June 19, 1951 L. M. SANDERS 2,557,568

PLATE GLASS DOOR CONSTRUCTION

Filed April 21, 1945

Fig. 1.

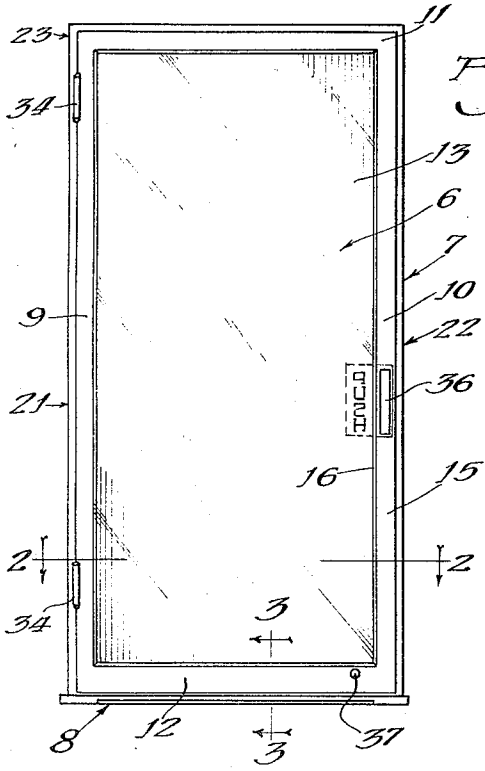


Fig. 3.

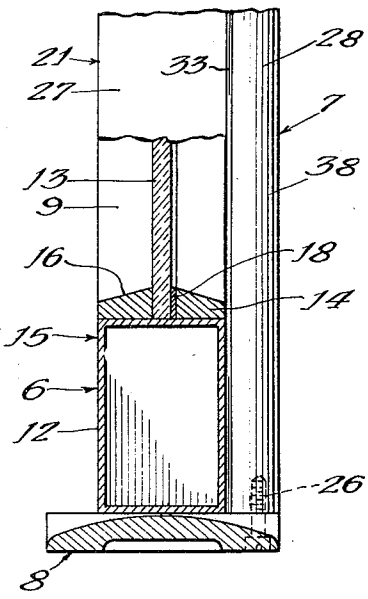
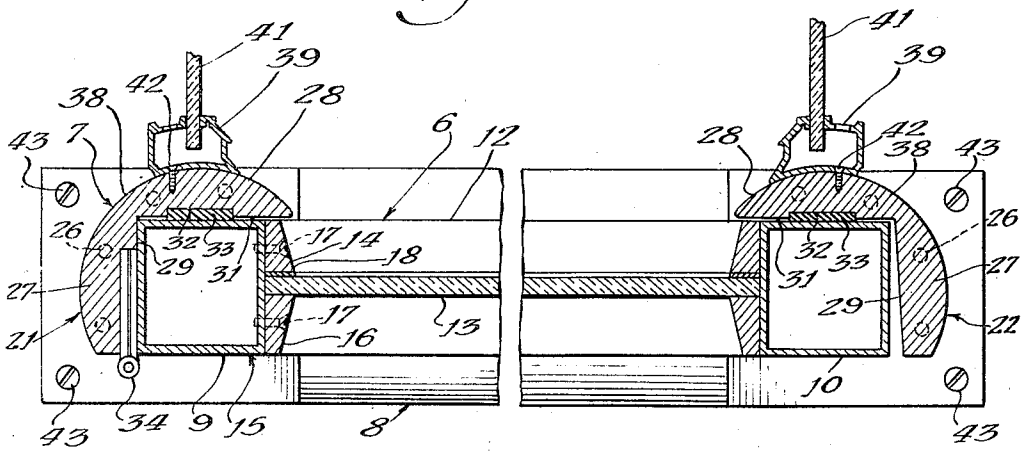


Fig. 2.



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Patented June 19, 1951 2,557,568

UNITED STATES PATENT OFFICE

2,557,568

PLATE-GLASS DOOR CONSTRUCTION

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Application April 21, 1945, Serial No. 589,525

4 Claims. (Cl. 189—46)

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This invention relates to improvements in door construction and is more particularly concerned with improvements in plate glass door constructions and mountings for same adapted for use with store fronts, commercial buildings, exterior doors and the like. One of the objects of this invention is to provide a door construction for store fronts and the like in which a plate glass panel is supported within top, bottom and side rails of relatively narrow width, and in which the frame for the door is relatively narrow in width and having the major portion thereof disposed to serve as an abutment wall along and coextensive in width to the side of said rails to provide maximum visibility through a store front to the interior of the building.

It is a further object of this invention to provide a door construction which permits the use of a relatively transparent door panel formed of plate glass. It has heretofore been the practice to employ a laminated glass panel for use in doors of this type, therefore a substantial saving is effected by use of ordinary plate glass in place of laminated glass due to the difference in cost of same. The present invention further contemplates the provision of a door construction to facilitate mounting or replacement of a plate glass panel from plate glass of the type usually supplied to dealers and carried as a stock item. The use of a plate glass panel door construction embodies another advantage over the use of laminated plate glass in that the panel may readily be broken to provide an unobstructed exit in the event of fire within the building.

The plate glass panel door construction of the present invention also permits concealment of the usual foil circuit strip employed for connection in a circuit to a burglar alarm device. This is accomplished by disposing the circuit foil strip adjacent the outer periphery of the glass panel for concealment by a molding strip. In the use of shatter-proof laminated plate glass, the circuit strip of foil must be mounted near the center of the panel to insure breakage of same to interrupt the electrical circuit to the alarm device, and presents an unsightly and objectionable appearance.

It is a further object of this invention to provide a door construction which will not be subjected to swelling, sagging, binding and warping due to settlement of the building or parts thereof, or by weather conditions.

Another important feature of this invention is to provide a door construction which permits the use of standard construction materials and hardware, such as hinges, locks, handles, etc., and, if

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desired, the door and door frame may be assembled at the factory for delivery as a complete unit for installation in a building without the use of skilled labor.

This invention further contemplates the provision of a door frame construction which is adapted to be connected or joined to adjacent window panels disposed at various angles thereto. In this connection it is contemplated that the adjacent plate glass windows will be mounted in standard moldings which may be adjustably secured at any desired angle with respect to the door frame.

This invention embodies other novel features, details of construction and arrangement of parts which are hereinafter set forth in the specification and claims and illustrated in the accompanying drawing wherein:

Fig. 1 is a front elevational view showing a door construction embodying features of the present invention.

Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1.

Fig. 3 is a sectional view taken along the line 3—3 of Fig. 1.

Referring now to the drawing, a preferred form of door construction embodying features of this invention is illustrated as comprising a door 6, a door frame 7, and a threshold or anchor plate 8. The door 6 comprises a pair of side rails 9 and 10, a top rail 11 and a bottom rail 12, which rails are preferably formed of hollow metallic members welded to each other at their ends to form a rigid integral rail frame 15 of preferably square or rectangular cross section to receive a plate glass panel 13. The plate glass panel 13 is detachably mounted within the rail frame 15 by means of the usual molding strips 14 and 16 held in position by means of screws 17.

Prior to mounting the plate glass panel within the rail frame 15, a strip 18 of electrical conducting foil may be cemented to the side of the plate glass panel to extend substantially throughout its periphery adjacent the face of the molding strip 14. The conducting strip 18 is thus concealed from view and any breakage of the plate glass panel 13 will result in breakage of the metal foil 18 and thus interrupt an electric circuit to an alarm device of the usual type (not shown).

The door frame 7 preferably comprises side posts 21 and 22 having their upper ends detachably secured or welded to the ends of a top transverse frame member 23. The lower ends of the posts 21 and 22 are detachably secured to thresh-

old and anchor plate 24 by means of screws 26. The posts 21 and 22 and transverse member 23 are preferably formed of metal and either rolled or extruded to form a relatively narrow frame portion 27 to enclose the outer periphery of the door rails 9, 10 and 11. An abutment wall 28 is also formed on posts 21, 22, and transverse member 23 and extends inwardly at right angles to the frame portion 27 to terminate adjacent the inner periphery of the rail frame 15. As illustrated in Fig. 2, the post portion 27 of the door frame 7 also preferably extends throughout the thickness of the door rails to terminate flush therewith to present a smooth exterior finish. The frame 7 is thus provided with a jamb face 29 and an abutment wall face 31 arranged in the form of legs of a right angle triangle to enclose two sides of the door rails. The face 31 of the abutment wall portion of the door frame 7 is provided with a recess 32 to receive a suitable weather strip and resilient door stop member 33 which may be formed of rubber, felt or other resilient insulating material adapted to absorb shock during closing of the door and to serve as the weather strip between the rail frame 15 and the door frame 7.

The door 6 is pivotally supported within the door frame 7 by means of suitable hinges 34 connected to and between the post portions 27 of the frame 7 and the door rail 9. Suitable push or pull plates 36 are adapted to be secured to the sides of door rail 10, and a barrel lock 37 may be mounted in the bottom rail 12 for actuating a bolt (not shown) for engagement in a bolt aperture (not shown) formed in the threshold 8.

The door frame 7 is provided with an outer arcuate surface 38 for line engagement with a molding strip 39 of the type usually employed for mounting plate glass windows 41. By providing an arcuate surface on the frame, it will be observed that the molding 39 may be radially disposed and secured at any position throughout the arcuate surface to adapt the door frame 7 for use with plate glass windows disposed at various angles with respect to the door. The molding 39 is secured to the frame 7 by means of the usual screws 42. The threshold 8 is adapted to be held against displacement by means of suitable screws or bolts 43 anchored to concrete or the framework of a building.

While this invention has been shown in but one form, it is obvious to those skilled in the art that it is not so limited but is susceptible of various changes and modifications without departing from the spirit and scope of the claimed invention.

I claim as my invention:

1. The combination with a metal door having top, bottom and side rails secured together and defining an opening for the reception of a transparent panel, of a rigid metal frame for said door comprising a pair of side post members of L-shape in cross section, a top transverse member, and a bottom transverse member, the inner surface of each side post member defining an abutment wall and a jamb wall which are coextensive in width to the width and thickness respectively of the adjacent side rail, the outer transverse surface of at least one of said side post members having a radius of curvature the axis of which is located within the periphery of the adjacent side rail when the door is in closed position, and post-engaging means having an engaging surface substantially complementary to the outer arcuate surface of a side post member for engagement with a predetermined portion of the arcuate surface of said post member.

2. The combination with a metal door having top, bottom and side rails secured together and defining an opening for the reception of a transparent panel, of a rigid metal frame for said door comprising a pair of side post members of L-shape in cross section, and a top transverse member of L-shape in cross section, the inner surface of said top transverse member and each side post member defining an abutment wall and a jamb wall which are coextensive in width to the width and thickness respectively of the adjacent side rails, the outer transverse surface of at least one of said side post members having a radius of curvature the axis of which is located within the periphery of the adjacent side rail when the door is in closed position, and post-engaging means having an engaging surface substantially complementary to the outer arcuate surface of a side post member for engagement with a predetermined portion of the arcuate surface of said post member.

3. The combination with a metal door having top, bottom and side rails secured together and defining an opening for the reception of a transparent panel, of a rigid metal frame for said door comprising a pair of side post members of L-shape in cross section, and a top transverse member of L-shape in cross section, the inner surface of said top transverse member and each side post member defining an abutment wall and a jamb wall which are coextensive in width to the width and thickness respectively of the adjacent side rails, the outer transverse surface of at least one of said side post members having a radius of curvature the axis of which is located within the periphery of the adjacent side rail when the door is in closed position, and a frame engaging means secured to the outer surface of one of said side post members, and post-engaging means having an engaging surface substantially complementary to the outer arcuate surface of a side post member for engagement with a predetermined portion of the arcuate surface of said post member.

4. The combination with a metal door having top, bottom and side rails secured together and defining an opening for the reception of a transparent panel, of a rigid metal frame for said door comprising a pair of side post members of L-shape in cross section, and a top transverse member of L-shape in cross section, the inner surface of said top transverse member and each side post member defining an abutment wall and a jamb wall which are coextensive in width to the width and thickness respectively of the adjacent side rails, the outer transverse surface of at least one of side post members being curvilinear, said curvilinear surface spanning an arc of over 90°, and post-engaging means having an engaging surface substantially complementary to the outer curvilinear surface of a side post member for engagement with a predetermined portion of the curvilinear surface of said post member.

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