

N. P. SJOBRING.

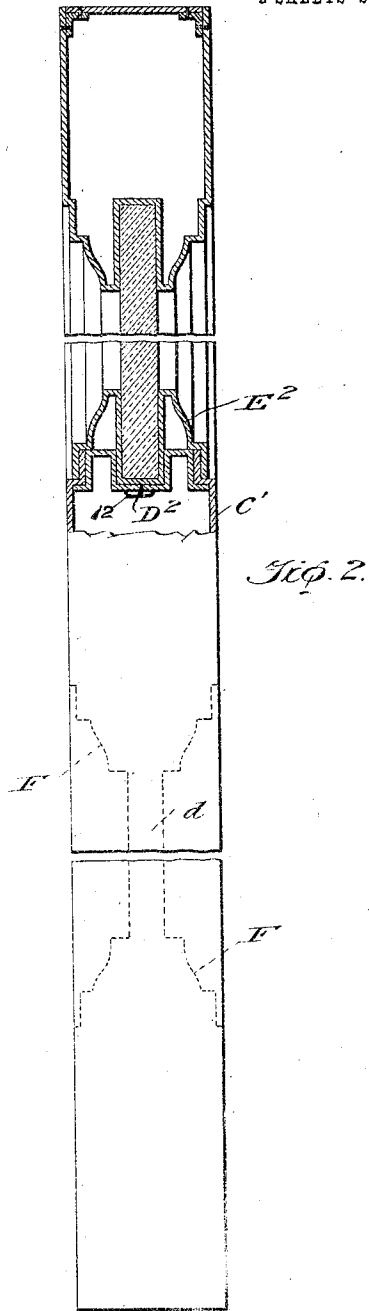
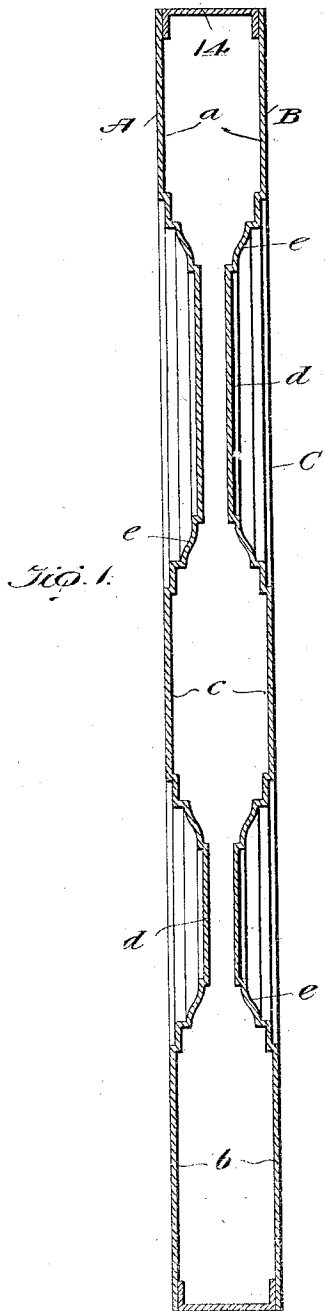
SHEET METAL DOOR.

APPLICATION FILED DEC. 3, 1910.

1,003,070.

Patented Sept. 12, 1911.

2 SHEETS-SHEET 1.



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Fig. 3.

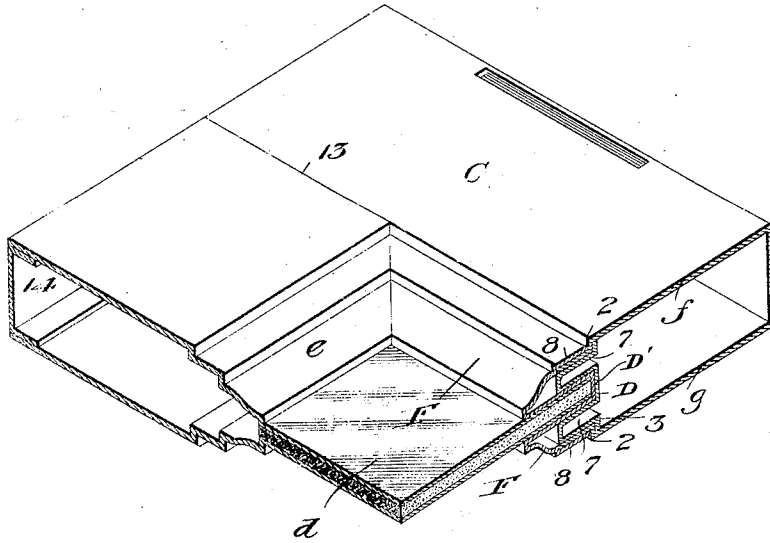


Fig. 4.

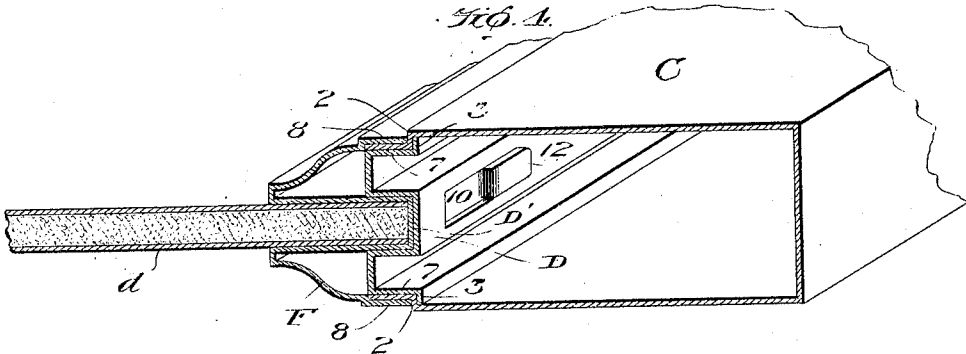
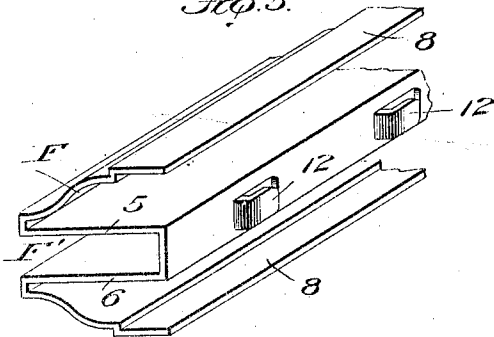


Fig. 5.



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# UNITED STATES PATENT OFFICE,

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## SHEET-METAL DOOR.

1,003,070.

Specification of Letters Patent. Patented Sept. 12, 1911.

Application filed December 3, 1910. Serial No. 595,447.

To all whom it may concern:

Be it known that I, NILS P. SJOBRING, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sheet-Metal Doors, of which the following is a specification.

This invention relates to certain new and useful improvements in sheet-metal doors and the like, and the invention consists of the parts and constructions, arrangements and combinations of parts which I will hereinafter describe and claim.

An important object of the invention is to devise a new and simplified method of forming the door or like article of a front and back plate each of which is constructed from a single piece of sheet-metal, each of said sheets being fashioned to form the top, bottom and center cross rails of the door and also portions of moldings; suitable separate molding pieces, of sheet-metal are also provided and these with the permanent molding portions formed on the front and rear sheets first mentioned, are provided with means for readily securing them in matching relation to the molding portions of the said front and rear sheets, all of which I will hereinafter fully describe.

In the accompanying drawing, forming part of this specification, and in which similar reference characters indicate like parts in the several views; Figure 1 is a vertical section of a door embodying the salient features of my invention. Fig. 2 is a vertical longitudinal sectional view of a part of a door of modified construction. Figs. 3 and 4 are enlarged sectional perspective views of portions of the door. Fig. 5 is a perspective of the separate molding detached.

In the present construction of my door, I form the panel or panels and top, bottom, and middle cross rails of one piece of sheet metal of the character usually employed in the manufacture of sheet metal doors, windows, wainscoting, etc. This will be understood from Fig. 1 where the front and back plates, A and B, and which represent the opposite sides of the door, are each formed integrally with the top cross rail, *a*, the bottom cross rail, *b*, the middle cross rail *c*, and the panels, *d*; the plates are also fashioned with some appropriate design of permanent molding, *e*, bordering the panels.

The stiles, C, are preferably formed of a single piece of sheet metal bent into rectan-

gular or other suitable shape in cross section, and having a length equal to the desired height of the door. Each stile comprises the parallel portions, *f*, *g*, which are spaced apart a distance equal to the thickness of the door from front to rear, the inner edges of these plates being bent into form and suitably disposed and being welded, soldered or otherwise closely and strongly connected to the adjacent edges of the plates which form the rails and panels of the door.

The free edges of the panels are held in position and clamped to the corresponding edges of the stiles by a combination of two separate molding members which are formed with interlocking members, as I will now explain. What I term the inside molding, is a strip or plate, D, which extends across the inside between the free edges of the plates forming the stiles, said free edges of the stiles being bent at 2 and the side edges 3 of the inner molding member, D, being correspondingly bent whereby the edges, 2-3, overlap as shown in Figs. 1, 3 and 4, and may be welded, soldered or otherwise finally rigidly connected.

Along the center, the inner molding member, D, is fashioned with a channel D', preferably rectangular in cross section, and of a width slightly in excess of the thickness of the panel and into which channel the edge of the panel and a corresponding portion of the outer molding member, F, are designed to fit and to be secured.

The outside separate molding member, F, is constructed of a single piece as indicated in Fig. 5: It is bent at its central portion to form a channel, F', which is substantially rectangular in cross section, this bent portion being of such width that it will fit within the depressed portion or channel, D', formed in the center of the inside molding member, D. The depressed channel constitutes two parallel walls, 5-6, between which the panel, *d*, is adapted to fit; from the outer edges of the walls, 5-6, the outside molding plate may be given any desired curved or other ornamental form, while its outer edges will be bent, say substantially parallel with the walls 5-6, and parallel with the corresponding outer walls of the inside molding plate. Between the parallel walls, 7, and 8, of the outer edges of the inside and outside molding members, the free edges of the bent plates which form the stiles are passed, and

the joint between the outer edges of the outside molding member and the plate which forms the stile may be welded or otherwise secured if desired. It will thus be seen that the molding really comprises an inside and an outside member adapted to telescopically fit one within the other at their center, and that the depressed channel formed in the outside molding member forms a long seat or bearing for the panel, which panel is hereinafter shown as consisting of two parallel plates between which is an intermediate filling of asbestos or other non-conducting and non-combustible substance.

In order that the stile may be strongly clamped or held to the separate molding, it will be observed, by reference to Figs. 3 and 4, that in the depressed floor or channel, D', formed in the inside molding member, D, there are made a number of openings or slots, 10, and that in the floor of the channel formed in the outside molding member, F there are punched out a number of tongues, 12, whereby when the two members of the separate molding are fitted together, the tongues of the one member will enter the corresponding slots of the other member so that when one member is moved relatively to the other, the tongues interlock with the slots and thus make a strong clamp for securing the stiles to the molding, it being understood that the inside molding member is rigidly held to the stile. Where the stiles and cross rails intersect, for instance as shown at 13 in Fig. 3, the seam is welded together, and the top and bottom of the door is closed by means of a channel member, 14, which may be fastened by spot-welding or by any other well known means.

In making the door with one steel panel and one panel composed of glass, the construction will not depart materially from that before described for by reference to Fig. 2 it will be observed that the inside molding member, D<sup>2</sup>, at the top of the central rail, c', and the outside separate molding member, E<sup>2</sup>, are each constructed as before mentioned and that the two members are held together by the tongue and groove connection shown in Figs. 3 and 4.

The top rail of the door when using the glass panel, may be fashioned with the integral molding and there will be present the depressed channel for the top edge of the glass plate or sheet. I, therefore, use the same character of molding on top of the center rail when using the glass panel as I use at the inner edges of the stiles, and in fitting the glass panel in place, I slide the same in from the top of the door and then place the top rail in position and secure the same in the usual manner.

From the foregoing description it will be apparent that a prominent feature of the invention is that the panels and the top, bot-

tom and center rails are formed of single sheets of metal, one on each side of the door, these sheets being fashioned with permanent molding portions and the space between the depressed parts forming the panel being filled with asbestos or other suitable non-conducting material. The separate moldings are attached to the stiles so that they will match the permanent molding between the panel and top, bottom, and center rails. The separate molding having the groove for the edges of the panel and being composed of a single piece of metal will stiffen the vertical sides of the panel and make the door very rigid, while the tongue-and-slot connection between the outside molding member and the inside molding member which is attached rigidly to the stile, will produce a clamping combination which will stiffen and hold the inner edge of the stile in position.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a metal structure of the character described, the combination with the stiles thereof, of front and back plates each formed with integral cross rails and a panel, and a permanent trim between the rails and panel, and a separate trim formed of two telescoping parts, one of said parts having a channel to receive an edge of the panel, and interengaging elements between the telescoped portions of the separate molding.

2. In a metal structure of the character described, the combination with the stiles thereof, of front and back plates each formed with integral cross-rails a panel and a permanent trim portion at the margin of the panel, and a separate trim corresponding to the permanent trim and comprising two members with similar channeled portions fitting one within the other, one of said members being fixed to a stile and the other member having the panel fitting its channel, and a tongue-and-slot connection between the channeled portions of said members.

3. In a metal structure of the character described, the combination with a hollow stile, of a face plate formed with a panel portion and a permanent part of a panel trim, and a separate panel trim composed of two companion members one fixed within the hollow of the stile and having a central channel, and the other having a channel and a corresponding projection adapted to enter the channel of the first-named member, said panel fitting edgewise the channel in the second-named member, one of said members having slots in the bottom of its channel, and the other member having projecting tongues adapted to interlock with said slots to secure the trim to the stile.

4. In a sheet metal structure of the character described, the combination with a stile

formed of a single piece of metal and bent so as to assume substantially a rectangular form in cross section, a face plate formed with a panel portion and a permanent part  
5 of the panel-trim, a separable trim-member fitted within the hollow of the stile between the inner edges thereof and having a depressed channel at its outer edges overlapping the inner edges of the stile, said edges  
10 of the stile being confined between the outer edges of the second-named trim member and the first-named trim-member, and said second-named trim-member having a central depression and a corresponding projecting  
15 portion adapted to fit within the depression of the first-named trim-member, said depression in the second-named trim-member adapted to receive the edge of the panel, and tongues projecting from the bottom of  
20 the depression in the second-named trim-member adapted to engage the slots in the

first-named trim-member to thereby secure the trim to the stile.

5. In a metal structure of the character described, the combination with a hollow  
25 stile having a plate fitted across between the inner edges thereof, said plate having a central depression, and a trim member having a central depression and a corresponding  
30 projection adapted to enter the depression in said plate, a tongue-and-slot connection between the bottom of the trim-member and said plate, and a panel having its edge  
35 portion fitting the depression in the trim-member.

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

NILS P. SJOBRING.

Witnesses:

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WILLIAM OLSON.