Sept. 22, 1925. 1,554,774

E. J. ZAHNER

METALLIC DOOR

Filed Oct. 5, 1922 2 Sheets-Sheet 1

Fig. 1.

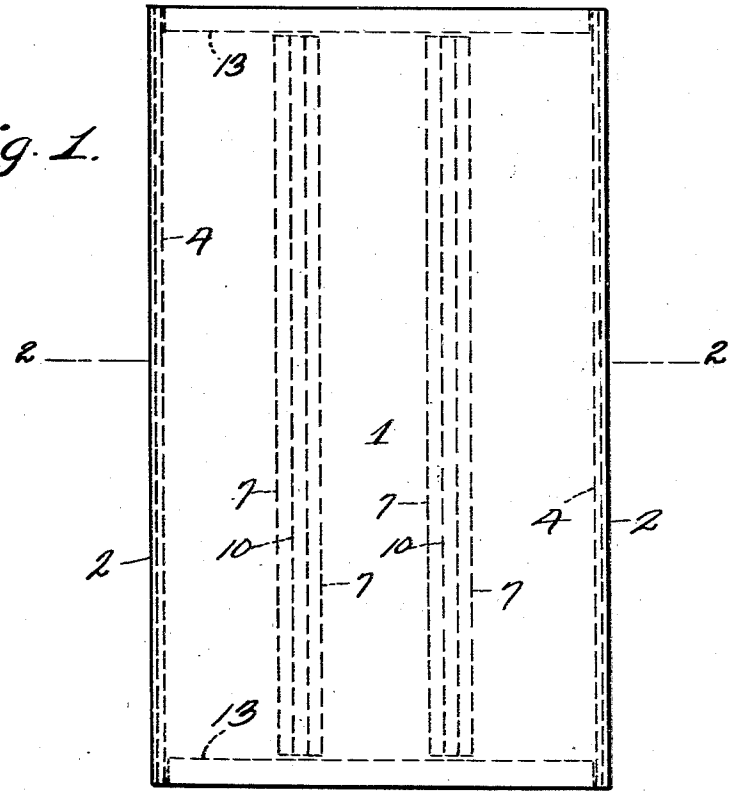


Fig. 2.

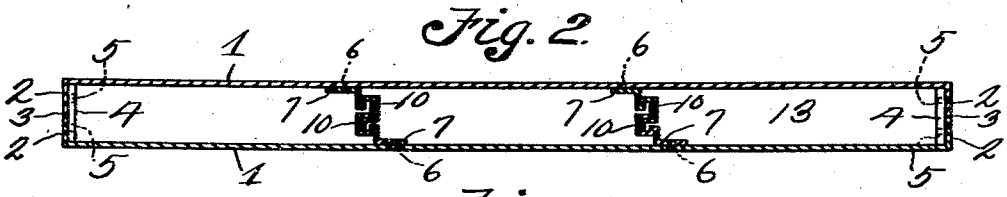
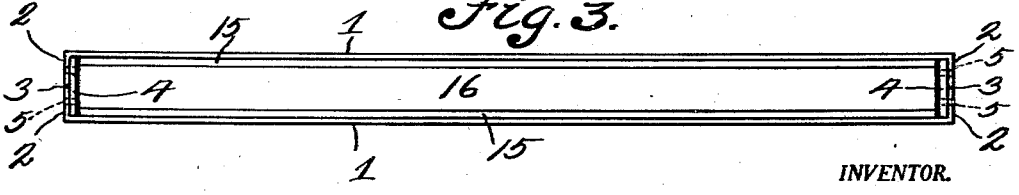


Fig. 3.



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Fig. 4.

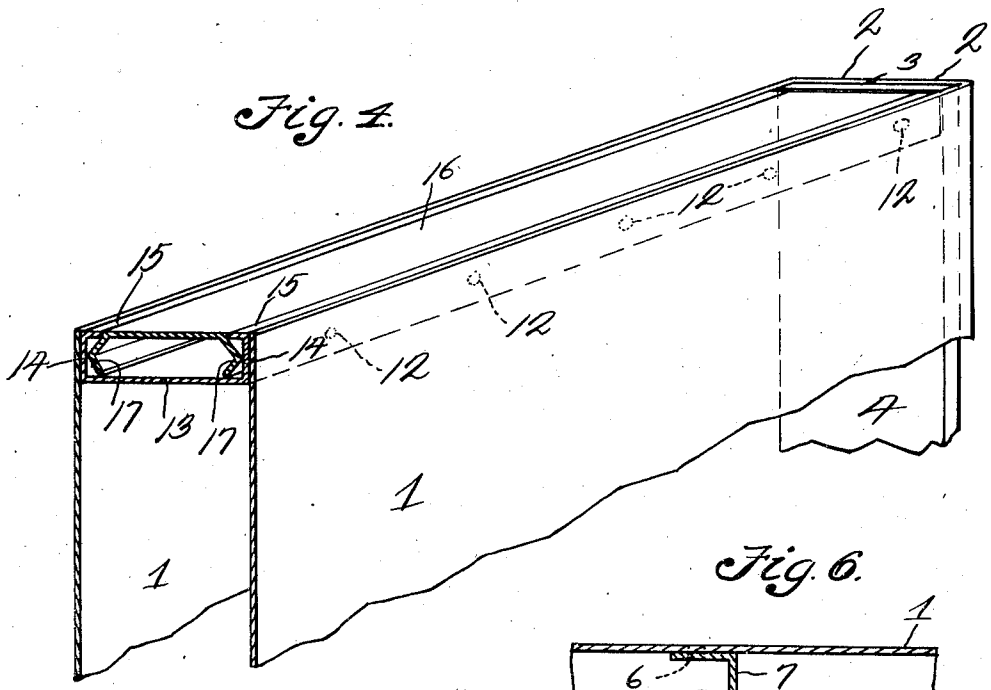


Fig. 6.

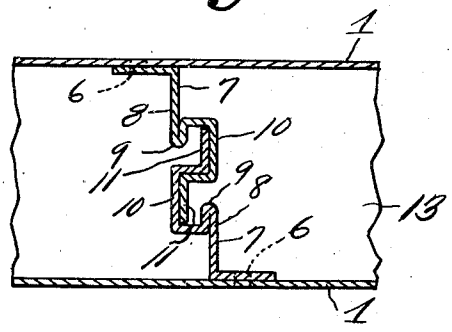


Fig. 5.

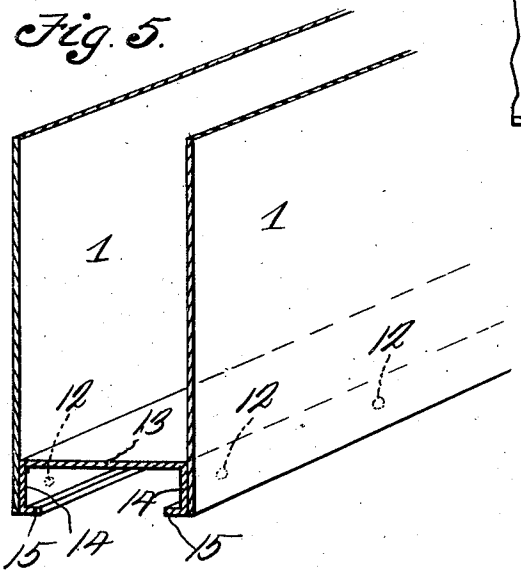
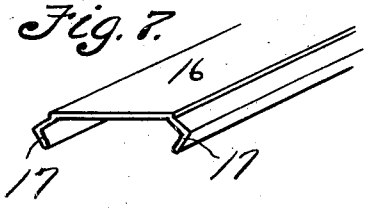


Fig. 7.



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Patented Sept. 22, 1925. 1,554,774

UNITED STATES PATENT OFFICE.

EDWARD J. ZAHNER, OF LA PORTE, INDIANA, ASSIGNOR TO J. C. McFARLAND COMPANY, OF LA PORTE, INDIANA, A CORPORATION OF ILLINOIS.

METALLIC DOOR.

Application filed October 5, 1922. Serial No. 592,485.

To all whom it may concern:

Be it known that I, EDWARD J. ZAHNER, a citizen of the United States, residing at La Porte, in the county of La Porte and State of Indiana, have invented certain new and useful Improvements in Metallic Doors, of which the following is a specification.

The invention relates to metallic doors, and has for its object to provide a device of this character, wherein the opposite sides of the door are formed from single sheets of metal and provided with inwardly extending flanges adapted to abut each other and form the vertical edges of the door. The flanges are secured together by strips, preferably spot welded to the inner sides thereof. Also to provide stiffening means for the sides of the door, said stiffening means comprising interengaged channel members secured to the inner sides of the sides of the door. The interengaged channel members have a sliding engagement thereby allowing the assembling of the door after the channel members are secured to the sides thereof.

A further object is to dispose between the sheets forming the opposite sides of the door, at the upper and lower ends thereof, channel members having their flanges extending outwardly and terminating inwardly extending flanges, which inwardly extending flanges engage inverted channel members having spring flanges, whereby the last named channel members may be forced into the first named channels.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawing, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings:

Figure 1 is a side elevation of the door.

Figure 2 is a horizontal sectional view through the door taken on line 2—2 of Figure 1.

Figure 3 is a top plan view of the door.

Figure 4 is an enlarged detail perspective view of one of the upper corners of the door.

Figure 5 is an enlarged detail perspective view, partly in section of a portion of the lower end of the door, showing the inverted channel removed.

Figure 6 is a detail sectional view through a portion of the door and through one of the reinforcing members.

Figure 7 is a detail perspective view of a portion of one of the inverted channels.

Referring to the drawings, the numeral 1 designates the opposite sides of the door, which sides are formed from single sheets of metal provided with inwardly extending vertically disposed flanges 2, which substantially abut each other at 3. Secured to the inner sides of the flanges 2 are vertically disposed strips 4, said strips being preferably secured by means of spot welding at 5. After the strips 4 have been secured in place, and the door as a whole finished, the various seams such as at 3 are cemented and the door finished by painting, enameling or in any other suitable manner, therefore the seams are invisible.

Disposed between the sides 1 of the door and secured to said sides by spot welding at 6 are vertically disposed angle bars 7, which angle bars have their flanges 8 bent upon themselves at 9 and then outwardly upwardly and inwardly, thereby forming vertically disposed channels, which channels are provided with flanges 11 parallel with the flanges 8. The channels and flanges 11 are interengaged as shown in Figure 6 and when the sides 1 are assembled a sliding engagement of the channels is obtained, and the sides moved into registration, after which the strips 4 are spot welded to the flanges 2. Secured within the upper and lower ends of the door between the sides 1, preferably by spot welding at 12 are U-shaped channels 13, the flanges 14 of which extend outwardly and terminate in inwardly extending flanges 15, preferably flush with the upper and lower ends of the sides 1 of the door. After the U-shaped channels 13 have been placed in position the inverted channels 16 are forced into the upper and lower ends of the doors with their flanges 17 extending inwardly between the flanges 15. Flanges 17 are angularly shaped in cross section and spring inwardly as the channels 16 are forced inwardly, and after the channels have reached their limit of inward movement, the flanges 17 spring outwardly under the flanges 15 of the channels 13 thereby maintaining the inverted channels 16 in interlocked position.

It will be seen that the door may be easily

and quickly assembled in such a manner that all of the spot welding points may be easily reached, either before or during the assembling operation and that the door is rigidly braced centrally by the channel members 10 and the angle members 7. The channel members are sufficiently large to allow them to easily telescope and to flex slightly in relation to each other incident to the variation of measurements during manufacture, which inaccuracies are also taken care of by the enlarged channels 10.

The invention having been set forth what is claimed as new and useful is:—

1. The combination with a metallic door, said door comprising oppositely disposed sides, of means for securing sides of said door together, said means comprising channel members disposed between the sides, the flanges of said channel members extending outwardly to points adjacent the ends of the sides, inwardly extending flanges carried by the channel flanges, and inverted channel members disposed within the first mentioned channel members and having their transverse portions substantially flush with the ends of the sides.

2. The combination with opposite sides of a metallic door, of means for securing said sides together, said means comprising a channel member disposed between the sides and having its flanges extending outwardly, inwardly extending flanges carried by the flanges of the channel member, a channel member disposed within the first mentioned channel member in reverse position, the second mentioned channel member being provided with spring flanges adapted to underlie the inwardly extending flanges of the first mentioned channel member.

3. The combination with oppositely disposed sides of a metallic door, of means for securing said sides together, said means comprising a channel member secured to the sides, the flanges of the channel member terminating in inwardly extending flanges, a reversed channel member disposed within the first mentioned channel member, the flanges of the reversed channel member being angularly shaped and adapted to spring to position beneath the inwardly extending flanges of the channel member.

4. A metallic door comprising oppositely disposed sides, the vertical edges of said sides being provided with inwardly extending flanges, strips secured to the inner sides of said flanges, reinforcing members secured to the inner sides of the opposite sides of the door and provided with channels to interengage each other, interengaged reversed positioned channels secured to the opposite sides of the door and forming closures for the upper and lower ends thereof.

5. The combination with a metallic door comprising oppositely disposed sides, of means for reinforcing said sides and door, said means comprising opposed flanges extending inwardly of the sides of the door, said flanges having offset channel portions arranged in relatively reversed relation and terminating in flanges disposed parallel with the first named flanges, said terminal flanges being substantially of a width corresponding with the inner dimension of the channels and adapted to seat within said channels.

6. The combination with a metallic door comprising spaced sides, of means for securing said sides together, said means comprising inverted U-shaped channels interengaging each other, the flanges of one of said channels being provided with inwardly extending flanges, the flanges of the other channel being provided with flanges angularly shaped in cross section.

In testimony whereof I affix my signature.

EDWARD J. ZAHNER.