993,457.

F. E. NELSON.

METAL DOOR CONSTRUCTION.

APPLICATION FILED FEB. 15, 1910.

Patented May 30, 1911.

2 SHEETS—SHEET 1.

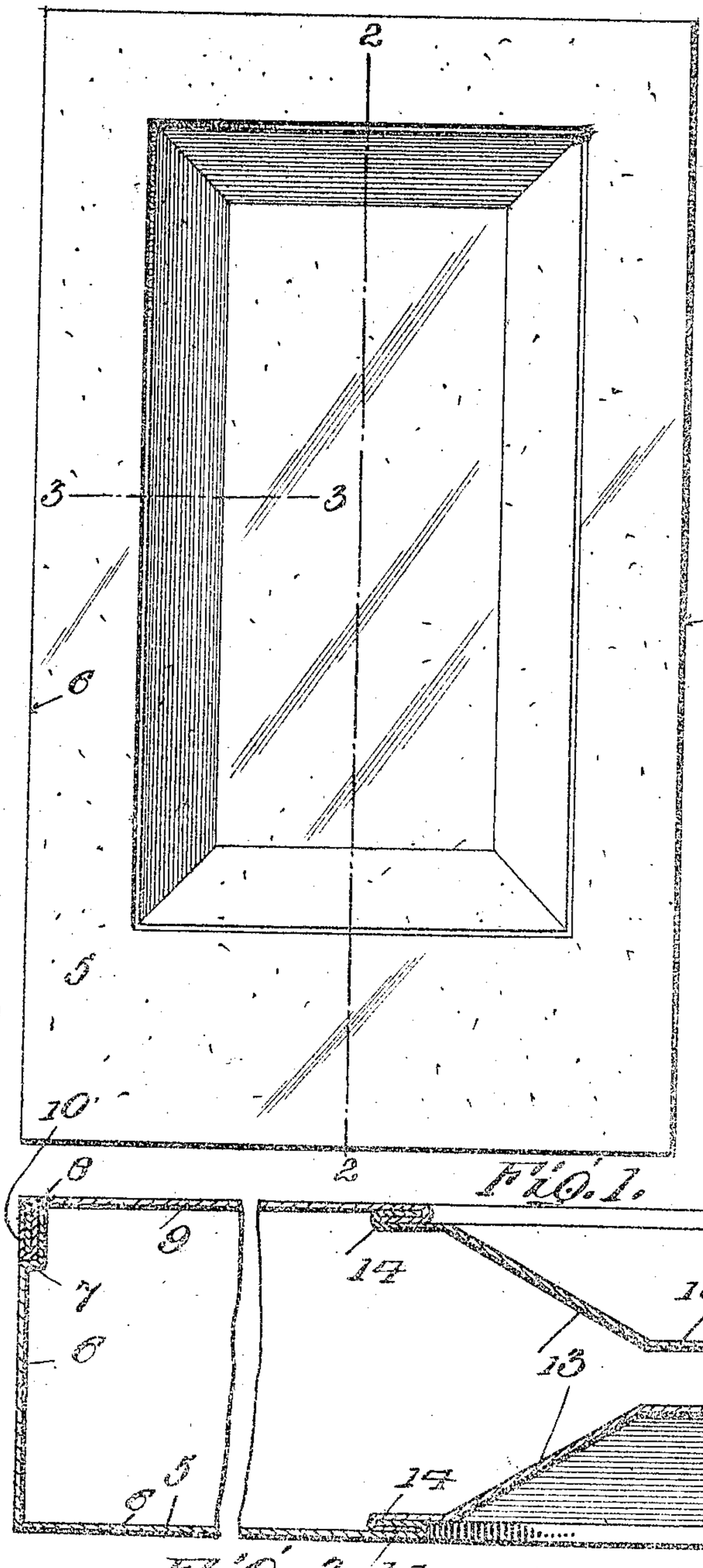


FIG. 1.

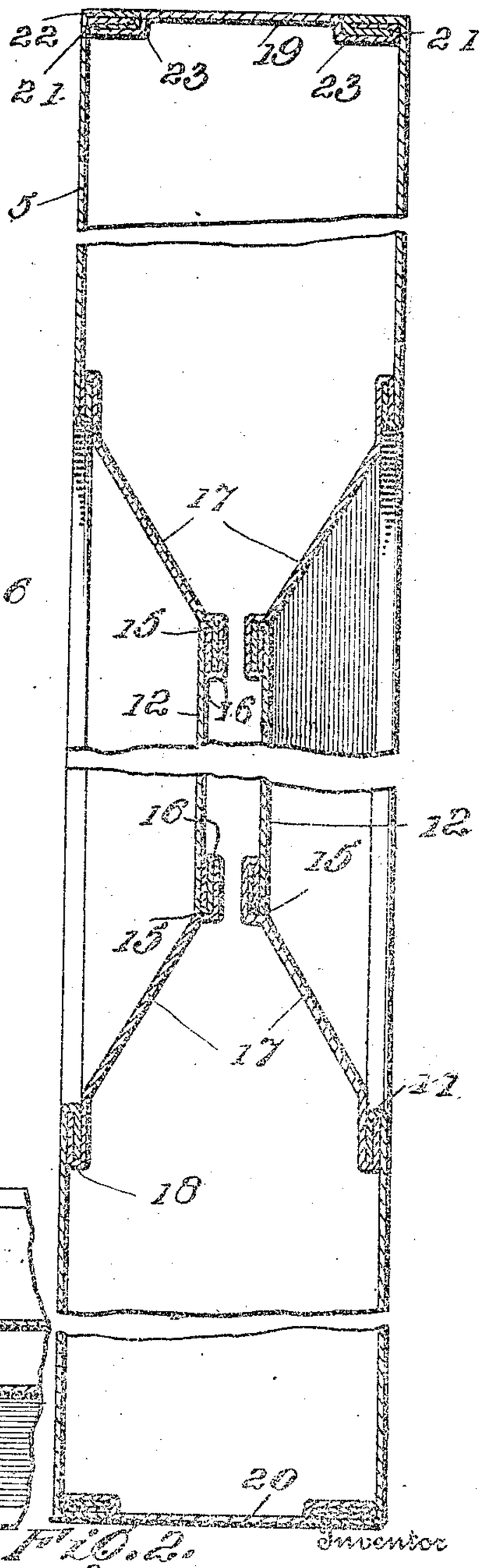


FIG. 2.

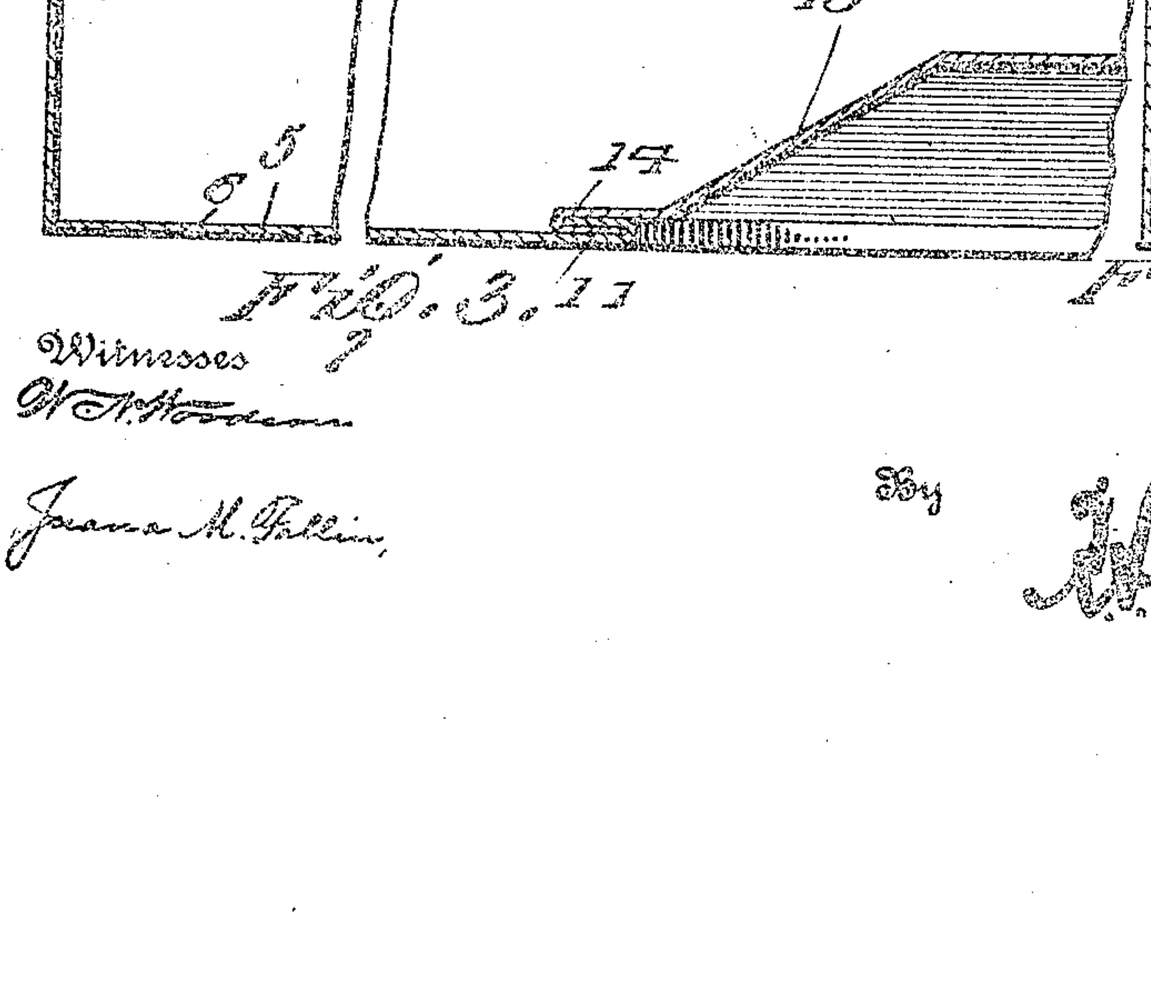
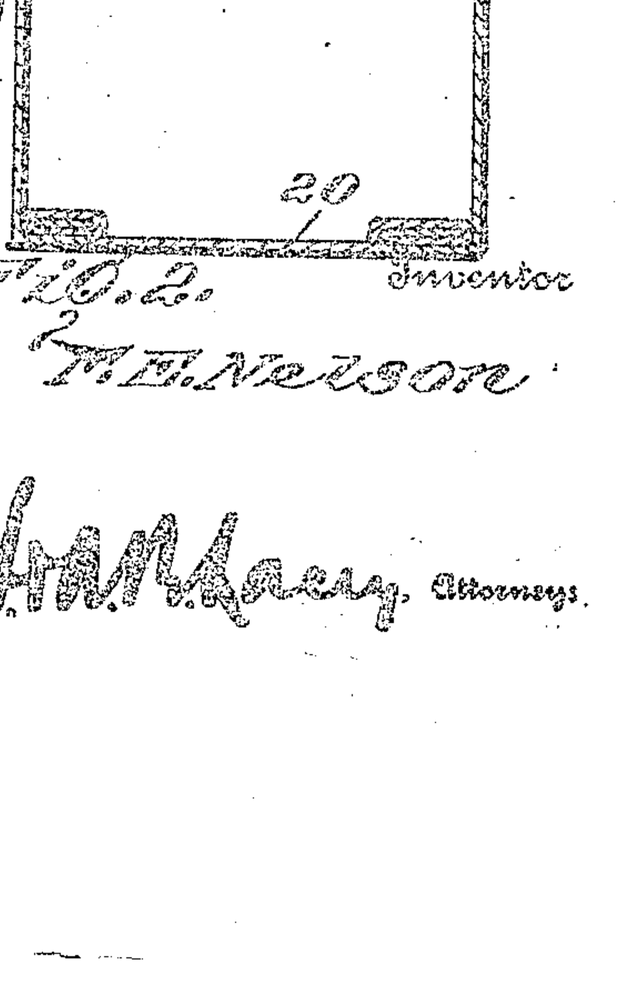


FIG. 3.



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3 SHEETS—SHEET 2.

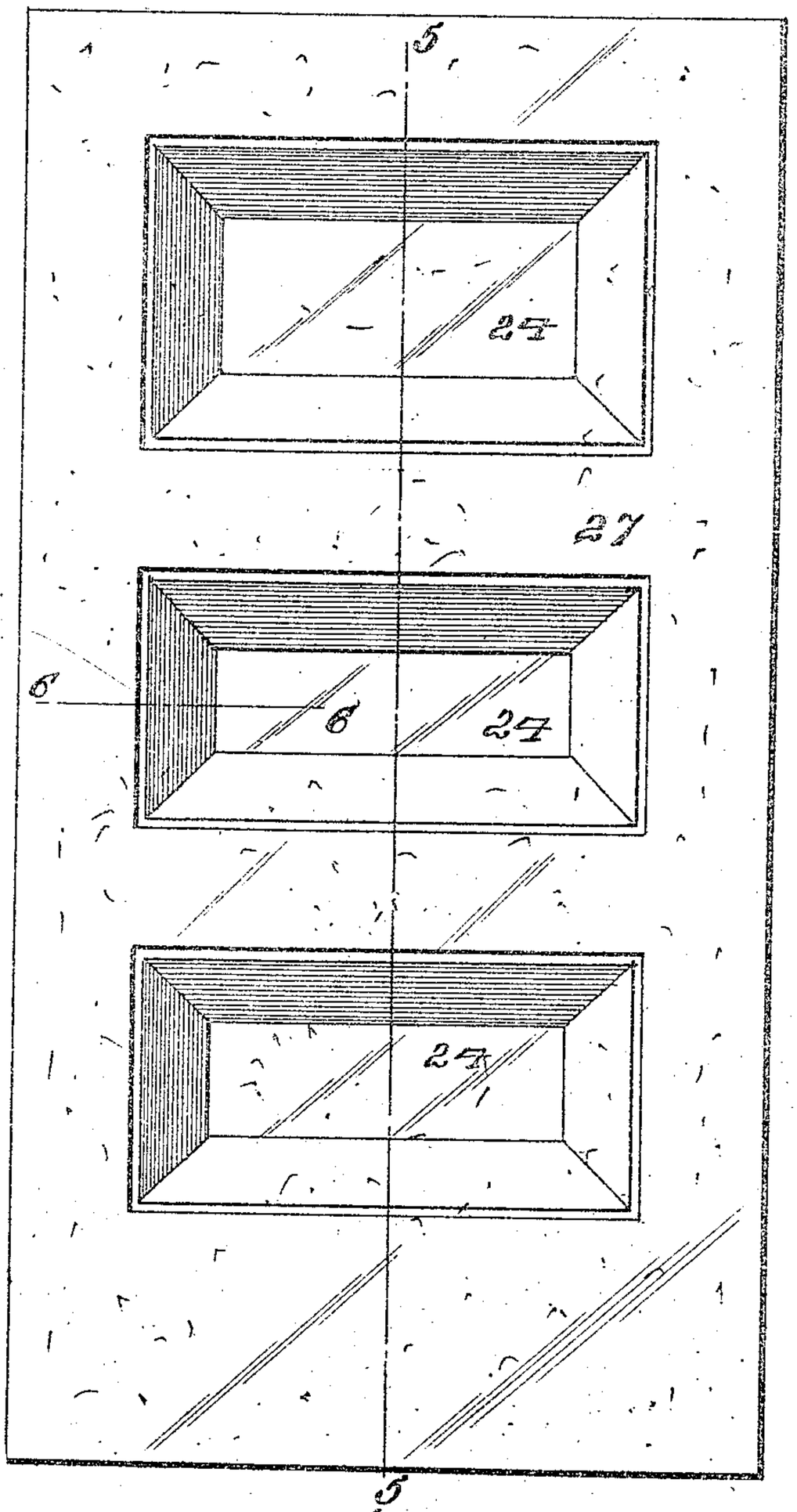

FIG. 4.

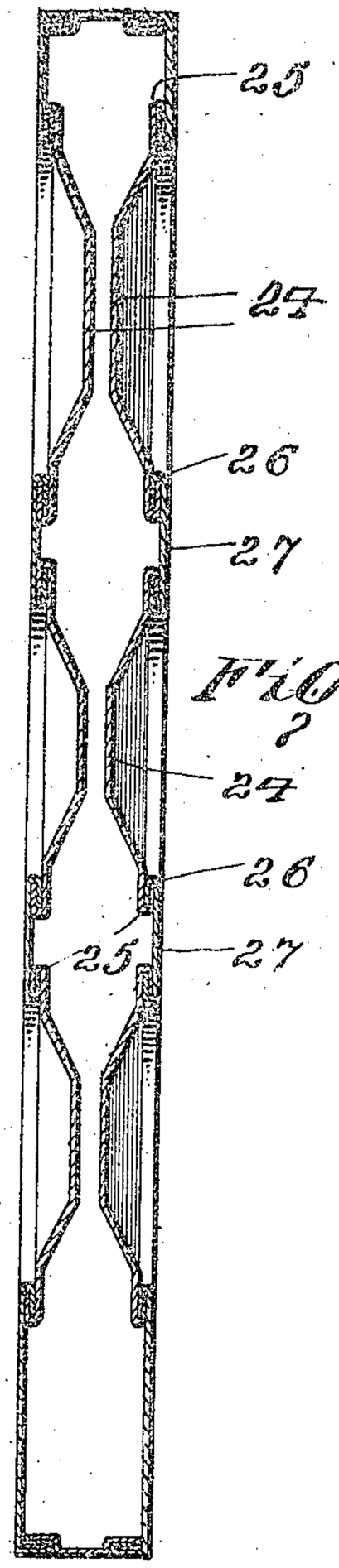

FIG. 5.

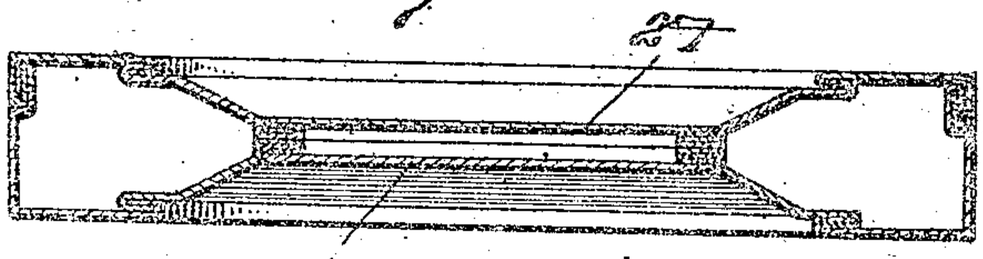

FIG. 6.

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UNITED STATES PATENT OFFICE.

FRANK E. NELSON, OF JAMESTOWN, NEW YORK.

METAL-DOOR CONSTRUCTION.

993,457. Specification of Letters Patent. Patented May 30, 1911.

Application filed February 15, 1910. Serial No. 544,107.

To all whom it may concern:

Be it known that I, FRANK E. NELSON, citizen of the United States, residing at Jamestown, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Metal-Door Constructions, of which the following is a specification.

This invention relates to fire proof doors and has for its object the provision of a metallic door, the construction of which is such that the several parts thereof may be quickly assembled and effectually locked against accidental separation without the employment of screws, rivets and similar fastening devices.

A further object is to provide a metallic door including front and rear sections connected by top and bottom sections and provided with a central depressed panel having means for engagement with the front and rear sections of the door.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency, as well as to reduce the cost of manufacture.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claim.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a plan view of a metallic door constructed in accordance with my invention; Fig. 2 is a vertical sectional view of the same taken on the line 2—2 of Fig. 1; Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 1; Fig. 4 is a plan view illustrating a modified form of the invention; Fig. 5 is a vertical sectional view taken on the line 5—5 of Fig. 4; Fig. 6 is a transverse sectional view taken on the line 6—6 of Fig. 4.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The improved door forming the subject matter of the present invention is preferably constructed of sheet metal and comprises a front section 5 substantially rectangular in shape, as shown, and having its opposite ends bent laterally to produce vertically disposed end walls or stiles 6, the metal forming the longitudinal edges of the end walls or stiles being offset at 7 and bent to produce hooked terminals or flanges 8. The metal constituting the longitudinal edges of the rear section 9 is bent to produce similar flanges 10 which engage the flanges 8 and form an interlocking lap joint, as shown, thus to permit the union of the front and rear sections of the door without the employment of screws, rivets and similar fastening devices.

The central portions of the front and rear sections of the door are cut-away to produce transversely alined openings, the metal forming the walls of the openings being bent rearwardly to produce hooked terminals or flanges 11 for engagement with corresponding flanges on the adjacent center plates or panels 12. The intermediate portions of the plates or panels 12 are disposed in parallel relation, while the opposite vertical edges thereof are inclined laterally to produce diverging wings 13 having terminal flanges 14 for engagement with the adjacent flanges 11 on the front and rear door sections, the flanges 11 and 14 forming an interlocking lap joint, similar to the lap joint employed for connecting the front and rear door sections, above described.

The metal forming the upper and lower edges of the central plates or panels 12 is bent upon itself to produce flanges 15 for engagement with corresponding flanges 16 carried by the adjacent ends of removable inclined plates or wings 17, the opposite ends of the plates 17 having an interlocking connection with the flanges 11 of the front and rear wall sections, as indicated at 18.

Interposed between the front and rear sections of the door are top and bottom plates 19 and 20 having oppositely disposed flanges 21, which latter interlock with similar flanges 22 formed on the inturned portions of said front and rear sections, thus to maintain the front and rear sections in the proper spaced relation, while at the same time forming a rigid connection between the parts.

It will here be noted that the top and bot-

tom sections 19 and 20 are provided with offset portions or shoulders 23 which bear against the adjacent ends of the hooked portions or flanges 22 so as to assist in limiting the inward movement of the front and rear sections, while at the same time permitting the exposed faces of the top and bottom sections to lie flush with the ends of the door and thus present a smooth, unobstructed surface. It will also be noted that the interlocking lap joints connecting the several sections comprising the door, are arranged within the hollow body portion of said door so as not to present any obstructions or projections on the outer face of the door and thus give the same a neat, attractive appearance.

In assembling the several sections comprising the door, the panels or plates 12 are first fastened to the front and rear sections, after which the removable inclined end sections or plates 17 of the panels are placed in position with the flanges of said plates engaging the flanges 11 and 15. The top and bottom sections 19 and 20 are then interposed between the front and rear door sections and fastened by means of the lap joint, as shown, thus producing a strong, rigid door in which the several parts are held against accidental separation without the employment of screws, rivets and similar fastening devices.

In Fig. 4 of the drawings, there is illustrated a modified form of the invention in which the front and rear sections of the door are formed with a plurality of transverse panels 24, the latter being depressed and provided with terminal flanges 25 which engage corresponding flanges 26 formed on the adjacent edges of the transverse connecting pieces 27 of the front and rear door sections, as shown.

It will of course be understood that the doors may be made in different sizes and shapes, and that the panels may have any desired cross sectional formation, without departing from the spirit of the invention.

Having thus described the invention, what is claimed as new is:

A metallic door including front and rear sections, one of which is provided with integral vertically disposed end walls having interlocking engagement with the other section, there being transversely alined openings formed in the front and rear door sections, and the metal forming the walls of said openings being bent inwardly between the front and rear sections to produce flanges spaced from the inner faces of said sections, a panel including spaced plates having two of their edges bent outwardly to produce diverging wings having terminal flanges disposed parallel with each other and fitting over the adjacent flanges of the front and rear door sections and bearing against the inner faces of said sections, and their other edges bent inwardly to produce similar flanges, and diverging wings forming a part of the panel and having their opposite edges provided with flanges for engagement with the flanges on the adjacent edges of the panel and flanges on the front and rear wall sections, respectively.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK E. NELSON. [L. S.]

Witnesses:
ALLAN A. THAYER,
AXEL H. ANDERSSON.