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R. B. BRANDL

SHEET METAL JOINT

Filed Sept. 27, 1926

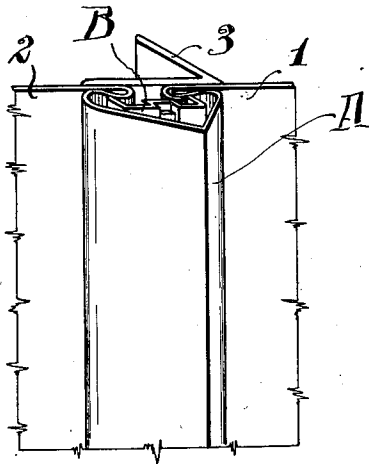


Fig. 1

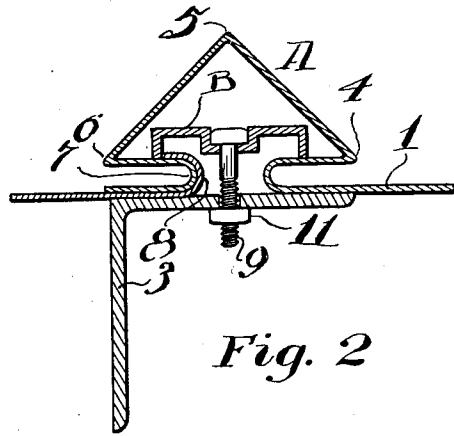


Fig. 2

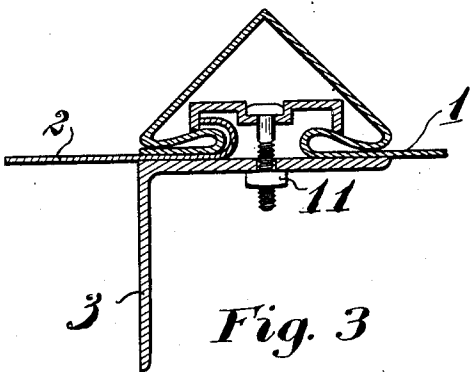


Fig. 3

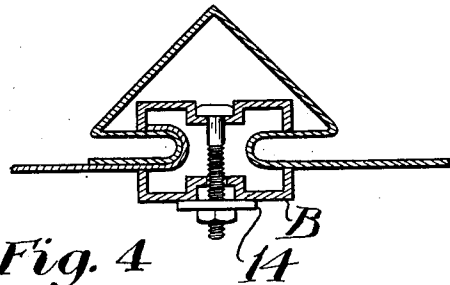


Fig. 4

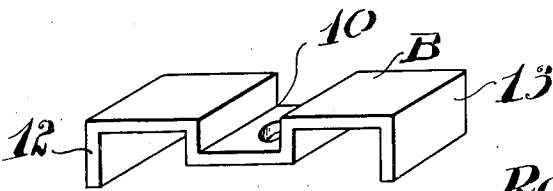


Fig. 5

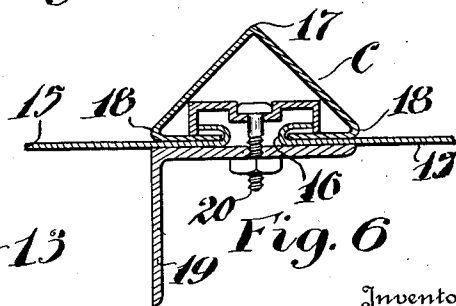


Fig. 6

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SHEET-METAL JOINT.

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The present invention relates to a joint for sheet metal plates and is especially adapted for such use when the metal plates are to be used in the construction of buildings, as a roof or wall covering.

When used for these purposes, a joint is subjected to the continuous action of the elements and should the building, in the construction of which the joint is employed, contain valuable merchandise or machinery, it is desirable to have the joint inaccessible for separation on the outer side thereof.

An object of the present invention is to make an interlocking joint for the edges of sheet metal plates, said joint being formed with a covering thereover and having fastening means acting intermediate the inner and outer surfaces of said joint to draw the parts into position to interlock the component parts of said joint.

Another object is to join the edges of a pair of sheet metal plates by bending an edge of one metal plate to form a channel with an offset portion therein; and by bending the other of said edges to interlockingly engage said offset portion of the first plate.

In order to attain these objects, there is provided, in accordance with one feature of the invention, a sheet of metal having an edge thereof bent to form a ridge with the edges of said ridge bent inwardly; and a second sheet of metal having an edge thereof folded upon itself so as to engage a portion of the first mentioned sheet to interlock therewith, the interlocking portions of said sheets being completely covered by said ridge to form a weather tight and comparatively inaccessible joint.

These and other features of the invention, not specifically mentioned, will be more fully brought out in the following description and the accompanying drawings, wherein:

Fig. 1, is a view in perspective of a pair of sheet metal plates joined together in accordance with the present invention.

Figure 2, is a sectional view transversely of the joint with the parts in interlocked position, but before being crimped by the fastening means.

Figure 3, is a view similar to Figure 2, showing the parts in fully interlocked position and crimped by the fastening means.

Figure 4, is a view similar to Figure 2,

showing a modified form of clamping device.

Figure 5, is a view in perspective of a clamping element used in securing the joint in place; and

Figure 6, is a view similar to Figure 2, showing a modified form of joint.

Referring to the drawings in detail, a sheet 1 of metal is bent back upon itself for a short distance and then angularly outward as at 4. On the line 5 the sheet is again bent angularly downward to the point 6, where it is bent inwardly. From this point it extends parallel to the original sheet 1 for a short distance, where it is again bent back upon itself as at 7 and terminates in the present illustration directly below the edge 6. A second sheet 2 has its edge bent upwardly and back upon itself as at 8 so as to receive the portion 7 therein.

In large sheet metal buildings, and in granaries, where additional strength is required, angle iron supports 3 may be used to brace the walls vertically, although such additional bracing is not necessary in the construction of small buildings and those in which there is no internal pressure against the walls, since the ridge formed by the folding of the sheet 1 resists transverse bending of the sheets.

In affixing the plates to the vertical angle irons, brackets B, having bolts 9 passing through the opening in said bracket, as shown in Figures 1 to 3, inclusive, are inserted in the interior of the ridge formed by the bending of sheet 1 with an end of the bracket overhanging the inwardly turned edge of the plate 2. The bolts are then inserted through holes in the angle iron 3 and the nuts are screwed down. The engagement of the overhanging end of the bracket B with the edge of the plate 2, prevents the bracket from turning while the nuts 11 are being drawn into place. The heads of the bolts are retained in a channel 10 in the bracket B which prevents the bolts from turning, during the tightening of the nuts 11.

In constructions where the vertical angle iron braces are not required, bracket B may be used on the inside of the joint as well as within the ridge. This construction is shown in Figure 4, the inner bracket B being positioned as shown, and a washer 14,

having a width sufficiently greater than the width of the channel 10 to keep the nut 11 from entering the channel being provided to permit the nut to be screwed down into position.

It will be noted, especially in Figure 1, that the joint is entirely shielded by the ridge, and that the nuts holding the plates together are inaccessible from the outer side of the joint. This prevents removal of the fastening means to release the joint for separation, as is possible in construction wherein the fastening means are accessible from the outer side of the joint. Another advantage lies in the complete shielding of the fastening means from the weather. The metal sheets used in the construction of sheet metal buildings are usually of sheet steel galvanized or otherwise coated to resist rust and corrosion. In a joint of an ordinary type, where the sheets are punched to receive bolts for fastening, the inner edge of the punched out hole has no galvanizing or protective coating. As a result, rust and corrosion are free to act on the edges of these holes, and, as the corrosion proceeds beyond the area occupied by the fastening means, releases the joint for separation.

The present joint is entirely weather tight and may be considered as complete in the form shown in Figure 2, but additional strength and rigidity may be obtained by drawing the parts into the position shown in Figure 3, by further screwing down the nut 11. The joint as illustrated in Figure 2 might be employed to advantage where the building was of a temporary nature and was intended to be taken down and moved, whereas, the joint as drawn down to the position shown in Figure 3 would be preferable for a building of a more or less permanent character.

A modified form of joint is shown in Fig-

ure 6. In this form both edges of a pair of sheets forming the joint are turned back upon themselves as at 16 and a ridge or closure member C for covering the joint is formed of a strip of sheet metal bent longitudinally thereof as at 17 and having the edges turned in as at 18 to engage the folded edges of the sheets 15. A clamp member similar to the one shown in the other figures extends beyond the ends of the folded edges of the sheets forming the joint and rests upon the bent in portions of the ridge member C. An angle iron brace member 19 is positioned interiorly of the joint as in Figures 1 to 3, and a bolt 20 draws the parts into compression to hold them firmly in place. A clamp member may be used interiorly of this type of joint instead of the angle iron 19, the same as with the type of joint illustrated in Figure 4 in cases where extraordinary vertical rigidity is not required.

I claim:

A joint of the character described, comprising sheets of material, each having an edge thereof bent backwardly upon itself, a ridge over said inwardly bent edges, a portion of said ridge being bent inwardly to lie interiorly of said ridge, clamp means positioned interiorly of said ridge and having an end thereof bent downwardly to engage the inwardly bent portion of said ridge and the bent edge of each of the sheets, reinforcing means positioned against the inner side of said joint and means connecting the clamp means and the reinforcing means to draw them together and grip the joined edges of said sheets in interlocking relation with each other.

In testimony whereof I affix my signature.

ROBERT B. BRANDL.