar

adjacent said member, said mount being a yoke having longitudinal sides and an integral transverse end, the latter facing and being adjacent said member, the member having an opening therethrough, a headed screw extending through such opening and being threaded into said transverse end of the yoke, and ears upstanding from the sides of the yoke adjacent said transverse end thereof; the bottom bar including a top against which the ears bear from beneath, and the roller being journaled between the sides of the yoke in offset relation to said ears in a direction away from said transverse end of such yoke.

2. A structure, as in claim 1, in which the opening in said member is a vertical slot through which the screw extends.

3. A structure, as in claim 1, in which the bottom bar includes sides adjacent but spaced from corresponding sides of the yoke; said yoke sides having laterally outwardly projecting nubs which bear in yoke stabilizing relation against the sides of the bottom bar.

4. In a sliding door assembly which includes a sill having a longitudinal rail and a sliding door panel which includes a bottom bar of inverted channel form above the sill and a closure member for one end of the bar, a yoke in the bar adjacent said one end thereof and movable vertically relative thereto, a transverse-axis rail-engaging roller mounted in the yoke adjacent the end thereof furthest from the member, said member having a vertical slot therethrough and the yoke adjacent said member having a transverse cross plate rigid therewith and engaging the member, a headed tension screw projecting through the slot and threaded into the cross plate, and rounded ears on the yoke adjacent the cross plate projecting upwardly from the yoke into rockable engagement, lengthwise of the yoke and bar, with the top of said bar.

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