

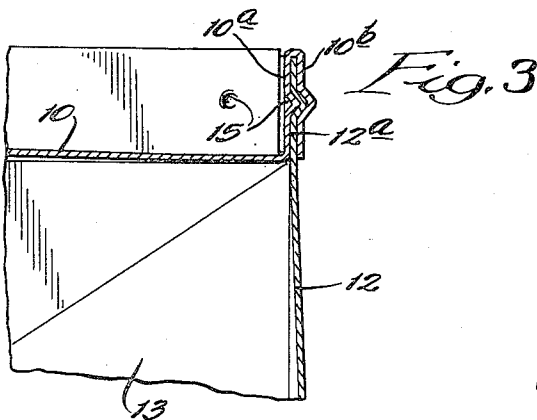
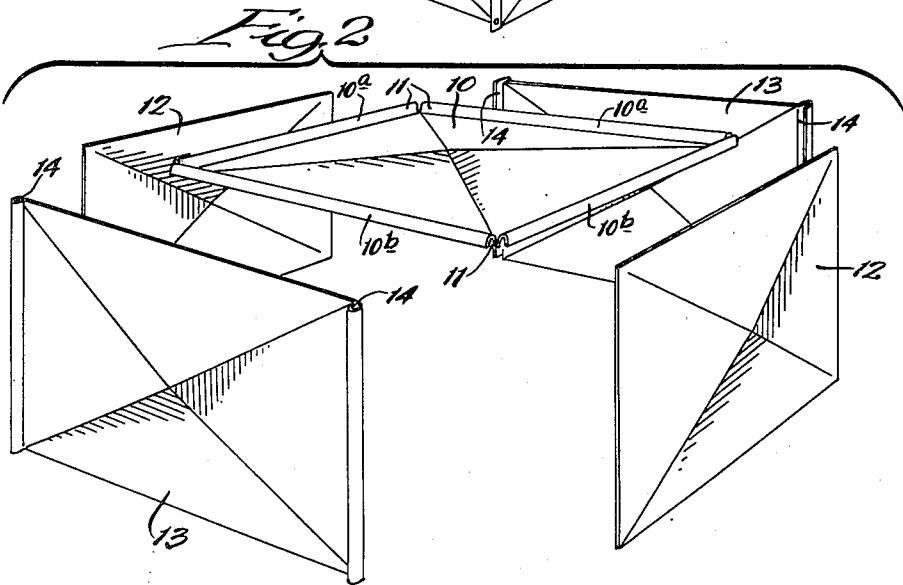
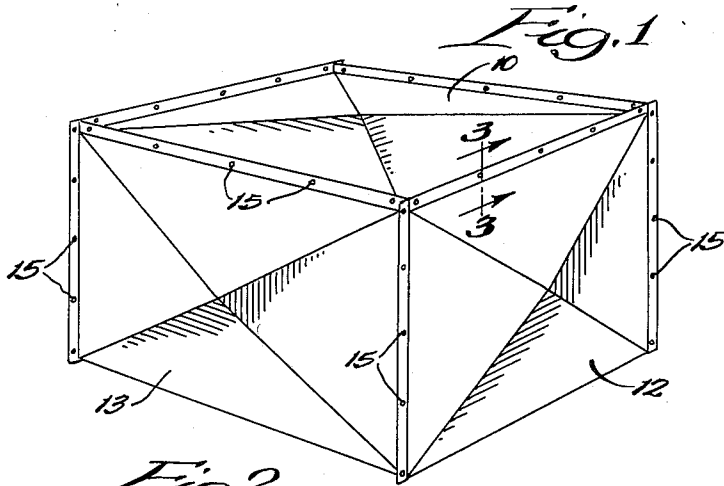
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SHEET ASSEMBLY STRUCTURE

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SHEET ASSEMBLY STRUCTURE

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3 Claims. (Cl. 220-4)

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This invention relates to a sheet assembly structure and method. The invention is particularly useful in the assembly of metal sheets to form boxes and containers, and is particularly adapted for the forming of a furnace bonnet or the like.

An object of the invention is to provide a metal structure formed of metal sheets secured together in a novel manner and to a method for assembling such sheets. A further object is to provide a metal sheet structure which can be brought together into a sealed, united structure while employing a minimum of tools or securing devices and while also greatly reducing the labor ordinarily required for the assembly of metal sheets. A further object is to provide a novel method of sheet assembly accomplished through the employment of a minimum of tool means and without requiring securing attachments. Other specific objects and advantages will appear as the specification proceeds.

The invention is shown in an illustrative embodiment by the accompanying drawing, in which Figure 1 is a perspective view of a container or furnace bonnet fabricated in accordance with our invention; Fig. 2, a perspective view of the various sheet parts shown in spaced-apart relation and prior to their assembly; and Fig. 3, a detailed sectional view, the section being taken as indicated at line 33 of Fig. 1.

In one embodiment of the invention, we provide a metal sheet with an edge portion doubled upon itself to provide a channel into which is pressed the edge of another sheet. We then punch or otherwise indent the doubled edge portion of the first sheet and the enclosed edge of the second sheet so that there is formed nested indentations in the three sheet plies which thus lock the sheets firmly together. Any ordinary metal punch may be employed. A punch having a lever secured to its handle and operable to press a plunger against the assembled sheets, is effective in forming the nested indentations. However, a single pointed instrument may be forced against the three sheets while the same are held in order to form the nested and locking indentations.

In the specific illustration given in Figs. 1 and 2, a bonnet structure is shown but it will be understood that the structure is applicable for use as a container, or any other device into which sheet metal parts may be assembled. In the illustration given, and as shown best in Fig. 2, the top sheet 10 of the bonnet is provided on each edge with a portion doubled upon itself to form a downwardly facing channel 11. Side sheets 12 are provided with plain edges adapted to be received

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within the side channels 11 of the sheet 10. End sheets 13 are also provided and the sheets 13 have their ends doubled upon themselves to provide forwardly or inwardly facing channels 14. Thus the end panels 13 have their upper edges received within the channels 11, while their doubled back ends provide the channels 14 for receiving the ends of the side panels 12.

With the structure shown, the top panel 10 is united to the side panels 12 and the end panels 13 by the introduction of the top edges of panels 12 and 13 within the channels 11 of the top 10. At the same time, the same panels 12 and the end panels 13 are united by bringing the side edges of the panels 12 into the U-shaped channels 14 of the end panels 13.

With the parts assembled as described above, the edge wall portions 10a and 10b enclosing the upper edge 12a of the side panel 12 are united by forming nested indentations 15, as shown more clearly in Fig. 3. These indentations are formed by the use of a plunger actuated by a lever-equipped punch or by any instrument pressed against the three edges to form the interlocking indentation structure shown in Fig. 3.

Similarly, the side edges of panels 12 are secured to the enclosing or doubled edges of panels 13 by forming indentations 15 therein.

In the above described manner, the sheets are thus assembled together expeditiously and the interlocking indentations provide an extremely tight seal between the sheet parts. Such a tight seal is of great importance in the forming of a furnace bonnet in which heated air is collected and passed under pressure through conduits that lead to outlets in various parts of the building.

While in the foregoing specification we have set forth a single structure in considerable detail for the purpose of illustrating an embodiment of the invention, it will be understood that the details of structure so shown may be varied widely by those skilled in the art without departing from the spirit of our invention.

We claim:

1. A sheet metal bonnet, comprising a pair of end panels having edge portions doubled upon themselves and extending rearwardly of said panel and providing inwardly facing channels, a pair of side panels having straight edges on all sides and with their end edges extending past said end panels and within the channels thereof, said edge portions of the panel being locked together by nested indentations in said edge portions, and a top panel having spaced edge flanges doubled upon themselves to form downwardly-facing

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U-shaped channels, said edge flanges extending upwardly above the top panel, said end panels between the U-shaped channels thereof and said side panels having their upper edge portions received within the channels of said top panel and secured therein by nested indentations in said flanges of the top panel and said engaged portions of said end and side panels:

2. A sheet metal container structure, comprising vertical end panels having U-shaped edge portions extending rearwardly of each panel and providing inwardly-facing channels, straight edged side panels having edges received within the channels of said end panels, and a top panel having edge portions thereof doubled upon themselves to form U-shaped panels extending above said top panel with the openings thereof facing downwardly and receiving the straight top edges of said side and end panels, said U-shaped channels throughout the structure being provided with nested indentations aligned with indentations in the panel edge portions received within said channels to form an interlocking structure whereby the completed sheet metal structure is provided with an outwardly-extending reinforced channel at each corner edge thereof and at each top edge thereof.

3. A sheet metal container structure, comprising a pair of end panels having edge portions doubled upon themselves and extending rearwardly of said panel and providing inwardly-

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facing channels, a pair of side panels having straight edges at their ends and with said end edges extending past said end panels and within the channels thereof, said edge portions of the panel being locked together by nesting the indentations in said edge portions, and a unitary top panel having spaced edge flanges doubled upon themselves to form downwardly-facing U-shaped channels receiving the top edges of said side and end panels, said U-shaped channels and the panel edges received therein being united by nested indentations in the U-shaped channels and panel edges received therein, whereby the completed sheet metal structure is provided with an outwardly-extending, reinforced channel at each corner edge thereof and at each top edge thereof.

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