March 24, 1931. A. G. NEW 1,797,440

METAL FRAME DOOR

Filed Oct. 10. 1927

Fig. 1.

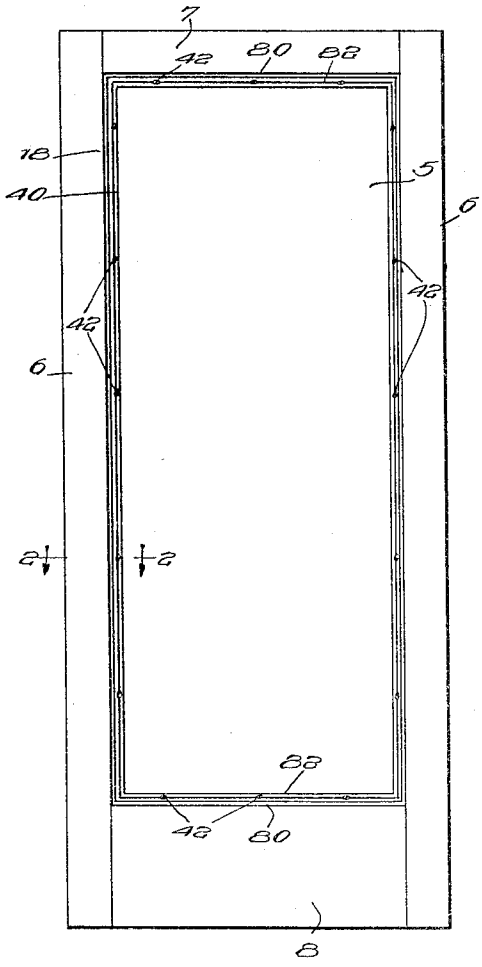
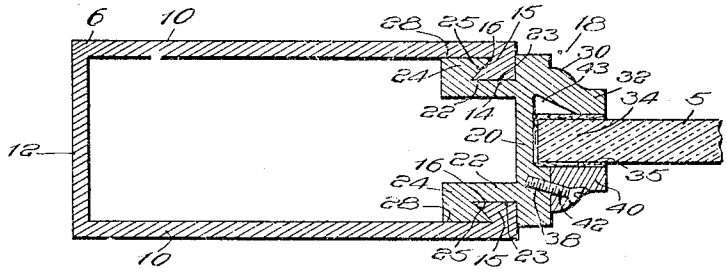


Fig. 2.



Witness:

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UNITED STATES PATENT OFFICE

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METAL-FRAME DOOR

Application filed October 10, 1927. Serial No. 225,116.

This invention relates to metal frame doors and the like and its object is the provision of a generally improved hollow metal frame structure having advantages over the sheet metal frame-work structures heretofore commonly employed.

The present invention provides a structure that may be more conveniently and expeditiously produced so that it may always be readily available and a structure of great strength, pleasing appearance and adapted for convenient and economical assembly.

The invention further provides for minimizing the labor item in production and assembly.

The invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a view in elevation of a door embodying the present invention; and

Fig. 2 is a detail section taken on the line 2—2 of Fig. 1.

Referring to the drawing the door selected for illustration comprises a panel 5 having a frame-work composed of the stiles 6, 6, a top connecting rail 7 and a bottom connecting rail 8.

The present invention has to do particularly with the structure of the hollow metal frame-work and the number of cross rails, as well as the number or type of panels 5 may be varied widely within the scope of the present invention. For example, there may be one or more intermediate rails, with additional panels and the panel or panels may be formed of glass, as shown, or they may be of plaster board, asbestos, metal or other suitable material or of a combination of suitable materials, as desired. Where glass is employed it is usually wired or reinforced as well understood in the art.

The stiles 6, 6 are formed of extruded bronze or other suitable extruded metal, suitably shaped into generally rectangular configuration in transverse section. Each stile or frame member 6 has the opposite parallel front and back walls 10. One side of the generally rectangular frame member is closed by a side wall 12 formed integral with the front and back walls 10 in the extruded formation of the frame or stile member. This closed side 12 forms the outer marginal edge of the finished door.

The opposite side of the frame or stile member 6 is open at 14 and this open side is presented inwardly toward the panel 5 in the finished door. The inner surfaces of the walls 10 are provided along the open side 14 of the stile or frame member 6 with inwardly extending integral ribs 15, also preferably formed on the frame or stile member in the extruded formation thereof. The extruding operation is, in itself, believed to be well understood and it is not believed that a detailed description of this formation is necessary here. The ribs 15 have their edges 16 spread inwardly with a resulting wedge shaped or dove-tail formation, as shown, and the molding or panel seating member 18 is longitudinally engaged and interlocked with these wedge shaped ribs 15 along the open side 14 of the frame member.

The molding or panel seating member 18 is also preferably of extruded bronze or other suitable extruded metal and it has a base portion 20 which seats upon the inner side of the frame member 16 and bridges the opening 14. The base portion 20 has a pair of longitudinal parallel faced tongues 22 which fit between the edges 23 of the ribs 14 and the inner marginal edges of the tongues 22 are enlarged at 24 and provided with tapered or wedge-like edges 25 which are complementary to the wedge-like edges 16 and are adapted to interlock therewith when the molding or panel seating member 18 is longitudinally engaged with the stile or frame member of the door. The outer surfaces 28 of the enlarged heads 24 fit between the inner surfaces of the front and back walls 10 of the door frame or stile member, as shown.

The molding or panel seating member 18 may be finished at 30, as desired, and it has an integral flange 32 preferably also formed thereon in the extruded formation of the member 18. The flange 32 extends longitudinally along the inner side of the frame or stile member and seats the marginal edge 34 of the panel 5, it being understood that a suitable seating or cushioning strip or element 35 may be interposed between the panel 5 and the

flange 32 or this seating or cushioning material may extend around the entire gripped margin of the panel, as shown.

The molding or panel seating member 18 is provided with suitably threaded openings 38 and the panel 5 is securely held marginally between the flange 32 and a detachable molding strip 40 laid along the marginal edge of the opposite side of the panel 5 and detachably secured to the base 20 of the molding or panel seating member 18 by suitable screws or other fastening means which engage the member 18 and firmly secure the detachable strip 40 thereto. In the particular embodiment shown these fastening devices are in the form of screws which pass through the strip 40 and have threaded engagement in the openings 38. The removable molding strip 40 is also preferably of extruded bronze, although this may vary and the molding or seating member 18 may be relieved at 43 to assure proper seating of the panel.

In making up a door embodying the present invention the frame or stile member 6, molding or seating member 18 and strip 40 having been made up, the assembly of the door is reduced to merely interlocking the headed inner edges of the flanges 22 with the ribs 15 and sliding the molding or seating member 18 longitudinally of the stile or frame member into the desired position. The telescopic engagement provides for conveniently and expeditiously joining the members 6 and 18 and the interlocking engagement of the wedge-like formation 25 with the correspondingly tapered edge 16 gives the member 18 the additional function of a binder for the free inner edges of the walls 10 along the opening 14. The member 18 by its interlocking engagement with the tapered or wedge-like surfaces of the ribs 15 holds the free edges of the walls 10, along the open side 14, together and against spreading apart or buckling, which provides a firm, solid structure and is exceedingly advantageous where high or excessive temperatures are encountered.

The rail members 7 and 8 may also be of extruded bronze or other suitable extruded metal and their structure is similar to the structure of the stile member 6 with the open side of the upper rail facing downwardly and the open side of the lower rail facing upwardly. The molding or panel seating members 8 are secured to the open sides of the rails 7 and 8 similar to the attachment of the molding member 18 to the stile members 6 and the molding strips 82 along the rails 7 and 8 are similarly detachably secured to the molding or seating members 8 with the upper and lower marginal edges of the panels 5 secured or held therebetween. The closed top of the panel 7 is shown as lying flush with the upper ends of the stile members 6 and the lower closed side of the panel 8 is shown as lying flush with the lower ends of the stile members 6. The upper and lower ends of the stile members 6 may be suitably closed as by extending the ends of the rail members 7 and 8 therethrough or otherwise, as desired, and the opposite ends of the rail members may be welded or otherwise suitably secured to the adjacent portions of the stile members, and the entire frame and structure thereby joined into a solid, unitary door. The meeting ends of the molding or seating member 18 and detachable molding strips 40 may be mitered at 85 and welded or joined, upon completion of the door, although this may be omitted or varied.

I claim:—

In a device of the class described, a unitary hollow extruded metal frame of generally U-shaped section having a connecting base at one side and open at the opposite side with legs integral with said base and extending to said open side, a pair of ribs integral with the legs of said frame, one extending internally along each of the marginal edges of said legs at the open side of the frame, said ribs each having an inwardly presented tapered edge forming a tapered groove between each rib and the adjacent leg of the frame, a unitary extruded metal molding member having a base bridging and closing the open side of the frame, said molding member having a pair of integral tongues entering the open side of the frame and fitting between the ribs on the legs of the frame, and a pair of ribs each integral with said molding member with one on each of the inner edges of said tongues, said last ribs having tapered edges fitting in the tapered sockets along the open side of the unitary frame and interlocked with the tapered edges of said first ribs whereby the frame and molding members are secured together and the open side of the frame is held both against collapse and against spreading internally of the frame.

In witness whereof, I hereunto subscribe my name this 5th day of October, 1927.

ALVIN G. NEW.