

March 25, 1924.

A. J. CONNELL

1,488,095

METAL DOOR

Filed June 16, 1921

2 Sheets-Sheet 1

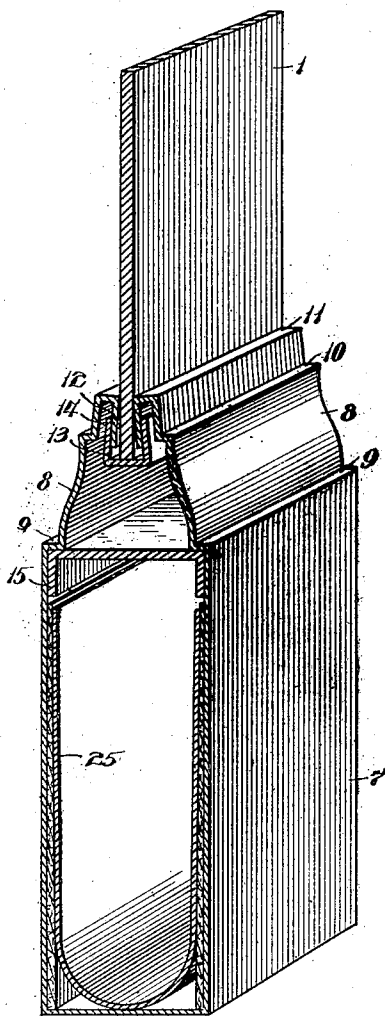


Fig. 1.

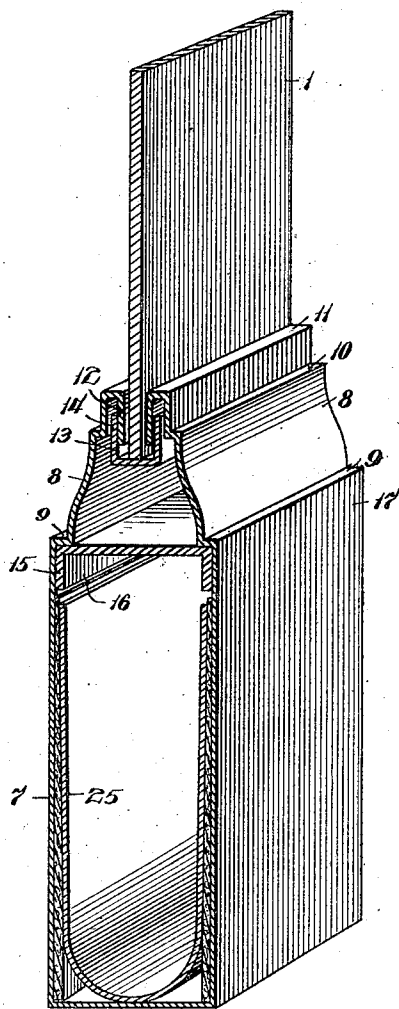


Fig. 2.

INVENTOR
Andrew J. Connell.
BY
Dunn, Goodlett, Massie & Scott
ATTORNEYS

March 25, 1924.

A. J. CONNELL

1,488,095

METAL DOOR

Filed June 16, 1921

2 Sheets-Sheet 2

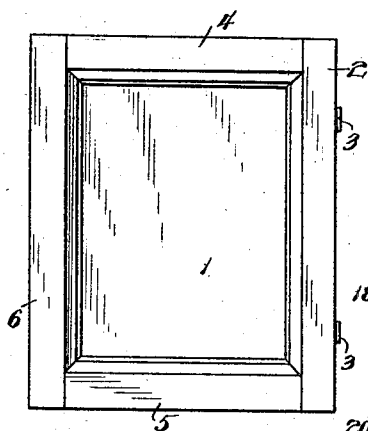


Fig. 4.

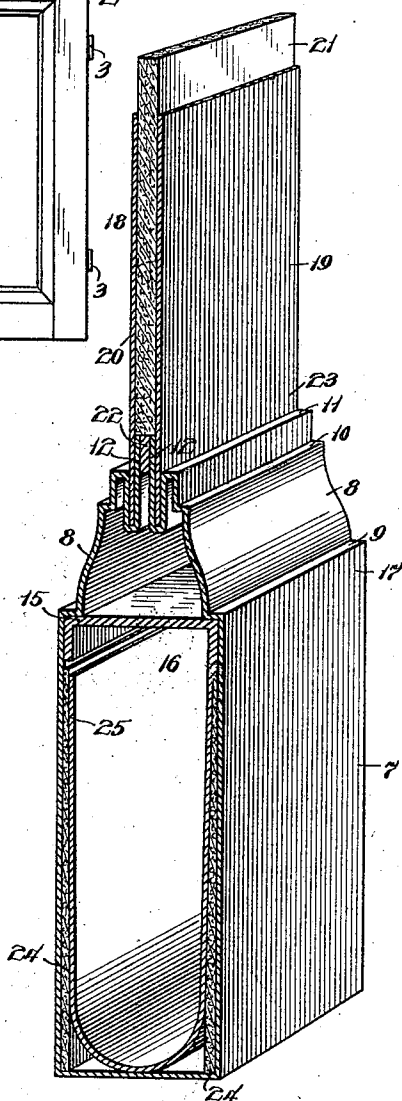


Fig. 5.

INVENTOR
Andrew J. Connell.
BY
Dunn, Goodlett, Macais & Scott.
ATTORNEYS

UNITED STATES PATENT OFFICE.

ANDREW J. CONNELL, OF COLLEGE POINT, NEW YORK, ASSIGNOR TO SUPERIOR STEEL DOOR AND TRIM CO., INC., OF COLLEGE POINT, NEW YORK, A CORPORATION OF NEW YORK.

METAL DOOR.

Application filed June 16, 1921. Serial No. 477,903.

To all whom it may concern:

Be it known that I, ANDREW J. CONNELL, a citizen of the United States, residing at College Point, county of Queens, city and State of New York, have invented new and useful Improvements in Metal Doors, of which the following is a specification.

This invention relates to metal doors and more particularly to frame-members for such doors.

The principal object of the invention is to provide a simple and durable metal door of economical construction and comprising a minimum number of separate parts.

A further object of the invention is to provide a continuous sheet metal frame-member for doors and the like, comprising a substantially channel-shaped body-portion having its margins inwardly turned and shaped to receive a panel.

In the present embodiment of the invention there is provided in a metal door a central panel comprising one or more sheet metal plates, a frame-member comprising a body-portion having integral therewith a molding to engage said panel, and means for holding the panel and molding in engagement.

The invention is illustrated in the accompanying drawings in which—

Figure 1 is a perspective view of a section of one form of panel with its cooperating frame-member;

Figure 2 is a view similar to Figure 1, showing the relation of parts before the frame-member has been attached to the panel;

Figure 3 is a perspective view of a section of a modified panel with its cooperating frame-member; and

Figure 4 is a front elevation of a metal door embodying the features of this invention.

Referring now to Figure 4, 1 represents a central panel which may be of either the type shown in Figs. 1 and 2 or that shown in Fig. 3. 2 is the hanging stile to which may be attached any suitable hinges. 3, 4 and 5 are respectively the top and bottom rails and 6 indicates the locking stile. The

members 2, 4, 5 and 6 are all frame-members of the type shown in detail in the other figures.

Figs. 1 and 2 show a section of such a frame-member which comprises a channel-shaped body portion 7 the margins 8 of which are inwardly turned to form molding portions to engage the panel 9. While the molding portions 8 might be curved continuously or in any other suitable manner, they are most desirably provided with steps 9, 10 and 11 so as to result in a molding of ornamental appearance.

In the embodiment shown in these figures in which the frame-member cooperates with a panel formed of a single thickness of sheet metal, the edge portions 12 of the molding are preferably down turned and spaced apart a distance slightly greater than the thickness of the panel to be engaged. Thus in assembling a complete door the frame-members are placed one at a time in the positions shown in Figure 4 after which a channel-member 13 of a size just sufficient to slide easily over the outer surface of the edge portions 12 is set in place as shown in Figure 2. The upper edges 14 of the channel 13 are then pressed inwardly so as to firmly lock the panel 9 between the edge portions 12 and within the channel 13. In assembling a complete door it is customary to apply the frame-members 2, 4, 5 and 6 in the order named. For doors of considerable size the frame-member, consisting merely of the body portion 7 and molding 8, will not have sufficient strength, in which case an inverted metal channel 15 is most desirably set between opposite walls of the body portion abutting the underside of the steps 9 and welded in place by spot welds suitable distances apart as at 16 and 17.

The construction shown in Fig. 3 is that of a frame-member designed in accordance with this invention to cooperate with a panel which comprises the two plates 19 and 20, between which there is inserted a filling 21 of sound or heat insulating material, such as asbestos or other suitable substance. To accommodate a panel of this type the margins 8 of the channel-member, comprising the

body portion 7, are inwardly turned, as in the construction previously described, with the exception that the edge portions 12 are now given a final upward turn so as to provide a seat between each step 11 and said edge 12. The plates 19 and 20 are set in their respective seats after which a metal strip 22, which fits snugly between the inner surfaces of the edge portions 12, is inserted and the frame-member is then permanently joined to the plates 19 and 20 by spot welding just above the step 11, as at 23. The filling 21 may be inserted before the panel is attached to the molding and may be tightly packed against the strip 22 after one unit of the frame work has been attached to the panel, and will be firmly held in place by all such strips in the completed door. In doors having the insulating panel such as shown in Fig. 3 it is almost imperative to reinforce the body portion 7 of the frame-member by a channel 15, which may be welded in place as was previously described. In doors of this type it is usual to provide sheets of insulating material 24 coextensive with the side walls of the body portion 7 of each frame-member. To hold these sheets 24 in place there is provided a U-shaped spring-member 25, the upper edges of which may be compressed while the spring is inserted into the body portion after the sheets are set in place, and upon releasing the edges the spring 25 holds the sheets permanently in position.

From the foregoing description it will be apparent that this invention provides a frame-member for metal doors which may be employed as either a rail or stile in connection with panels of any desired type, which may be quickly and easily set in place and firmly and permanently secured. The frame-member being made of a continuous sheet of metal cannot become loose while the door is in use and being secured either by a locking member, or being welded, cannot become detached from the panel.

While I have shown and described one

particular embodiment of the invention in great detail, it is to be understood that I do not limit myself to the precise form shown, but reserve the rights to all modifications coming within the scope of the appended claims.

What I claim is:

1. A metal door or like structure embodying, in combination, a frame member comprising a single piece of sheet metal bent to provide a substantially channel-shaped body portion, integral molding portions and portions disposed in substantially the plane of the side walls of the body portion and also being further bent to provide portions extending toward the center line of the said body portion at substantially a right angle to the said side walls, said inwardly and centrally disposed portions forming the sides and bottom of a panel socket; and a panel seated in said socket.

2. A metal door or like structure embodying, in combination a frame member comprising a single piece of sheet metal bent to provide a substantially-channel shaped body portion, integral molding portions and portions disposed inwardly in substantially the plane of the side walls of the body portion and also being further bent to provide portions extending toward the center line of the said body portion and also having portions extending outwardly in substantial parallelism with the said inwardly disposed portion to form oppositely disposed panel sockets; and panel plates seated in each of said sockets.

3. A metal door or like structure embodying, in combination, a panel and a frame member comprising a substantially channel-shaped body portion, a lining of fire-proof material arranged to abut against opposite sides of said frame member and a U-shaped spring retainer for holding the opposite sheets of fireproof lining in place against the said opposite side walls of said body portion.

ANDREW J. CONNELL.