

April 16, 1963

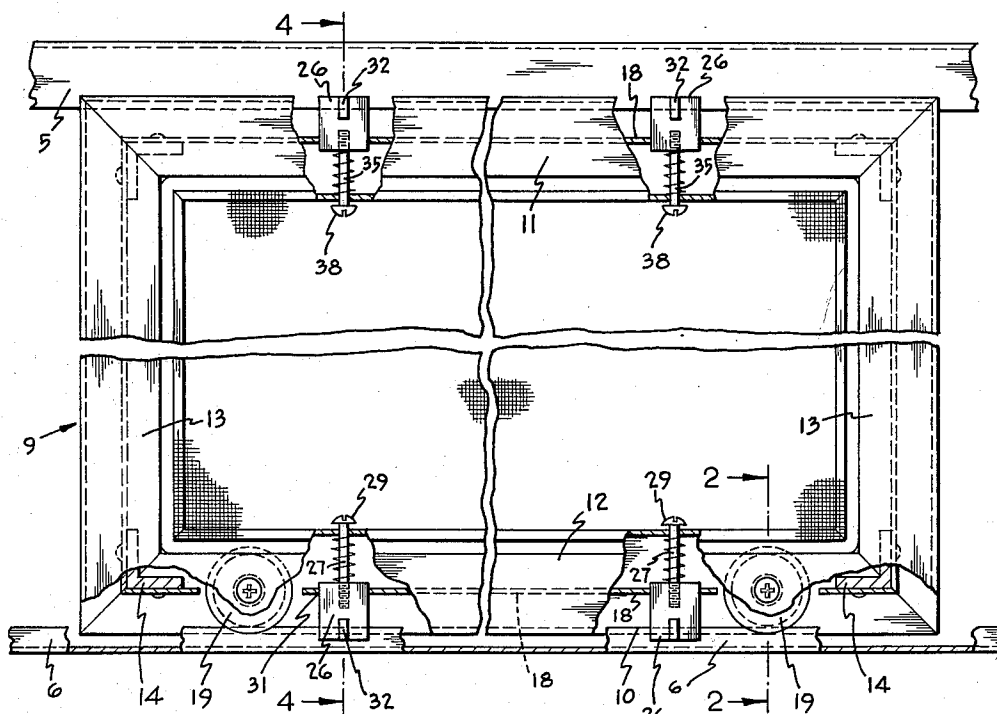
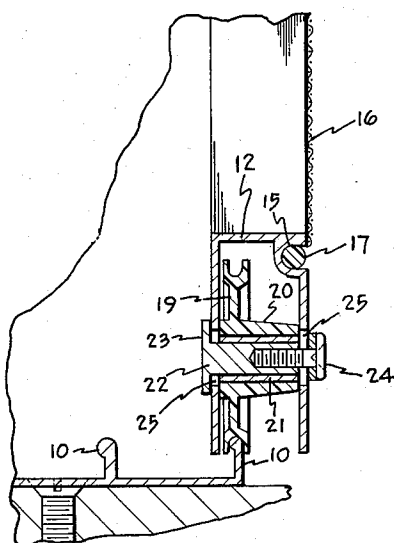
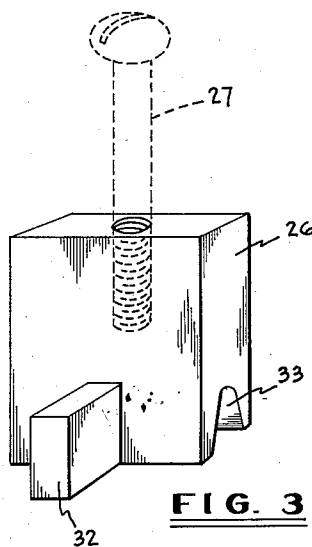
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3,085,298

SLIDABLE DOOR MOUNTING

Filed Aug. 2, 1960

2 Sheets-Sheet 1



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FIG. 5

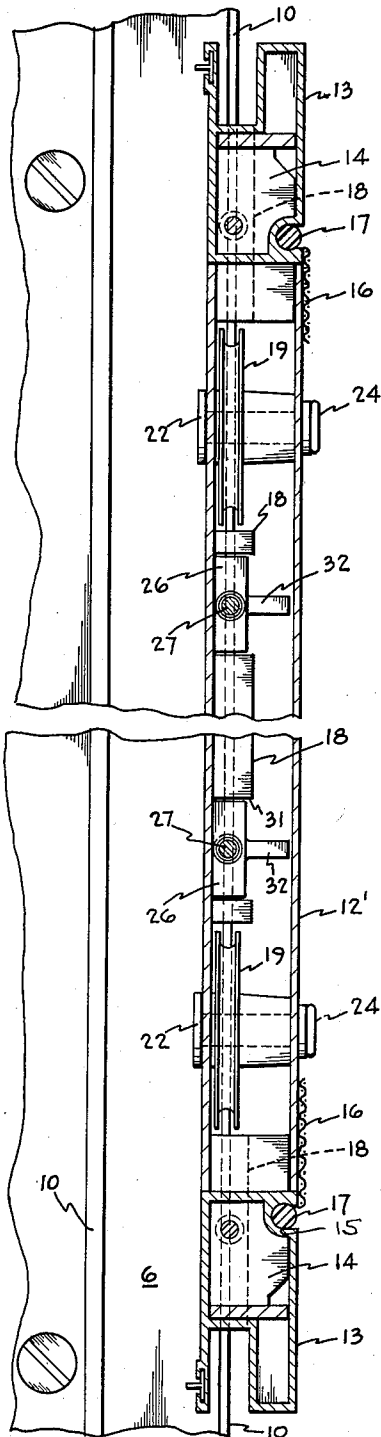
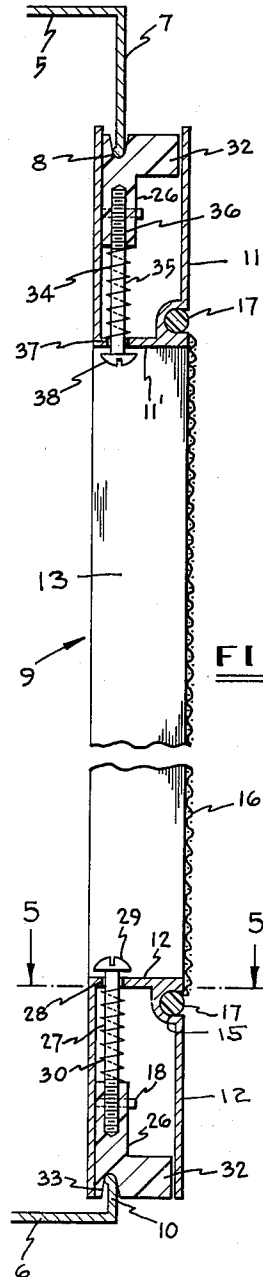


FIG. 4



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SLIDABLE DOOR MOUNTING

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1 Claim. (Cl. 20-19)

This invention relates to sliding closure devices, such as screened doors or glass paneled doors and contemplates broadly means for slidably engaging upper and lower trackways whereby to prevent accidental disengagement of the door during its operative movement to and from a closure position.

The invention contemplates upper and lower metallic trackways for the traverse engagement of the door and, while but a single door has been illustrated, it will be apparent that multiple door closures may be employed to have shiftable overlapping relation with respect to each other. The door of the present invention is adapted to traverse a lower trackway, being supported in its traverse movement by preferably non-metallic rollers that are adjustable with respect to the door to vary the angularity of the door with respect to the trackway and in addition, the doorway also includes a plurality of upper and lower nylon friction guide devices that are biased to frictional engagement with the upper and lower trackway whereby to retard any vertical movement of the door that would tend to dislodge the rollers from the trackway and that would possibly permit the door to be shiftable away from its supporting frame.

Novel features of construction and operation of the device will be more clearly apparent during the course of the following description, reference being had to the accompanying drawings wherein has been illustrated the preferred form of the device and wherein like characters of reference are employed to denote like parts throughout the several figures.

In the drawings:

FIGURE 1 is a side elevation of a closure device and associated supporting trackways, parts being broken away for purpose of illustration,

FIGURE 2 is an enlarged transverse section taken substantially on line 2-2 of FIGURE 1,

FIGURE 3 is a perspective view of a nylon friction block embodied in the invention,

FIGURE 4 is a vertical section taken substantially on line 4-4 of FIGURE 1, and

FIGURE 5 is a horizontal section taken substantially on line 5-5 of FIGURE 4.

Referring specifically to the drawings, there has been illustrated a main supporting frame of conventional form, that includes an upper frame section 5 and a lower frame section 6. The frame sections 5 and 6, together with conventional jamb members, not shown, constitute the frame for the wall opening that supports the closure devices of this invention. The upper frame member 5 is of the usual channel shape, having vertical flanges 7. One flange 7 constitutes a trackway 8 for the upper end of a sliding closure device, indicated as a whole by the numeral 9. The lower frame member 6 is provided with the usual upstanding flanges 10 constituting trackways. In FIGURES 2 and 5, two of such trackways 10 have been illustrated and it is contemplated that the closure device 9 is basically a screened frame, while a closure device, not shown, to be used in conjunction with the closure 9, may be a glazed panel. However, the invention is only concerned with the structure presently illustrated as a screen door support.

The closure device 9 embodies the usual rectangular or square frame, including a head rail 11, base rail 12 and vertical connecting jambs 13. The several frame members 11, 12 and 13 are preferably mitered at their corners

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and connected together in any convenient manner, such as L-shaped brackets 14, although the frames may be welded or otherwise connected. The several frames 11, 12 and 13 are provided upon one face with the usual splined groove 15, supporting a section of insect screening 16, by the usual vinyl spline 17. So far, the structure is conventional and presents nothing particularly novel as far as this invention is concerned. Each of the frame members 11, 12 and 13 are of channel form and with the channel of the upper rail 11 being upwardly opening while the channel of the lower rail 12 being downwardly opening, for the full length of the closure device 9. The connecting jamb members 13 are of similar configuration and their channels are outwardly opening from the ends of the door. Each of the channels are of extruded light weight material, such as aluminum and each of the channels intermediate their depth are partially spanned by a preferably integral web 18. The web 18 functions to impart rigidity to the structure.

Mounted for rotative movement within the channel of the lower rail member 12, are a pair of preferably nylon rollers 19. The rollers 19 are grooved to engage the track member 10 of the lower rail 6. Each of the rollers are spaced inwardly from the opposite ends of the door 9 and each roller is provided with a tubular hub portion 20, having a bushing 21 that is rotatively supported upon a stud 22, that spans the channel of the rail member 12. The stud 22 upon its inner side is provided with a relatively wide head 23 and the stud 22 is axially recessed and threaded to receive a clamping screw 24. The stud 22 and the screw 24 are adapted to traverse slots 25 that are disposed in the inner and outer walls of the rail 12 whereby to constitute a vertical adjustment for the rollers 19. It will be apparent, that by loosening the screw 24, the door may be adjusted up or down for a proper clearance with respect to the lower track 10 and the opposite roller 19 is likewise adjusted to properly align the door with respect to the track 10. After the door has been adjusted, the screw 24 is tightened and prevents shifting movement with respect to the roller and the rail 12.

Means are provided to frictionally engage the rails 5 and 6 throughout the traverse movement of the door 9, comprising a pair of preferably nylon blocks 26 that are supported upon threaded screws 27 projecting above the upper face of the rail 12, through suitable apertures 28. The screws are provided with slotted heads 29 for engagement by a suitable tool, such as a screw driver, whereby the screw 27 is adjustable with respect to the blocks 26. The blocks 26 are biased downwardly by compression springs 30, that are carried by the screws and that normally urge the blocks 26 in a direction toward the track 10. The blocks 26 operate through notches 31 formed in the web 18. The positioning of the blocks 26 within the notches 31 function to prevent twisting or other shifting movement of the blocks other than in a vertical direction. The blocks are held in spaced apart relation with respect to a front wall 12' of the lower rail, by a preferably integral lug 32. The lower end of the blocks 26 are longitudinally grooved at 33, such groove 33 adapted to frictionally engage over the rail 10. The upper rail 11, being substantially identical with the rail 12 is also provided with the nylon blocks 26, similar in every respect to the blocks 26 previously described. The upper blocks 26 are biased upwardly by springs 34, supported by screws 35, that are threaded into apertures 36 of the blocks 26 and with the shank portion of the screws 35 passing through apertures 37 formed in the lower face 11' of the head rail 11. The screw 35 is provided with an operating head 38 that is exposed upon the inner periphery of the frame of the door. The upper and lower blocks 26 are thus operative in opposed relation, the lower blocks 26 functioning to exert pressure upon the rails 10 while the

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upper blocks 26 exert an upper pressure against the trackway 8 of the flange 7. The blocks 26 at all times have a free frictional sliding engagement with the upper and lower rails throughout the movement of the door and function to partially retard too free a sliding movement of the door. Also, the blocks 26 function to prevent any accidental disengagement of the door 9 with respect to the lower track 10, such as might be encountered when one end of the door might be lifted by a child and when such occurs, the blocks 26 constantly engage the track 10 to prevent any lateral movement of the door, even though the leading roller 19 may have been elevated above the track. The blocks 26 are always biased toward the rails and assures at all times the door can not be accidentally removed from its trackway.

When the door is to be engaged with the trackways 5 and 6, the upper rail 11 is first engaged with the flange 7, to engage the rail 8 into the grooves of the upper blocks 26. The operator then bodily shifts the door upwardly, forcing the blocks 26 down against the tension of the springs 34. A suitable tool or wedge is then engaged beneath the lower blocks 26 and as the door is bodily shifted upwardly, the lower blocks 26 are additionally moved upwardly to be snapped into engagement with the lower rail 10. With the blocks 26 in engagement with the lower rail, the rollers 19 are in alignment also with the rail 10. It then becomes necessary that the roller 19 be adjusted through the medium of the screw 24 to properly align the lower edge of the door with its respective track. In order to remove the door, it must first be necessary that the lower block 26 be wedged upwardly in order to disengage the track 10 from the grooves 33 at which time the door can be bodily swung outwardly first at one end then the other, assuming that one person only is operating upon the door.

It will be apparent from the foregoing, that a very novel type of supporting means for closure devices has been provided. The device while primarily adapted for screened closure panels, is also adaptable to glass doors having the same metallic frame. The nylon blocks 26 function to positively support the door upon its respective tracks and very definitely positions the door against any accidental displacement in use. The nylon blocks 26 and the nylon rollers 19 are relatively free in operation and have a very extended life span, requiring no lubrication. The structure is simple, strong, durable, cheap to manufacture and is most effective as a mounting and guiding means for closure doors of the sliding type for closing a wall opening. The parts are few and simple and of a nature that will avoid disassembly.

It is to be understood that the invention is not limited to the precise construction shown, but that changes are contemplated as readily fall within the spirit of the invention as shall be determined by the scope of the subjoined claim.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

Mounting means for sliding closure devices of the type that are movable across a wall opening and with the wall opening being provided with horizontal parallel trackways

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at its upper and lower side, the closure device embodying an open frame comprising a head rail, a base rail and connecting end rails, the several rails all being identical in cross-section, the several rails being of extruded channel form, the channel of the upper rail being upwardly opening, the channel of the lower rail being downwardly opening and the channels of the end rails being outwardly opening, grooved nylon rollers rotatably supported in the channel of the lower rail to project downwardly for traverse engagement with a lower trackway of the wall opening to support the closure device in spaced relation to the lower trackway, the rollers being inwardly spaced from the end of the closure device, friction blocks mounted in the channels of the upper and lower rails, the blocks in the upper rail being biased upwardly to frictionally engage the upper trackway of the wall opening, the blocks in the lower rail being biased downwardly to frictionally engage the lower trackway of the wall opening, each of the blocks being grooved at their outer ends to frictionally receive the trackways, the grooves of the blocks being in alignment with the grooves of the rollers, the blocks being inwardly spaced from the rollers within the lower rail and inwardly spaced from the ends of the upper rail whereby the closure is movably supported upon the lower trackway by the rollers and frictionally retarded against too free a movement upon the trackways both upper and lower, guide means formed in the channels of the upper and lower rails for the guiding movement of the blocks in a direction toward the trackways, the upper and lower rail members being provided with transverse web portions, the web portions being notched to form a guide opening for the vertical shifting movement of the blocks, the blocks of the upper and lower rails being in vertical alignment and in opposed relation, each of the blocks being provided with a threaded opening through a stop portion, a screw adjustably engaging the threaded opening of each block and with the shank of the screw extending through an aperture in a connecting base portion for the channels and a spring supported upon the several screws to bear against the base portion of the rails and also upon the tops of the blocks, the said screws having an operative head portion that is disposed above the connecting base member of the rails and that constitutes a limit means for the shifting movement of the blocks under the influence of the springs and a lug carried by each of the blocks that extends from one side of the blocks to engage an outer wall area of the channels to maintain the blocks against lateral movement and to support the blocks in sliding engagement with the notches of the web portions.

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