Feb. 10, 1931. N. MICHELMAN 1,791,679

METAL DOOR

Filed Aug. 19, 1927

Fig. 1.

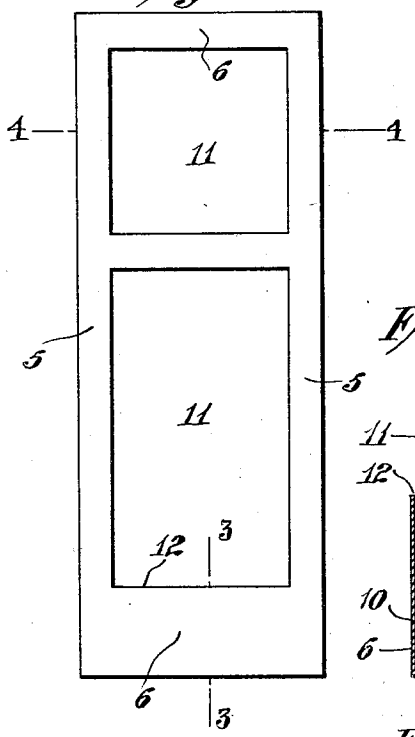


Fig. 2.

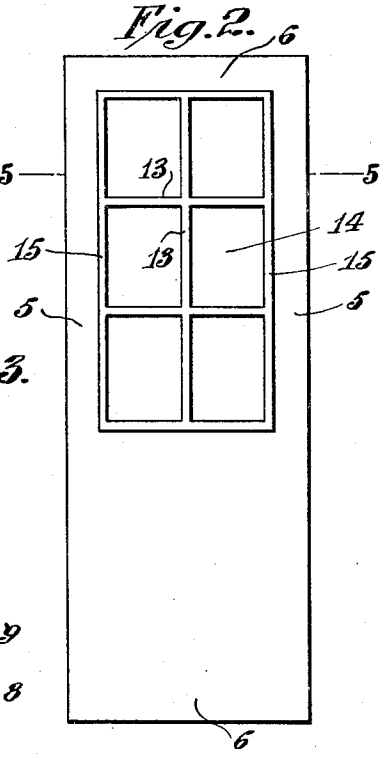


Fig. 3.

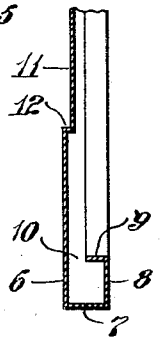


Fig. 4.

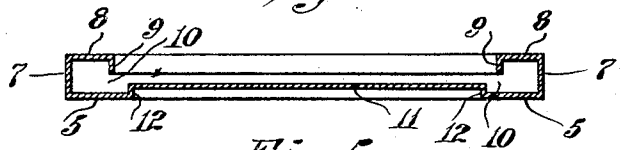


Fig. 5.

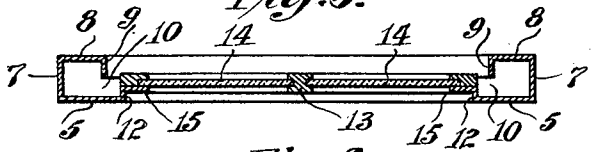


Fig. 6.

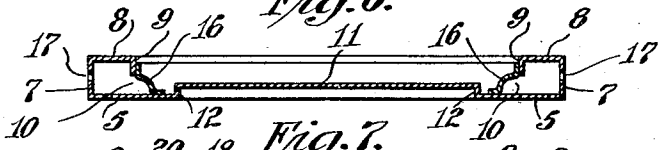
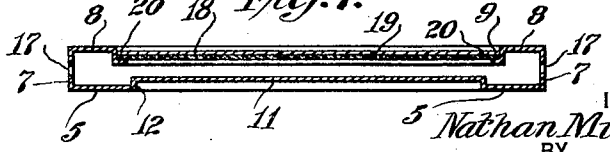


Fig. 7.



INVENTOR
Nathan Michelman
BY
Hauff & Harland.
ATTORNEYS

Patented Feb. 10, 1931 1,791,679

UNITED STATES PATENT OFFICE

NATHAN MICHELMAN, OF BROOKLYN, NEW YORK

METAL DOOR

Application filed August 19, 1927. Serial No. 214,078.

This invention relates essentially to a metal door or similar device constructed of a single sheet of heavy gauge steel or other metal plate which is rigidly shaped by shrinking the metal and pressing it without reenforcing thus giving it the appearance of a casting.

The invention is fundamentally designed to provide a metal door of light fireproof construction having tubular or hollow styles, top and bottom rails associated with a single metal plate eliminating welding or brazing.

An object of the invention is to shape the panels with an offset, the wall thereof forming a right angle with the styles and rails.

The novel features of the invention are more fully described in the following specification and claims, reference being made to the accompanying drawing, in which:—

Fig. 1 is a front elevation of a door embodying this invention.

Fig. 2 is a similar view of a glass paneled door.

Fig. 3 is a vertical detailed section on a larger scale taken along the line 3 3 of Fig. 1.

Fig. 4 is a horizontal section on a larger scale taken along the line 4 4 of Fig. 1.

Fig. 5 is a similar view taken along the line 5 5 of Fig. 2.

Fig. 6 is a horizontal section showing the moulding connected to the back of the door.

Fig. 7 is a similar view of a double paneled door.

In the drawing is shown a door made of a single sheet of steel and having styles 5, top and bottom rails 6 respectively forming the front part of the door as indicated in Figs. 1 and 4. The styles, top and bottom rails are hollow or tubular each including a continuuous edge wall 7 and a back 8 having an inwardly extending flange 9 parallel with the wall 7. A gap or opening 10 between the end of the flange and the inner portion of the front wall supplies air to the hollow member.

The front is provided with sunken panels 11 and an offset 12, for integrally connecting the panel with the styles and rails, is parallel with edge wall 7 or at an angle of ninety degrees with the front surface of the panel. The hollow member is rectangular in transverse section and forms the thickness of the door, but the dimensions and the thickness can be varied to suit different openings. This way of shaping the door from a single sheet of heavy gauge steel produces a durable rigid structure and the hollow member creates a continuous air space about the top, bottom and sides of the door thus giving equal expansion and contraction in case the metal is unduly heated. The door shown in Figs. 1, 3 and 4 is especially designed as a unit for closing the openings to elevator shafts but with slight modifications it could be used for other purposes.

The door shown in Figs. 2 and 5 is constructed the same as the foregoing except that the metal panels are omitted and the door provided with mullions 13 forming a contiguous part of the styles and rails. A pane of glass 14 is arranged on a ledge 15 which is united to the angular offset wall 12. In this door the vertical center and horizontal mullions can be omitted and a single sheet of glass supported on the ledge can be utilized to cover the opening.

As indicated in Fig. 6, the back of the door is provided with a moulding 16 covering the gap 10 and welded to the flange 9 and to the inner portion of the front wall. Air is circulated in the hollow member by means of holes 17 located in the side or top and bottom of the member.

A double paneled door adapted to be used for factories or dwellings is shown in Fig. 7 and it comprehends, a metal panel 18 having a sheet of asbestos 19 arranged at its back opposite the sunken front panel 11. The back panel and the asbestos is supported on a shelf 20 made by bending the depending flange 9 at right angles. The border of the metal panel back is welded to the flange and inner portion of the front plate. The holes 17 admit air into the hollow member to circulate into the space between the two panels.

I claim:—

1. A door made of a single sheet of metal comprising a front provided with integral styles, top and bottom rails, and a rear hollow member produced by bending the top, bottom and side walls of the respective rails

and styles, said member embodying a contiguous wall located behind the rails and styles with a flange projecting inwardly.

2. A door made of a single sheet of metal comprising a front provided with integral styles, top and bottom rails, a panel forming an integral part of the rails and styles, and a hollow member located at the back behind the rails and styles, said member embodying top, bottom and side walls provided with a contiguous back wall bent inwardly.

3. A door made of a single sheet of metal comprising a front provided with integral styles, top and bottom rails, a panel forming an integral part of the rails and styles, and a hollow member located at the back behind the rails and styles, said member embodying top, bottom and side walls provided with a contiguous back wall bent inwardly with the end thereof spaced from the back portion of the front wall to form an air gap for circulating air in the hollow member.

4. A door made of a single sheet of heavy gauge steel comprising a front provided with integral styles, top and bottom rails, a sunken panel integral with the rails and styles the offset wall thereof being at right angle to the wall of the rails and styles, a hollow member located at the back behind the rails and styles, said member embodying top, bottom and side walls provided with a contiguous back wall bent inwardly at right angle to the back wall with its end spaced from the rear surface of the front to form a gap for circulating air in the hollow space.

In testimony whereof I have hereunto set my hand.

NATHAN MICHELMAN.