Dec. 1, 1936. S. J. BLOCK 2,062,287

METHOD OF MAKING SHEET METAL CONSTRUCTION

Filed March 21, 1936

Fig. 1.

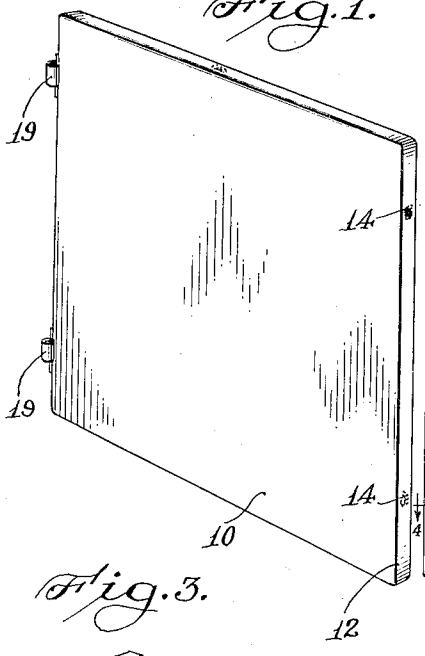


Fig. 2.

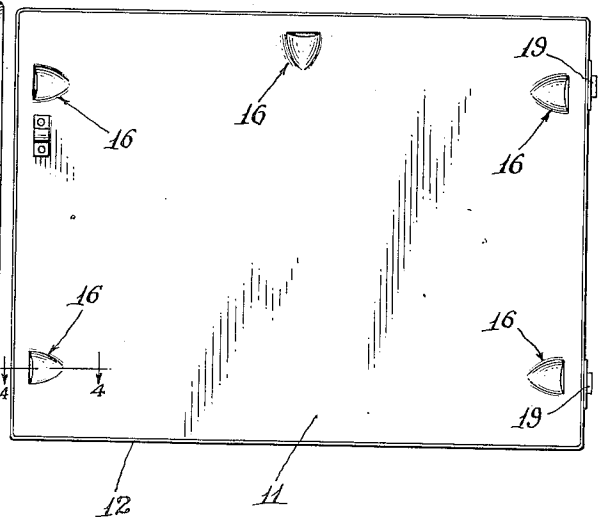


Fig. 3.

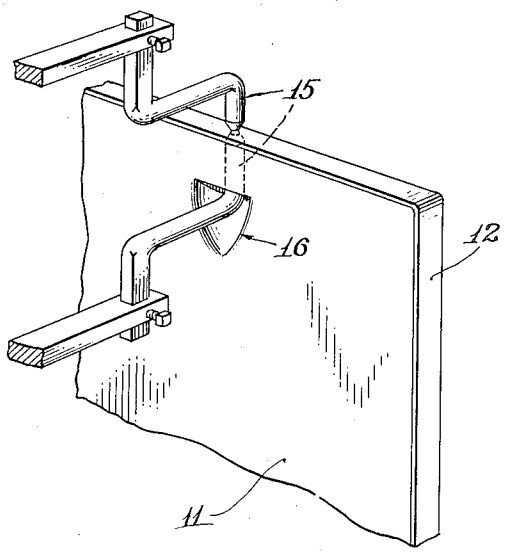
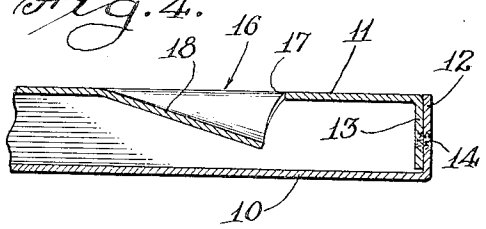


Fig. 4.



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Patented Dec. 1, 1936

2,062,287

UNITED STATES PATENT OFFICE

2,062,287

METHOD OF MAKING SHEET METAL CONSTRUCTION

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Application March 21, 1936, Serial No. 70,062

2 Claims. (Cl. 219—10)

The invention relates generally to sheet metal construction and more particularly to a mode of construction where a pair of sheets of metal are to be secured to each other in spaced relation with the space therebetween normally inaccessible.

In the manufacture of numerous sheet metal articles such as various articles of furniture or the like, a pair of plates or sheets are positioned in face-to-face relation to each other with a space therebetween which is normally inaccessible to tools utilized in securing one sheet to the other. Thus, where an article is constructed of a pair of sheets of relatively light metal, as in the case of a door for a cabinet comprising an outer wall and a liner therefor, the sheets may be bent to provide flanges at their edges and the two sheets secured together in spaced relation to provide a door of substantial thickness.

In prior practice, it has been customary either to bolt the two sheets together or to weld them around their edges by the acetylene welding process. With bolts, obviously some part of the bolt appeared on the front or outer face of the door. Acetylene welding, by adding metal to the parts, left rough portions on the edges of the door, and the heating of the metal comprising the edges tended to spoil the finish that the metal would later take, either by polishing or enameling. Moreover, acetylene welding was an expensive operation in itself and required considerable expense in grinding and polishing thereafter to bring the welded portion to a state where it could be reasonably well finished.

The present invention has for its general object the provision of a sheet metal construction comprising a pair of sheets flanged at their edges to hold them in spaced relation to each other and permanently connected to each other in such a manner that the front face is not subjected to any operation or provided with any projection, such as a bolt, tending to spoil its ability to be flawlessly finished.

Another object is to provide a sheet metal construction of this character which is inexpensive to manufacture in that extra operations or parts are not required.

It is also an object to provide a new and improved method of constructing a sheet metal article such as a cabinet door or the like comprising a pair of sheets secured to each other in spaced relation, so that the front face of the article is not subjected to any operation which would cause a flaw in the finished article.

Other objects and advantages will become apparent from the following description taken in connection with the accompanying drawing, in which:

Figure 1 is a perspective view of a cabinet door embodying the features of the invention.

Fig. 2 is a rear view of the door shown in Fig. 1.

Fig. 3 is an enlarged fragmentary rear view showing the tools utilized in making the door.

Fig. 4 is an enlarged fragmentary sectional view taken on the line 4—4 of Fig. 2.

The invention comprises generally a mode of constructing a sheet metal article, such as a cabinet door, comprising a pair of sheets flanged at their edges to hold the sheets in spaced relation to give substantial thickness and rigidity to the door, with the flanges of one sheet fitting within the flanges of the other. For such construction, electric spot welding is utilized to secure the sheets together, the welds being located along the edge of the door. In other words, the flanges of the respective sheets are permanently connected by spot welds preferably at a plurality of points. Thus, in securing the two sheets together, the front face of the article is not in any way affected while the only effect noticeable on the external edges of the door are the points which are heated by the spot welding. The front face may thus be perfectly finished by polishing, enameling or the like, and the effect of the welded spots on the edges are not to any great extent noticeable when the metal is finished.

Spot welding, of course, involves the use of a pair of electrodes or welding tips placed in contact with opposite sides of the parts to be welded together. In the present instance, to spot weld the flanges together, one of the electrodes must be placed in contact with the inner face of the inner flange, and to provide access thereto, the rear sheet is perforated adjacent the points of welding to permit the electrode to be inserted through the perforations. Such perforations being in the rear face of the door are normally concealed by the closing of the door and are not considered undesirable.

In the drawing, a cabinet door is illustrated which comprises a front sheet 10 and a rear sheet or liner 11. The edges of the two sheets are bent at right angles to the planes of the sheets to provide a flange 12 on the front sheet and a flange 13 on the liner, and the flange of one sheet is telescoped or placed inside of the flange of the other. The interfitting flanges thus hold the two sheets in spaced parallel relation and serve to stiffen the sheets so that the door is in fact rigid as well as having the appearance of being strong. Prefer-

ably the flange 12 of the front sheet is on the outside and flange 13 of the rear sheet on the inside so that smooth, neat appearing corners are provided between the front face and the edges.

The welds, indicated at 14, are placed to secure the flanges 12 and 13 together, and to form such welds, a pair of welding tips, such as are indicated at 15 in Fig. 3, are employed, one tip being placed in contact with the outer face of the flange 12 and the other tip in contact with the inner face of the flange 13. To permit access of the latter tip to the space between the front sheet and liner, a plurality of perforations, indicated generally at 16, are placed in the liner adjacent the points where the welds are to be made. Preferably each perforation is made by cutting a slit 17 (see Fig. 4) in the liner extending parallel to the edge thereof and then pressing in the metal on the side opposite the edge of the liner in a tapering trough shape or bow 18 so that the opening thereby provided faces the flange 13. Thus, the welding tip 15 may be readily inserted with the trough shape 18 serving to guide the tip. The slit 17 is made adjacent the flange 13 and may be located at the bend of the flange 13 or spaced inwardly therefrom as shown in the drawing.

If the door is supported by hinges, the hinge members, indicated at 19 in Figs. 1 and 2, may be secured to the outer flange 12 by spot welding them thereto at the same time as the flanges 12 and 13 are welded together. In such case, the perforations permitting access of the welding tip adjacent the hinged edge of the door are placed to aline with the desired location of the hinges.

With the foregoing construction, the front sheet and the liner are permanently secured to each other along the edges of the door so that the front face of the door is free of any flaws or effects from the means for securing the parts together. The front face may thus be perfectly finished by polishing, enameling or the like. Moreover, the edges of the door have only the minor effects due to the heating of the welded spots and do not have to be ground to remove the roughness of the added metal such as occurs with acetylene welding. The particular shape of the perforations shown serves to facilitate the operation of welding by simplifying the insertion and withdrawal of the welding tip. The construction is thus inexpensive to manufacture.

I claim as my invention:

1. The method of constructing a sheet metal article comprising a pair of flanged sheets in spaced face-to-face relation to each other, which comprises cutting a plurality of slits in one of the sheets parallel to the edge thereof, bowing inwardly the metal at the side of said slits opposite the edge, placing the sheets together with the flanges of one sheet fitting inside of the flanges of the other sheet, inserting one electrode of a spot welding machine through the slits and in contact with the inner flanges and the other electrode in contact with the outer flange, and spot welding the inner and outer flanges together.

2. The method of constructing a sheet metal door comprising a front sheet and a liner therefor, which method comprises bending the edges of said front sheet and liner at right angles to provide flanges, slitting the liner at a plurality of points and bowing the metal on one side of said slits to form openings facing the flanges, telescoping the flanges of the liner inside of the flanges on the front sheet, inserting one welding tip of a spot welder through said openings into contact with the flanges of the liner, placing the other welding tip in contact with the flanges of the front sheet, and spot welding the flanges together.

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