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E. H. ELLISON ET AL

1,620,451

METAL DOOR

Filed March 12, 1925

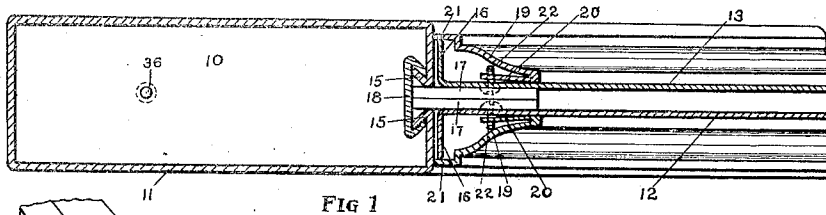


FIG 1

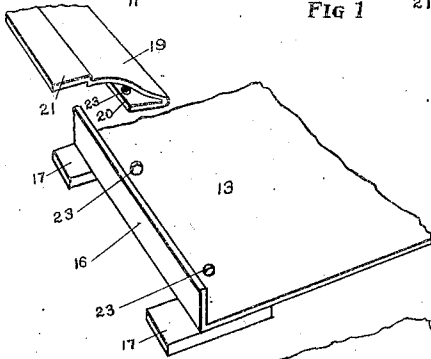


FIG 2

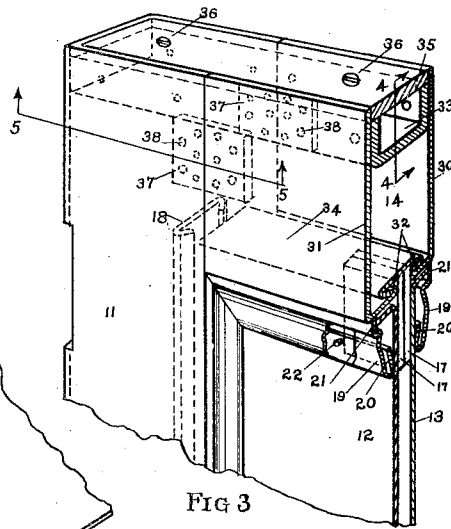


FIG 3

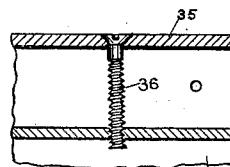


FIG 4

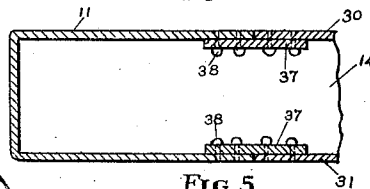


FIG 5

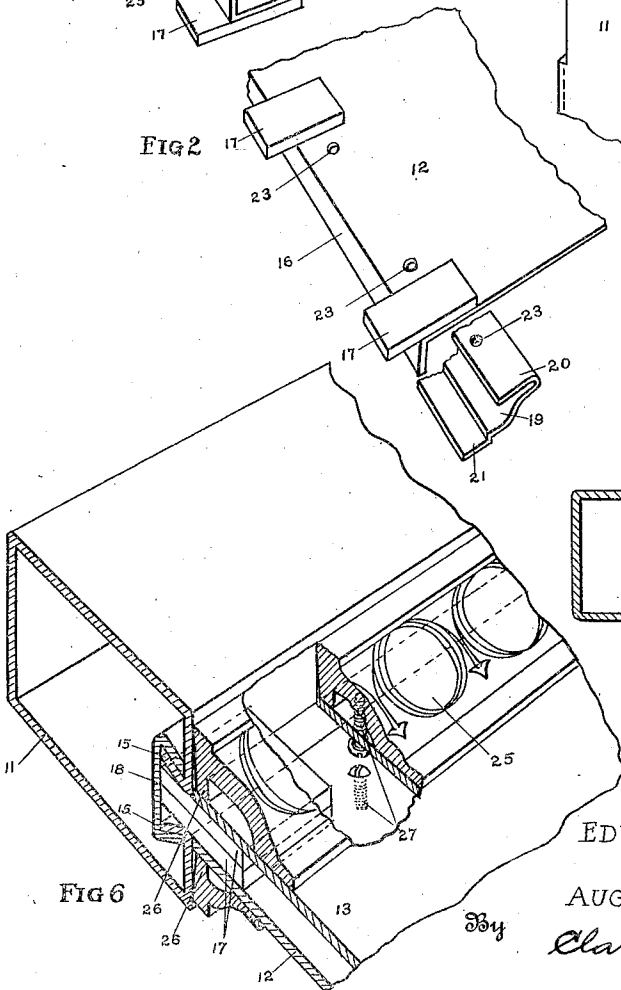


FIG 6

Inventors

EDWARD H. ELLISON.

AND

AUGUST W. BECKSTROM.

Clarence Walker.

Their Attorney

UNITED STATES PATENT OFFICE.

EDWARD H. ELLISON AND AUGUST W. BECKSTROM, OF JAMESTOWN, NEW YORK, ASSIGNORS TO THE ELLISON BRASS MANUFACTURING CO., INC., OF FALCONER, NEW YORK, A CORPORATION OF NEW YORK.

METAL DOOR.

Application filed March 12, 1925. Serial No. 15,074.

This invention relates to an improvement in metal doors, particularly in those of the panel type and to the means of securing moulding thereto.

While many metal doors of the panel type provided with moulding, have been made, they are all open to the objection that the moulding is integral either with the stiles and cross rails or with the panels, and hence it is necessary to make special dies of the stiles and cross rails or of the panels for every design of moulding. While this is expensive, it cannot be avoided in doors of that type because architects often insist upon door mouldings of a particular design in order to carry out their plan, and hence manufacturing such doors in quantity thus reducing the cost is impossible.

The primary object of this invention is to provide a metal door having stiles, cross rails and panels, independent, in formation of the particular design of moulding to be secured on the door, so that the stiles cross rails and panels can be made in quantity and kept in stock at all times.

A further object of this invention is to provide a door having separate panels, to which any design of moulding can be secured without necessitating any change in the construction of the stiles or cross rails or any change in the manner of assembling the parts.

Another object of the invention is the provision of means for uniting the panels to the stiles and cross rails of a metal door which means is independent of the design of moulding to be applied to the door, and the method of so assembling said parts.

Other objects of the invention will appear from a consideration of the following description taken in connection with the drawings which form a part thereof, and in which—

Fig. 1 is a cross sectional view of a portion of a metal door disclosing one of the stiles, the panels and the mouldings;

Fig. 2 is a perspective view of panels and mouldings separated to illustrate the relation of the moulding to the panels;

Fig. 3 is a perspective view of a corner of the door illustrating the stile and the upper cross rail, and showing the manner in which the stile is secured to the cross rail;

Fig. 4 is a fragmentary sectional view taken along the line 4—4 of Fig. 3; illustrating the manner in which the outer edge of the cross rail and the upper end of the stile is closed;

Fig. 5 is a sectional view taken along the line 5—5 of Fig. 3, illustrating the manner in which the stile is joined to the cross rail; and

Fig. 6 is a perspective view showing a door made in accordance with this invention provided with a cast moulding.

Referring to the drawings the reference numeral 10 is employed to designate generally a metal door having a one piece stile 11, separate panels 12 and 13, and a cross rail 14. The stile 11 is of the one piece type being rectangular in cross section with the ends 15 at the inner edge of the door. The ends 15 are bent back at an acute angle as shown in Fig. 1 for a purpose to be described later.

The panels 12 and 13, here shown, have flanges 16 which lie adjacent the inner edge of the stile 11 when the door is assembled. Rigidly secured to the inner face of each panel are a plurality of blocks 17 which, as illustrated in the drawings, project beyond the flanges 16 a distance such that when the panels 12 and 13 are assembled with a stile 11, (see Fig. 1), the blocks enter the space between the ends 15 of the stile. A fastening clip or key 18 is provided which encloses the ends 15 of the stile and the ends of the blocks 17. The blocks 17 are made of such depth that the two together just fill the space between the ends 15 so that when the key 18 is driven home the blocks are clamped between the ends 15 of the stile 11.

Before this is done the moulding is first secured to the outer faces of the panels 12 and 13. In the present instance each moulding, designated in the drawing as 19, has a flange 20 which rests against the outer face of each panel and terminates in a flat surface 21, which rests upon the end of the flange 16. The moulding 19 is secured to the outer face of each panel by concealed fastening means, such as bolts or rivets 22 which pass through openings 23 in the panels and moulding. This construction permits the manufacture in quantity of the door stiles, rails and panels which can be kept in stock,

and permits the use on the door of any design of moulding that may be desired by the architect without requiring the use of special dies or special machinery.

5 Fig. 6 shows the application to a metal door of a cast bronze moulding 25. Since the moulding 25 has a flange 26, the panels 12 and 13 are made without the flanges 16, the flanges 26 acting to support the inner
10 edges of the moulding at the proper position. The moulding 25 is secured to the panels by means of screws 27 entering the moulding from the rear, thus providing the concealed fastening means which is most desirable in constructions of this kind.
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The stile 11 is secured to the cross rails by the construction set forth in Figs. 3, 4 and 5, which illustrate the joinder of the stile to the upper cross rail 14. The cross
20 rail 14 is made up of plates 30 and 31 having their inner ends 32 the same as the ends 15 of the stile 11. A channelled member 33 is rigidly secured to the plates 31 and the ends 32 are connected by means of a key
25 34 which acts to clamp the ends 32 against the blocks 17 of the panels 12 and 13. A plate 35 resting on the legs of the channelled member 33 closes the end of the door, being secured by bolts 36 to the panel member 33.
30 The plates 30 and 31 are further secured to the stile 11 by means of plates 37, which extend across the line of joinder between the plates and the stiles, and are rigidly secured in place by the rivets 38.

35 While one embodiment of this invention has been shown and described, applicants are not limited thereto, since it is obvious that other embodiments can be made without

departing from the spirit and scope of this invention as set forth in the following 40 claims.

Having thus set forth our invention what we claim as new and for which we desire protection by Letters Patent is:

1. A metal door including a one piece 45 stile, the ends of which stile are at the inner edge thereof and are bent away from each other, separate panels, each provided with blocks which project beyond the edges of the panels into the space between the ends 50 of said stile and a key engaging said bent ends and clamping said blocks between the ends of the stile, thus fixing said panels in said stile.

2. A metal door including a one piece 55 stile, the ends of which stile are at the inner edge thereof and are bent away from each other, separate panels, each provided with blocks which project beyond the edges of the panels into the space between the ends 60 of said stile, a key engaging the bent ends of said stile and clamping the ends of the stile upon said blocks to fix said panels in said stile and moulding secured to said panels independent of said stile. 65

3. A metal door including a one-piece stile, the ends of which stile are at the inner edge thereof, and are spaced from each other, separate panels, blocks mounted on each panel and projecting beyond the edges 70 thereof into the space between the ends of the stile, and moulding fixed on said panels.

In testimony whereof we have affixed our signatures.

EDWARD H. ELLISON.
AUGUST W. BECKSTROM.