Oct. 29, 1940. J. L. TAYLOR 2,219,344

MOUNTING MEANS FOR DOORS

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Fig. 1.

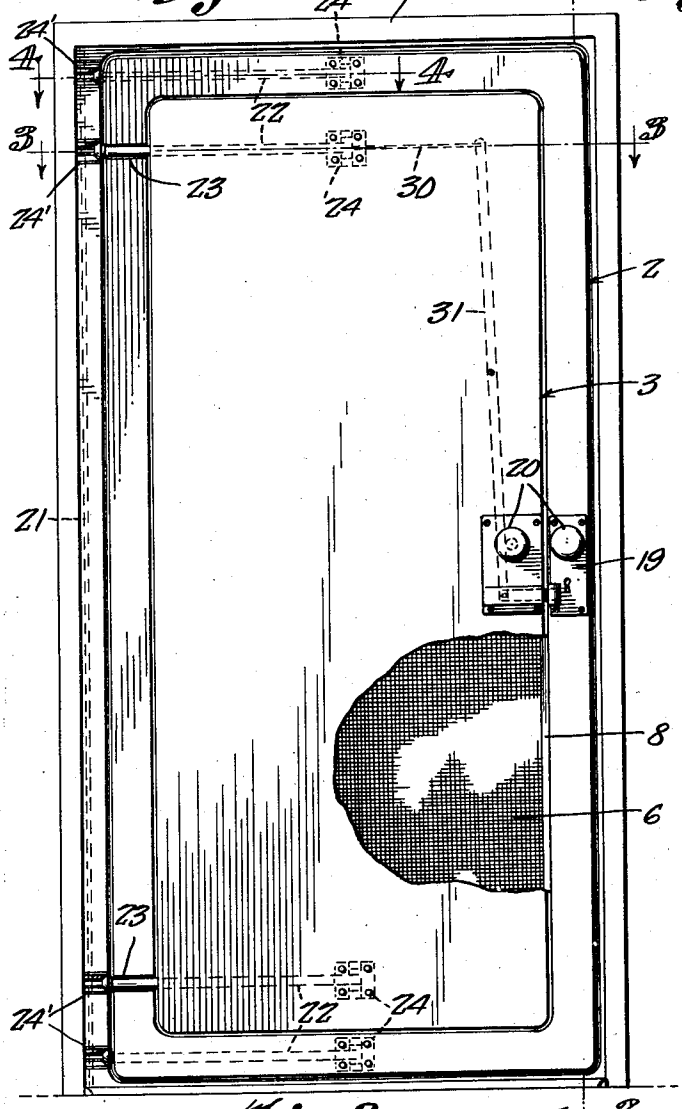


Fig. 2.

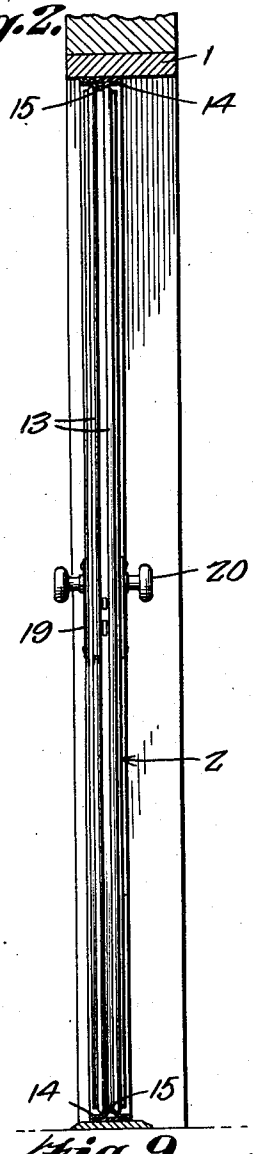


Fig. 8.

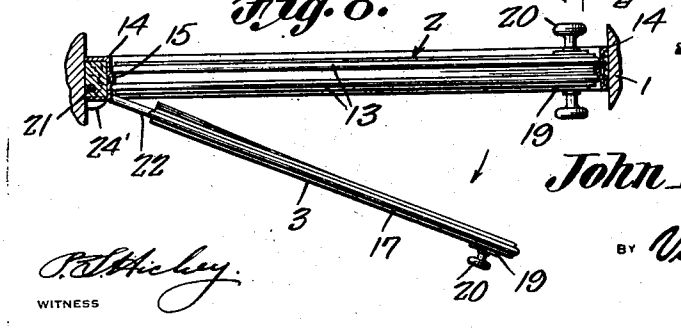
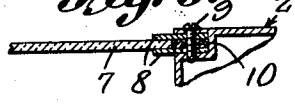


Fig. 9.



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WITNESS

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Fig. 3.

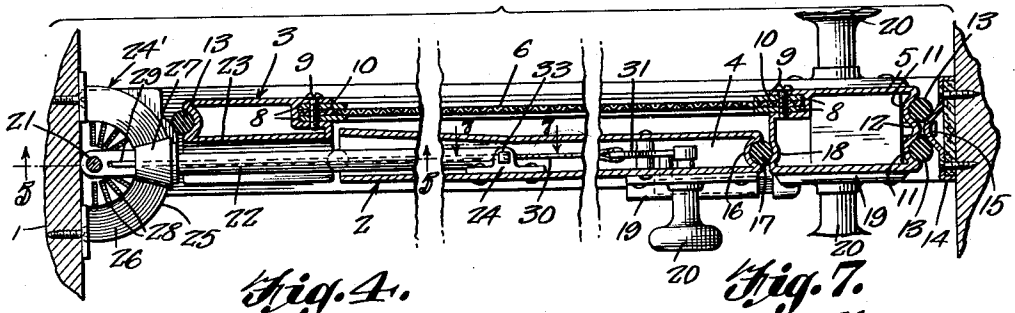


Fig. 4.

Fig. 7.

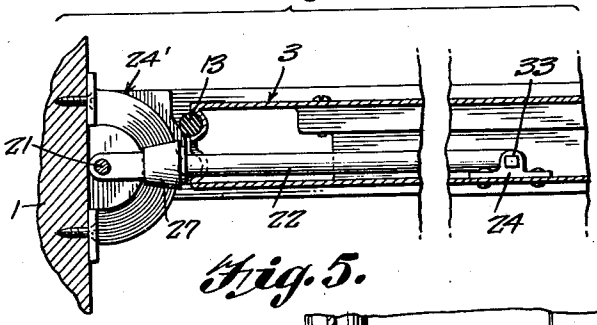
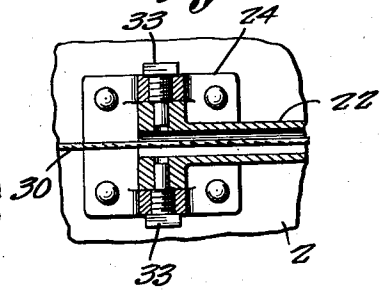


Fig. 5.



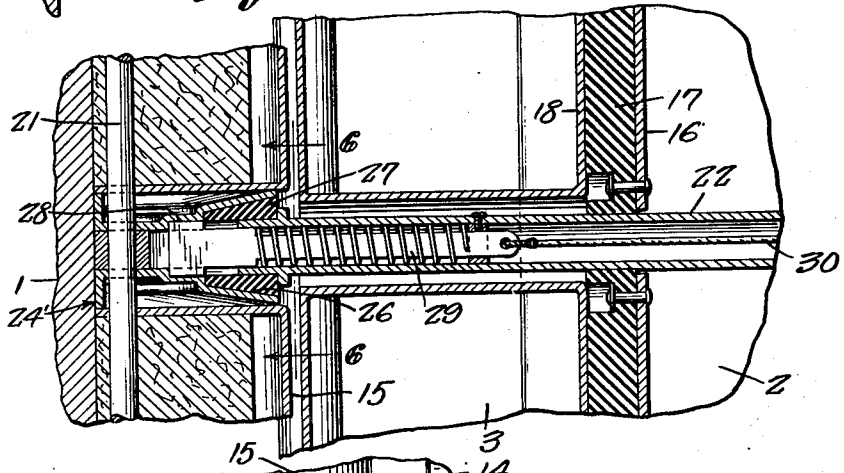
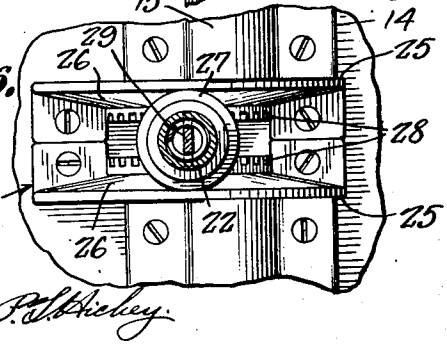


Fig. 6.



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UNITED STATES PATENT OFFICE

2,219,344

MOUNTING MEANS FOR DOORS

John L. Taylor, Silver Gate, Mont.

Application November 26, 1937, Serial No. 176,745

6 Claims. (Cl. 16—136)

This invention relates to door construction which may be economically manufactured as a unit to permit the installing thereof in a door opening of a building with ease and quickness and has for the primary object the provision of a device of this character which has double doors, providing maximum protection against weather elements and permitting ventilation to be had with full protection against insects and the like and also against intrusion by unauthorized persons.

Another object of this invention is the provision of a main door and an auxiliary door and a mounting for said doors which permits the easy and quick adapting of the door construction to a building and which will allow both doors to be simultaneously opened and closed and will permit the auxiliary door to be opened and closed with the main door remaining closed and will permit the main door to be opened and closed while the auxiliary door is occupying an open position, the latter having means for the automatic securing thereof in an open position when manually released.

With these and other objects in view, this invention consists in certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawings, in which

Figure 1 is a side elevation, partly broken away, illustrating a door construction, constructed in accordance with my invention.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a sectional view taken on line 4—4 of Figure 1.

Figure 5 is a fragmentary sectional view taken on line 5—5 of Figure 3.

Figure 6 is a fragmentary sectional view taken on line 6—6 of Figure 5.

Figure 7 is a detail sectional view taken on line 7—7 of Figure 3.

Figure 8 is a longitudinal sectional view showing the auxiliary door open with the main door closed.

Figure 9 is a fragmentary sectional view showing a modification or the use of a glass panel in the main door in lieu of the screen panel, as shown in Figures 1 and 3.

Referring in detail to the drawings, the numeral 1 indicates a casement which may be easily and quickly positioned within a door opening of a building and provides a mounting for main and auxiliary doors 2 and 3. The auxiliary door is of a single panel construction and chambered as indicated at 4. The main door includes a hollow frame 5 having removably mounted thereon either a screen panel 6 or a glass panel 7, consequently permitting the main door to be used as a screen door or as a door to exclude weather elements. The frame 5 of the main door is of such dimensions as to accommodate within the panel opening the auxiliary door 3, this door acting as a closure to exclude weather elements when the screen panel 6 is employed in the main door or as a double protection against weather elements when the glass panel is employed in the main door and to obstruct vision through the main door. The frame 5 of the main door about the panel opening is channeled to form a seat to receive either the panel 6 or 7 and also retaining strips 8 engageable with the opposite faces of the panel and removably secured in said seat by bolts 9. Packing strips 10 are interposed between the strips 8 and abut the edges of the panel to cushion the latter and cooperate with the strips 8 in effecting an efficient seal between the panel and the frame 5 of the main door. The edges of the frame 5 are provided with spaced grooves 11 and a rib 12 therebetween. Secured in the grooves 11 are cylindrical packing strips 13 protruding slightly out of said grooves and past the rib 12 to contact stripping 14 secured on the casement. The stripping 14 is offset to form a rib 15 to be contacted on opposite faces thereof by the packing strips 13 thereby effectively sealing the main door frame to the casement and in a closed position. The packing strips 13 are of yieldable material so that they will readily ride over the rib 15 during the opening and closing of the main door.

The auxiliary door 3 has grooves 16 in the edges thereof in which are secured packing strips 17 similar to the packing strips 13. The main door frame is grooved, as shown at 18, to receive the packing strips 16 when the auxiliary door is closed.

Door latches 19 of a conventional construction are provided for the main and auxiliary doors. The latch 19 of the main door cooperates with a keeper on the casement for securing the main door closed and the latch on the auxiliary door cooperates with a keeper carried by the latch of the main door for the securing of the auxiliary

door closed. The latches have the usual hand knobs 20.

A vertically arranged hinge shaft 21 is mounted in the casement and has journaled thereon door hinge rods 22 some of which are of hollow formation and enter the chambers of the doors, that is one pair of hinge rods enter the chamber of the main door frame 5 adjacent the upper and lower edges thereof while the other pair of hinge rods enter the chamber 4 of the auxiliary door adjacent the upper and lower edges thereof, the main door frame 5 being channeled, as shown at 23, to receive the hinge rods of the auxiliary door when the latter is in a closed position. Hinge brackets 24 are employed in securing the hinge rods on their respective doors and are arranged in vertical alignment, as shown in Figure 1, and midway of the vertical side edges of the doors. Said hinges and rods permit all edges of the doors when assuming closed position to contact simultaneously, that is, when the main door is entering or leaving the casement it moves laterally for a limited distance thereby effecting sufficient play to permit the resilient packing strips 13 to be accommodated within their respective channels. The auxiliary door, when moving into or out of the frame of the main door, also moves laterally for a limited distance to permit the same to be easily opened or closed and to permit the packing strips 17 to be easily and efficiently positioned within the channel 18 without offering any substantial resistance to the opening or closing movement of the door. This permits the packing strips of said doors to readily move into and out of their respective contact seats assuring an even fit of the main door in the casement and the auxiliary door within the main door frame and allowing movement of said doors without sticking.

Tracks 24' are carried by the casement and have the shaft 21 extending therethrough and each track includes upper and lower arcuate plates 25 provided with beveled or tapered roller engaging faces 26 contacted by cushioned rollers 27 of substantially conical shape journaled on the hinge rods 22 of the doors. The rollers engaging the tracks permit the doors to swing smoothly into open and closed position.

One of the tracks is equipped with a series of teeth 28 to be engaged by a spring pressed plunger or bolt 29 slidably mounted in one of the hinge rods 22 of the auxiliary door 3 and has connected thereto a flexible element 30 and the latter is connected to one end of a pivotally mounted lever 31 located in the chamber 4 of the auxiliary door and operatively connected with the latch of said door for the purpose of bringing about retraction of the bolt 29 from the teeth when the latch is operated to release the door and open the same. When the latch of the auxiliary door is released after opening thereof the plunger 29 engages the teeth and thereby secures the door in an open position. The auxiliary door secured in an open position will permit the main door to be opened and closed without effect on the auxiliary door and the auxiliary door will be prevented from being blown closed by draft while the main door remains closed to give desirable ventilation with full protection against insects and the like and unauthorized entrance. The plunger engaging the teeth also will act to secure the main door closed when the auxiliary door is in a closed position. To open the auxiliary and main doors simultaneously the latches of said doors will both have to be manually operated.

When manufacturing the hinge rods they all may be made of hollow formation or only certain ones as in a unit of this kind all hinge rods except one may be of solid formation, the hollow one only being required on the auxiliary door for accommodating the spring influenced plunger 29.

In constructing the doors sufficient play will be allowed between said doors and their respective hinge rods so that a limited swinging movement of the doors may be had between themselves and the hinge rods to allow the doors when closing to move in a vertical plane parallelling the vertical plane of the casement bringing about even seating of all edges of the doors simultaneously. Each hinge bracket 24 includes removable opposed pintle pins 33 engageable in the socketed ends of the hinge rods, as shown in Figure 7.

The door construction shown and described may be manufactured of any materials suitable for the purpose, preferably of a light weight metallic alloy which will permit standardization in manufacturing production whereby these units may be sold at a low cost ready to be installed in door openings of a building, requiring a minimum amount of skill in the setting up of the units.

A doorway of a building equipped with a unit of the described construction will permit efficient ventilation to be had through the doorway when desired with exclusion of insects and the like and complete privacy and protection when desired and with substantially unobstructed passage through the doorway when both doors are open.

In operation, to obtain ventilation with protection against intrusion and insects the auxiliary door is swung open and on the release of the latch thereof the auxiliary door becomes secured in open position by the plunger 29 engaging the teeth. The main door may be opened and closed as desired. With both doors closed full protection will be given against the entrance of weather elements and when desiring to pass through the doorway both doors are swung open simultaneously. In extreme cold weather the screen panel may be readily removed and the glass panel substituted in lieu thereof affording substantially double protection against the severe weather.

What is claimed is:

1. A mounting means for doors, comprising a hinge member having frame carried and door carried elements pivotally connected to provide swinging movement for the supported door, horizontally disposed arcuate tracks mounted on the frame above and below the hinge member, and roller means journaled on the said door carried element and engaging the said tracks to traverse the same upon actuation of the door.

2. A mounting means for doors, comprising a hinge member having frame carried and door carried elements pivotally connected to provide swinging movement for the supported door, latching means carried by the door carried hinge element, horizontally disposed arcuate tracks mounted on the frame above and below the hinge member and including a plurality of spaced seats to receive the latching means in any one of a plurality of selected positions of the door, and roller means journaled on the said door carried element and engageable with the tracks upon actuation of the door.

3. A mounting means for doors, comprising a hinge member having frame carried and door carried elements pivotally connected to provide swinging movement for the supported door, horizontally disposed arcuate tracks mounted on the

frame above and below the hinge member and including a plurality of spaced seats, latching means carried by the door carried hinge element and being spring impelled toward the said seats, roller means journaled on the said door carried element and engageable with the tracks to traverse the same upon actuation of the door, and a hand knob for rotatable mounting in the equipped door adjacent the free edge and operatively connected with the latching means.

4. A mounting means for doors, comprising a vertically arranged hinge shaft for mounting on the door casing, hinge rods journaled on said shaft and having pivotal terminals for attachment to the supported door at substantially the transverse center thereof, arcuate tracks for door frame mounting with the hinge shaft at the centers of the arcs of said tracks, and rollers journaled on said rods and traversing said tracks.

5. A mounting means for doors, comprising the combination of a hinge member having frame carried and door carried elements of which the former is a vertically arranged shaft and the latter tubular hinge members pivotally connected with said shaft, a latch means slidably mounted in at least one of said hinge members and yieldingly impelled toward the shaft, an arcuate beveled track for frame mounting at the pivoted end of the last-mentioned hinge member and with the shaft at the center of the arc, said track being provided with a series of spaced teeth selectively engageable by said latch means, manual means for retracting said latch means, and rollers journaled on the hinge members and engaging the said tracks in a manner to traverse the same upon actuation of the door.

6. A mounting means for doors, comprising the combination of a hinge member having frame carried and door carried elements of which the former is a vertically arranged shaft and the latter tubular hinge rods pivotally connected with said shaft, a latch member slidably mounted in one of said rods and yieldingly impelled toward the shaft, an arcuate track provided with a series of spaced teeth selectively engageable by said latch, and manual means for retracting said latch comprising a rotatable knob for mounting in the door at the free edge of the latter.

JOHN L. TAYLOR.