Jan. 8, 1957 S. R. AARON 2,776,736

STORM DOOR

Filed Nov. 25, 1953 2 Sheets-Sheet 1

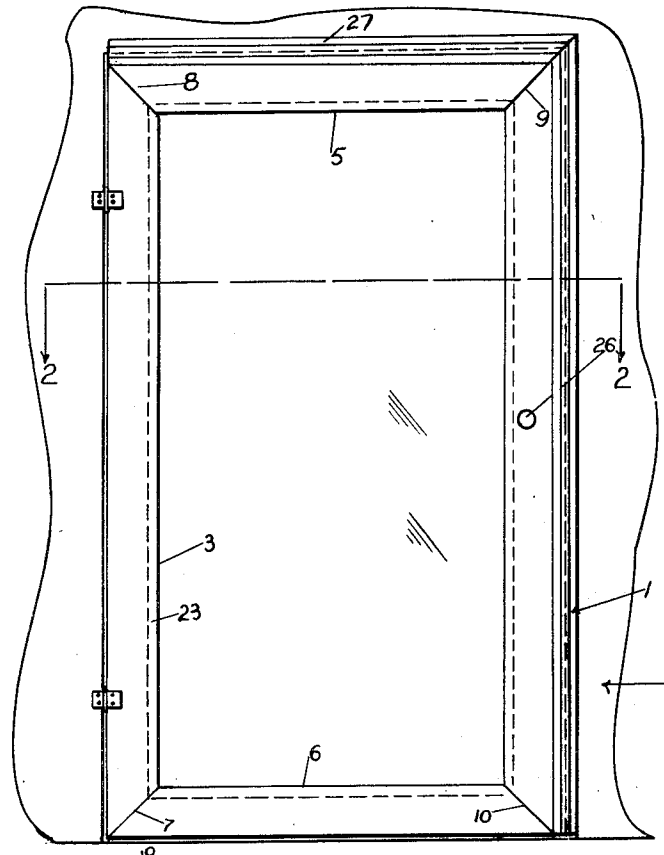



FIG. 1

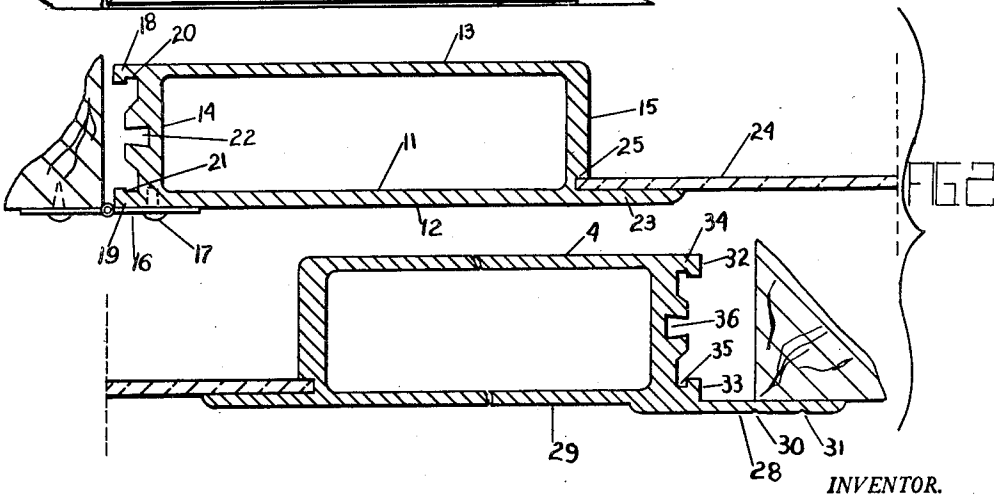



FIG 2

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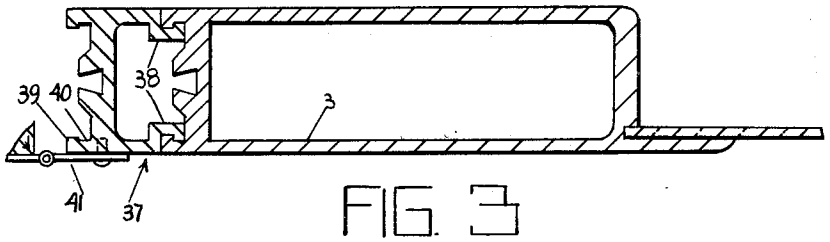



FIG. 3

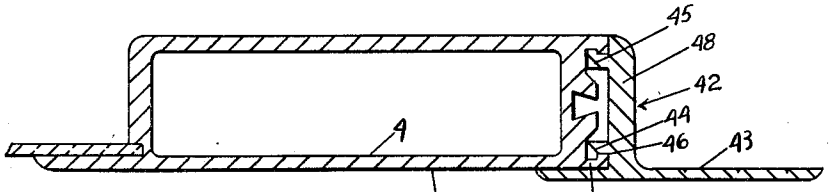



FIG. 4

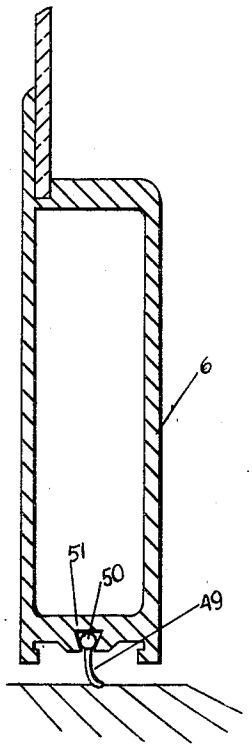



FIG. 5

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# STORM DOOR

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3 Claims. (Cl. 189—46)

The present invention relates to storm doors and more particularly to storm doors made of extruded metals and is particularly concerned with prefabricated manufacture of doors which are ready to be attached to door frames on the external side of the normal door already in use in the door frame. Such storm doors must be durable and adapted to provide reasonably good closures against drafts of cold air.

In the present invention, a storm door is provided which is readily usable for the outside of a door frame, inasmuch as it may be fitted to the door frame without the necessity of any particular prior fitting or construction on the part of the mechanic.

The storm doors of the present invention may be made of definite frame sizes and preferably have extending flanges which may cover the outer wall surface adjacent the door frame on the top of the door and opposite the hinge section so that the door may be readily fitted even if the door frame is not of true size in all dimensions or has been warped by weather conditions.

By means of the structure of the present invention, the door frame may also be provided with extensible elements which may be inserted both on the hinge side and on the other side where this is required.

A further feature of the present invention is that the door itself is constructed of extruded aluminum elements, preferably formed in rectangular cross sections with hollow centers and with peripheral edges formed with tongues and grooves in which members for extending the width and length of the door itself may be inserted.

Without further describing the improvements and advantages of the present invention which will be understood from the specification set forth below, the applicant will now describe the embodiment of the invention, in which:

Figure 1 shows a door of the present invention set in a door frame in vertical elevation.

Figure 2 shows a section taken on the line 2—2 of Figure 1.

Figure 3 shows a modification of a portion of the section shown in Figure 2.

Figure 4 shows another modification of a section shown in Figure 2 and,

Figure 5 shows a further modification adaptable to the construction shown in Figures 1, 2 and 3.

In the arrangement indicated in Figures 1, 2 and 3, 1 shows a storm door which is set in a door frame indicated by 2. The door 1 is made up of extruded side members 3 and 4 and extruded top and bottom members respectively, 5 and 6. These extruded elements may be welded at 45° at their corners as indicated at the corners of the door, 7, 8, 9 and 10. The section of the extruded side 3 of the door is shown in the top half of Figure 2. This comprises a rectangular extruded section 11 which is composed of outer and inner sides respectively, 12 and 13 of the supporting side element 3 of the door and end sides or edges 14 and 15 respectively, the end 14 being



shown as the outer end of the door against which the hinge 16 is secured by means of bolts or screws 17.

In the upper half of Figure 2, therefore, the door is shown as swinging downward. The outer edge surface of the section 14 is formed with two side flanges 18 and 19 which have inner recesses 20 and 21 running the full length of the sides of the door. There is also provided in the outer structure of the end 14, a groove 22 which is adaptable to interlock with a section to be inserted on the outer face edge of the door as will be described later.

On the inner side of the element 3, forming a part of the door structure, there is an outwardly extending flange 23, which preferably extends substantially in the same plane as the surface 12 of the side elements 3, although this may be formed with an outwardly extended surface or an inwardly extended surface, whatever design may seem most appropriate. A glass pane 24 is inserted within the flange 23 and is secured closely to the inner surface of the flange 23 by any suitable means. For this purpose the outer surface of the inner edge of the element 3 may be grooved as indicated at 25 along three sides or other suitable means for securing the glass pane in place may be used.

The top section 5 of the door is of the same construction as the element 3, with the exception however that it is provided with an outwardly extending flange continuous with the outer surface of the section 5 and forming an upwardly extending flange 27 which lies over the external surface of the door frame. While therefore the extruded rectangular element is provided with an upper edge extending inward of the door frame, it is also provided with an edge 27 lying over the outer surface of the door frame and therefore will cover the door frame area fully and completely. This surface section extending over the outer surface of the door frame forms a flange or covering element, which not only tends to prevent the air from blowing through the space between the door and frame, but also tends to force and hold the door in a closed and seal-proof position with respect to the door frame. The element 4 forming the other side of the door opposite to the element 3, is similar in construction to the section 5. This however may be provided with a longer extending flange 28 extending over the outer surface of the door frame. The flange 28 as shown in Figure 2, extends from the outer surface 29 of the extruded section 4, and may be formed with a slight outwardly extending rib or may be level with the surface 29. The flange 28 as shown, is grooved for its whole length at 30 and 31, providing sections which may be removed if the door becomes too large or too unwieldly for the frame in which it is used. The outer edge of the extruded section 4 may be ribbed similarly as that described for the section 3 with two edge flanges 32 and 33 which are recessed at 34 and 35 to receive a piece which may be slid into the side of the door. An inner groove 36 may also be provided in the edge of the door into which a tongue of an extending piece may fit. A bottom extruded section 6 of the door may meet the rabbeted ends as described in Figures 2 and 3, and also the external flanges so that the section at 6 may be a simple rectangular section if desired.

In the arrangement indicated in Figure 3, which may be applied to the hinge side 3 or the top side 5 and also to the outer side 4 of the door, an inserted section 37 is provided which may be slid the length of the section 3 from the top down or the bottom up and locked into place by any suitable means as by spot welding or by a set screw or any other manner which may be found most suitable for the purpose. The section 37 is also an extruded section and may be formed with inwardly extending flanges 38 which interlock or fit to the end extensions 18 and 19 as shown in Figure 2. The end sections 37 may also be provided with a similar construction shown for the end

section 3 with an extending flange 39 and inner recesses 40 to receive a similar section as the section 37. In this way the door frame can be built up to any desired size by the addition of lengthwise sections on the sides of the door. The same principle applies for the top and other door side, opposite to the hinge side.

In Figure 3 the hinge 41 may be attached to the added section as shown in the figure. The rest of the construction shown in Figure 3 may be the same as that in Figure 2.

Figure 4 shows a construction in which the side opposite the non-hinged side, namely, section 4, is provided with an extension element 42 which may be slid into position along the side of the door and provide an extending flange 43 substantially coextensive with the surface 29 on the outer face of the door. For this purpose the extension element 42 may be provided with inwardly extending flanges 44 and 45 and have recesses and projections 46 and 47 engaging corresponding elements in the edge of the door element. All that is necessary is to slide the element 42 in position extending the element 4 for whatever purpose may be necessary.

As shown in Figure 4, the element 42 is provided with a portion 48 which will enlarge the normal width of the door. The size in this section 48 may be controlled in width and made narrower than shown in Figure 5 if that is desired.

In Figure 5 the bottom section 6 of the door is shown with an insulating strip 49 set in the bottom edge of the door by means of a packing ring 50 or some suitable material engaging in the center groove 51 in the dor. The groove 50 which is shown correspondingly in some of the other figures may be used to hold and retain a packing gland or ring for the retention of a weather strip or insulating elements 49 which may be flexible and serve to contact the floor or other surface where some space in the normal position of the door for opening and closing may be required.

It will be noted from the description above that a door frame of substantially any size can be fitted by the storm door of the present invention.

Having now described my invention, I claim:

1. A storm door adapted to fit on the outer side of a door frame, comprising extruded members welded at mitered corners forming the sides of the door, said members having a cross section in the shape of a rectangle with rabbeted ends on the outer edge surface of said extruded members, an element adapted to fit along one side of said rabbeted member comprising an interfitting complementary grooved section adapted to be slid along the first rabbeted section into place along the edge of the door, said last mentioned element having a flange on one side substantially coextensive with the outer surface of the door for extending the side of the door over the whole surface against which the door is to fit, flanges integral with each of the extruded members and lying in the plane of the outer surface of said members, and recesses formed on the surface of the members at the base of the last named flanges, said recesses and last named flanges supporting a pane of glass between the sides of the door.

2. A storm door adapted to fit on the outer side of a door frame comprising rectangularly shaped extruded hollow members forming the sides of the door, said rectangular extruded members having flanges on the plane of the outer surface of the door and extending inwardly from the sides of the door, recesses formed in the extruded members immediately adjacent the bases of the flanges, said recesses and flanges supporting a pane of glass between the sides and flanges extending outwardly from the top and one side of the door in the plane of the outer surface of the door.

3. A storm door adapted to fit on the outer side of a door frame comprising extruded hollow members welded at mitered corners forming the sides of the door, flanges extending inwardly from the sides of the door in the plane of the outer surface of the hollow members, recesses in the hollow members immediately adjacent the bases of the flanges, said recesses and flanges supporting a pane of glass between the sides said members having a cross section in the shape of a rectangle with rabbeted end structures on the outer end of the cross section to receive inserts for extending the width and height of the door frame and said inserts having outwardly extending flanges adapted to extend beyond the outer side of the door frame.

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