

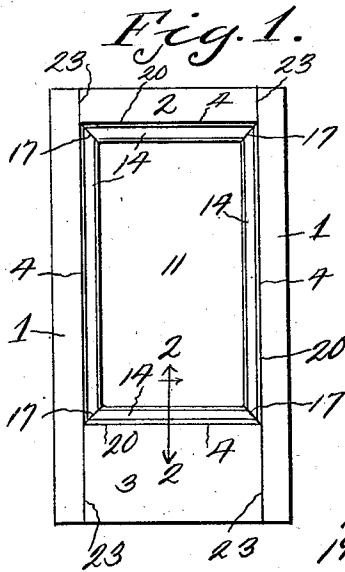
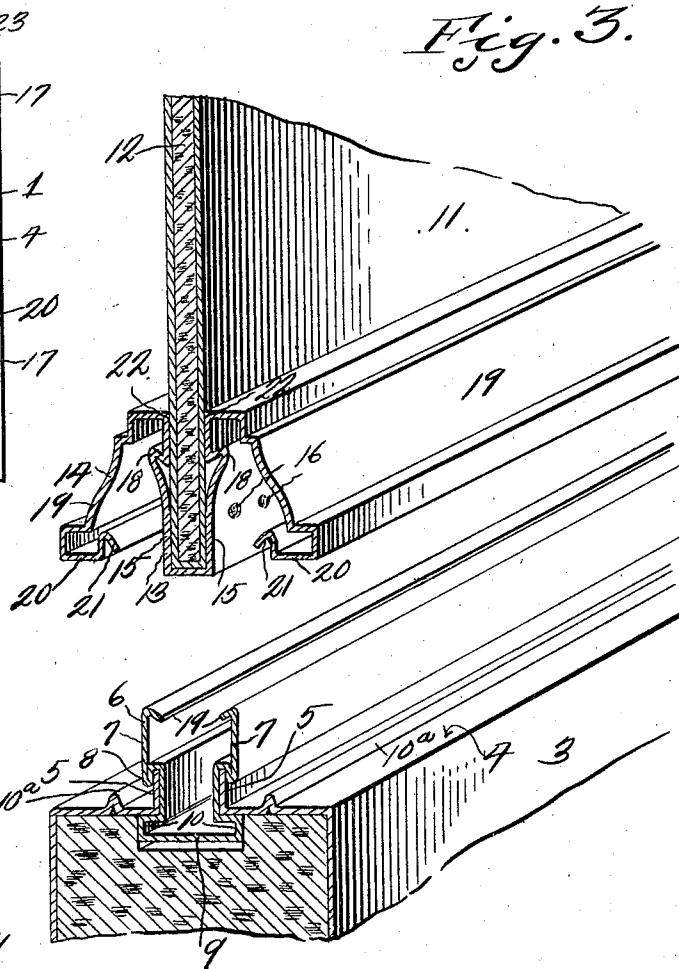
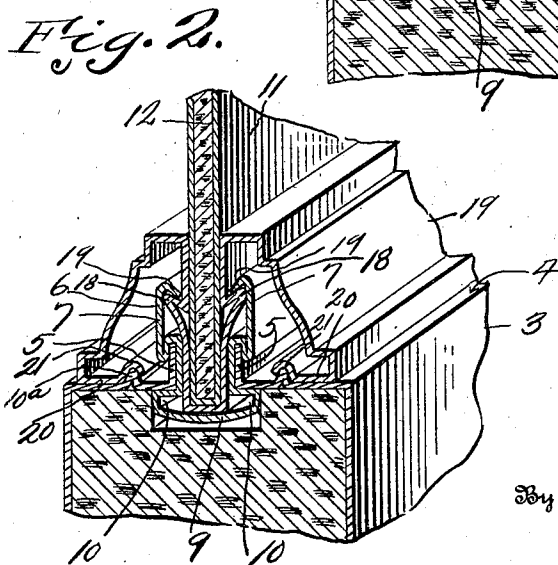
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E. J. ZAHNER

METALLIC DOOR

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Inventor

Edward J. Zahner

By *George J. Ottach*  
Attorney

## UNITED STATES PATENT OFFICE.

EDWARD J. ZAHNER, OF LAPORTE, INDIANA.

## METALLIC DOOR.

Application filed December 7, 1921. Serial No. 520,482.

*To all whom it may concern:*

Be it known that I, EDWARD J. ZAHNER, a citizen of the United States, residing at Laporte, in the county of Laporte 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 metallic door so constructed that the panel, stiles, rails and molding are interengaged under spring tension in the materials in such a manner that no noise making vibrations can occur because of loose contacts in the parts.

A further object is to provide the stiles and rails with inwardly extending spaced flanges which receive therebetween a U-shaped panel receiving channel, the transverse portion of which is adapted to be forced outwardly by the panel, said panel being provided with a molding which extends into the channel and is provided with ribs, with which ribs inturned flanges of the channel engage, thereby holding the panel and the molding under tension of the transverse portion of the U-shaped channel. Also to provide the stile or rail with longitudinally disposed ribs adjacent each side of the panel, with which ribs flanges carried by the outer ends of the molding engage and cooperate in such a manner as to force the sides of the molding into close and binding engagement with the panel, thereby preventing noise incident to vibration of the parts.

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 drawings, 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 front elevation of the door.

Figure 2 is a detail sectional view through a portion of the panel, molding and rail of the door.

Figure 3 is a detail perspective view of the parts of the door showing the same in position to be assembled.

Referring to the drawings, the numeral 1 designates the stiles of the door, and 2 and 3 the upper and lower rails. The stiles

and rails are formed from sheet metal and have their inner sides 4 provided with inwardly extending spaced flanges 5, between which flanges, channels 6 are received. Each channel 6 comprises side flanges 7, which are bent upon themselves to form shoulders 8 which engage over the edges of the flanges 5 and the transversely disposed portion 9 which is of greater width than the distance between the flanges 5 and disposed within the rail or stile as the case may be. The transversely disposed portion 9 and extensions 10 formed thereby prevent outward movement of the channel 6 from between the flanges 5, however the transversely disposed portion 9 is provided with sufficient spring to allow the same to be bowed outwardly, the purpose of which will presently appear. The inner sides 4 of the rails and stiles are provided with beads 10<sup>a</sup>, which extend inwardly and are disposed outside of the flanges 5.

The panel 11 is formed from sheet metal and is provided with a filler 12, preferably cork. The edge of the panel 11 is disposed in the U-shaped portion 13 of the molding 14 and is secured to the flanges 15 thereof by spot welding as at 16. It will be seen that the molding 14 is so shaped that the flanges 15 may be easily and quickly spot welded to the panel in positions where it will not be necessary to finish the molding after it has been secured to place. It will also be seen that the various moldings 14 around the panel 11 may be mitered together at 17 from the inside, thereby obviating the necessity of finishing off the joint, especially where the joint has been fused or soldered. The flanges 15 are provided with longitudinally disposed shoulders 18 formed by bending the flanges upon themselves, said shoulders being so positioned that after the U-shaped member 13 and the panel carried thereby have been forced into the channel member 6 and the transverse portion 9 thereof bowed outwardly, said shoulders 18 will be received by the inwardly and downwardly extending flanges 19 carried by the flanges 7 of the channel member 6. Therefore it will be seen that the panel will be held under tension and prevented from vibration during the slamming or moving of the door. The molding 14 is provided with outwardly and downwardly extending sides 19 which terminate in longitudinally disposed mem-

bers 20 adapted to rest on the inner sides 4 of the rail or stile as the case may be, and are provided with channels 21, which receive the beads 10<sup>a</sup>, thereby preventing outward movement of the flanges 19, and at the same time providing means whereby the inner faces 22 will be held in close and spring engagement with the sides of the panel 11, thereby additionally preventing vibration or noise.

In assembling the door the panel is preferably first secured in the molding, after which the stiles and rails 1, 2 and 3, are placed in position, then the stiles and rails are secured together as at 23 in any suitable manner, such for instance as welding.

From the above it will be seen that a metallic door is provided, which may be simply assembled, the parts so constructed that they are frictionally held under tension, thereby preventing rattling or noise incident to vibration. It will also be seen that the welding points are concealed within the molding, thereby obviating the expense incident to finishing the metal adjacent the welding point, and that the miters of the molding may be easily reached from the inside, thereby allowing the miter joint to be fused, soldered or otherwise secured on the inside, and obviating the necessity of finishing the joints, which is now the practice, on the outside.

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

1. A metallic door comprising a frame formed from sheet metal, inwardly extending flanges carried by said frame and spaced from each other, channels disposed between said flanges and provided with shoulders engaging the edges of said flanges, a molding disposed within the channel and provided with a centrally disposed U-shaped portion, the marginal edges of the panel being disposed within the U-shaped portion of the molding and secured thereto, shoulders carried by the U-shaped portion of the molding, flanges carried by the channel and adapted to receive the shoulders when the panel is forced into the channel and the bottom thereof bowed outwardly, downwardly and outwardly extending members carried by the molding terminating in horizontally disposed portions engaging the inner sides of the frame, flanges carried by the horizontally disposed portions, said last named flanges engaging beads on the inner faces of the frame and forming means for

forcing the outer edges of the horizontal portions into engagement with the frame.

2. The combination with the side of a door frame and a panel, of means for securing said panel in the side of the door frame, said means comprising a channel carried by the door frame and substantially U-shaped, the edges of the flanges of the U-shaped channel being provided with inturned flanges, a U-shaped molding carried by the panel and adapted to be received in the channel, outwardly extending ribs carried by the U-shaped molding of the panel and adapted to be received by the inturned flanges of the panel when in position and the transverse portion of the channel bowed outwardly, and spring flanges engaging the side of the frame adjacent the channel flanges.

3. A panel securing device comprising a channel member U-shaped in horizontal cross section and having spring flanges, said channel member being carried by a frame, inturned flanges carried by the flanges of the channel, a molding carried by the panel, said molding comprising a centrally disposed U-shaped panel receiving portion, downwardly and outwardly extending flanges carried by the molding, beads carried by the flanges of the centrally disposed U-shaped portion of the molding and adapted to be received by the inturned flanges of the channel after the transverse portion of the channel has been bowed outwardly, said downwardly and outwardly extending flanges of the molding having a tension engagement with the frame.

4. The combination with a panel and the side of a frame, of means for securing said panel to the side of said frame, said means comprising a U-shaped channel carried by the frame, a U-shaped molding carried by the panel and secured to the sides thereof, interengaging means between the channel and molding and held in tensioned engagement, ribs adjacent the sides of the channel and carried by the sides of the frame, downwardly, outwardly and inwardly extending flanges carried by the molding, said last named flanges terminating in flanges semi-circular shaped and engaging the upper sides of the ribs adjacent the sides of the channel and forming means for tensioning the downwardly and outwardly extending flanges.

In testimony whereof I affix my signature.  
EDWARD J. ZAHNER.