

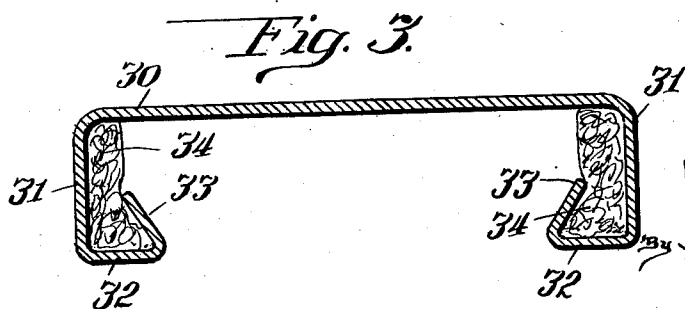
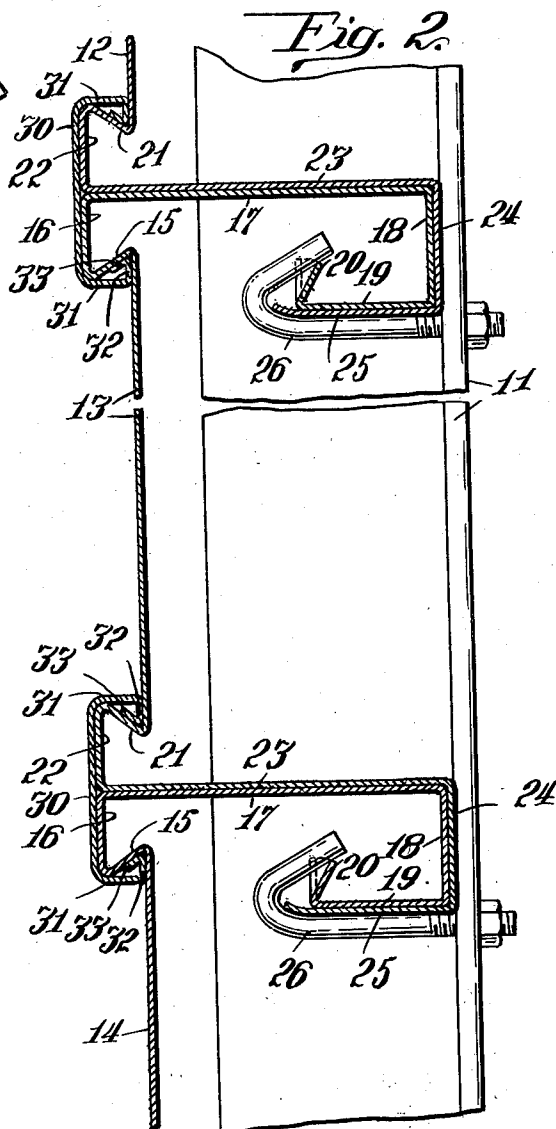
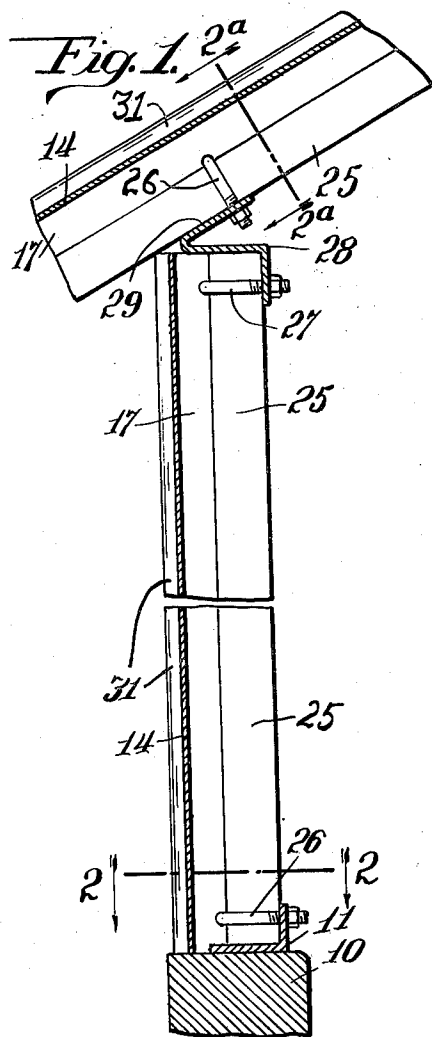
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BUILDING CONSTRUCTION

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BUILDING CONSTRUCTION

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4 Claims. (Cl. 189—34)

Our invention relates to building construction and it has for its object the provision of a new and improved form and arrangement of parts in a structure made up of sheet steel or other suitable sheet material whereby an improved joint is provided between the adjacent panels making up the structure for use in a roof, a ceiling, a side wall, or other part of a building. In a structure of this type which is subject in many cases to almost daily temperature changes through fairly wide ranges, with the consequent substantial opening and closing of the joint by reason of contraction and expansion, we have found it difficult to provide a satisfactory joint by the methods heretofore in use. It is the object of our invention to provide an improved arrangement by which a tight joint may be provided initially and by which expansion and contraction may be taken care of satisfactorily so as to enable the joint to remain permanently tight and effective.

It is one of the objects of our invention to provide a structure of this type which may be produced readily and cheaply upon a commercial basis and which can be assembled into its final operative form without difficulty. It is another object of our invention to provide a structure of this type so arranged that the joint itself shall be protected as completely as possible from the weather.

It is another object of our invention to improve building construction of this type in sundry details hereinafter pointed out. The preferred means by which we have accomplished our several objects are illustrated in the accompanying drawing and are hereinafter specifically described. That which we believe to be new and desire to cover by Letters Patent is set forth in the claims.

In the drawing,—

Fig. 1 is a vertical sectional view through a building formed of steel panels and embodying our improved construction;

Fig. 2 is a horizontal sectional view taken substantially at the line 2—2 of Fig. 1; and

Fig. 3 is an enlarged detail view showing our improved joint strip removed from the cooperating parts.

Referring now to the several figures of the drawing in which corresponding parts are indicated by the same reference characters, 10 indicates a foundation of any suitable type upon which is secured a base angle 11 longitudinally thereof. As is clearly shown in Figs. 1 and 2, a plurality of panels 12, 13 and 14 are mounted upon the base angle 11 with their body portions in alignment with each other. In our improved arrangement (see Fig. 2), the body portion of each of the panels is bent along longitudinal lines at each side edge of the body portion to

provide a series of flange portions by which the panels are secured together in the desired co-operative relation. Such structure at one side of the body portion of each panel comprises a flange portion 15 which is bent into acute angle relationship to the body portion, a flange portion 16 which is substantially parallel with the body portion, a flange portion 17 which is substantially perpendicular to the body portion and which extends backwardly some little distance beyond the body portion, and flange portions 18, 19 and 20 each of which is bent at right angles to its adjacent flange portion so as to provide a box-like formation in rear of the body of the panel. At the opposite edge of each of the panels, a flange 21 in acute angle relation to the body portion is provided, joined to the next adjacent flange portion 22 parallel with the body portion, with flange portions 23, 24 and 25 bent each at right angles to the connected flange portion to form a box-like structure of a size to receive snugly the inside box-like arrangement of the adjacent panel. The arrangement is such that an undercut shoulder is provided adjacent to the edge of each of the panels at each side of the panel, with such undercut shoulders facing away from the adjacent edge, the flange portions 17 and 23 being of such size as to cause the front face portions 22 and 16 of the undercut shoulder structures to stand in alignment with each other when the adjacent interfitting boxes are secured in cooperative relation. In the arrangement shown, the interfitting boxes of the panels are clamped firmly together by means of hook bolts 26 which engage the edge portions of the flanges 20 and 25 so as to draw them tightly toward the vertical portion of the angle bar 11. In the arrangement shown in Fig. 1, similar hook bolts 27 are provided at the upper ends of the panels for securing the panels to the vertically disposed plate portion 28 of an angle bar 29 resting upon the upper ends of the panels.

For holding the panels 12, 13, and 14 in operative relation to each other so as to secure an effective closure of the joint between the panels, we have provided a clamping device in the form of a channel formed of sheet metal cut in the form of a strip and bent longitudinally to provide a body portion 30 and a series of flanges at each side. In the arrangement shown, a side flange portion 31 is provided at right angles to the body portion 30 at each side edge thereof, with a flange portion 32 formed with the flange 31 and at right angles thereto, and with a flange portion 33 formed with the flange 32 and standing in the same angular relation to said flange 32 as the angular relation between the flange portion 15 and the body portion 14 of the panel structure. After the panels have been secured in position

as shown in Fig. 2, one of the channel members is secured in position in engagement with the undercut shoulder structures, such channel member being connected with the shoulders either by being slid longitudinally into engagement therewith from one end or by being sprung into position without such longitudinal movement. In the arrangement shown, the flanges 33 have face to face engagement with the flanges 15 and 21, and the flanges 32 of the channel structure have face to face engagement with the body portions of the panels. In the arrangement as shown, the cut edge portions of the sheet metal forming the channel member are folded in so as to be protected by the channel. In the preferred arrangement, the channel is provided along each edge portion with a quantity of caulking material as indicated at 34 in Fig. 3.

With the parts connected in the arrangement as shown in Fig. 2, the panels are held securely in edge to edge engagement with each other by the channel members so as to keep the joint between the panels effectively closed for preventing the passage of rain therethrough. The arrangement is such that the panels are adapted to expand or contract as may be necessary from the normal arrangement as shown in the drawing, such expansion or contraction having no appreciable tendency to loosen the joint, since the metal is adapted to yield against its own resiliency for permitting the changed relative positions of the parts.

In the arrangement shown, the roof structure has the same arrangement as that shown and described in connection with the side wall. The showing upon the section line 2a-2a through the roof structure in Fig. 1 corresponds to Fig. 2 of the drawing, except that a frame bar 29 is connected with the panels in the roof in lieu of the angle bar 11 as shown in said Fig. 2.

While we prefer to employ the arrangement as shown in our drawing, it is to be understood that our invention is not to be restricted to the arrangement shown except so far as it may be so restricted in terms of the narrower claims. It will be understood that changes in the form and arrangement may well be made without departure from our invention.

We claim:—

1. In a building construction, the combination of two panels of sheet material secured firmly in position side by side in alignment with each other by means comprising inwardly extending flange portions in face engagement with each other at right angles to the body portions of the panels, flange portions formed integrally with said inwardly extending flange portions and positioned substantially parallel with the body portions, and obliquely disposed flange portions formed integrally with both the parallel positioned flanges and the body portions and positioned in acute angled relation to said body portions so as to provide undercut shoulders adjacent to the edges of the panels, and a sheet metal channel with its web portion in face engagement with said parallel positioned flange portions of the panels and with its legs engaging both the outer faces of the body portions and the undercut faces of said obliquely disposed flange portions of the panels for holding the panels firmly together with the joint between the panels effectively closed.

2. In a building construction, the combination of two panels of sheet material secured firmly in position side by side in alignment with each other by means comprising inwardly extending flange

portions in face engagement with each other at right angles to the body portions of the panels, flange portions formed integrally with said inwardly extending flange portions and positioned substantially parallel with the body portions, and obliquely disposed flange portions formed integrally with both the parallel positioned flanges and the body portions and positioned in acute angled relation to said body portions so as to provide undercut shoulders adjacent to the edges of the panels, and a sheet metal channel comprising a web portion in face engagement with said parallel positioned flange portions of the panels and leg portions at opposite side edges each comprising a side flange portion substantially perpendicular to said web portion, an inwardly turned flange portion formed integrally with said side flange portion and having face engagement with the body portion of the adjacent panel, and an obliquely positioned flange portion formed integrally with the inwardly turned flange portion and having face engagement with the obliquely positioned flange portion of the panel whereby said panels are held firmly together with the joint between them effectively closed.

3. In a building construction, the combination of two panels of sheet material secured firmly in position side by side in alignment with each other by means comprising inwardly extending flange portions in face engagement with each other at right angles to the body portions of the panels, obliquely disposed flange portions formed integrally with the body portions of the panels in acute angled relation thereto so as to provide undercut shoulders adjacent to the edges of said body portions, and other flange portions formed integrally with both said inwardly extending flange portions and said obliquely disposed flange portions, and a sheet metal channel member comprising an intermediate web portion covering the joint between the panels, side flange portions carried by said intermediate web portion in angular relation thereto, and other flange portions connected with said side flange portions in oblique position with respect to the body portions of the panels and adapted by engagement with the undercut shoulders of the panels to hold the panels yieldingly together.

4. In a building construction, the combination of two panels of sheet material secured firmly in position side by side in alignment with each other by means comprising inwardly extending flange portions in face engagement with each other at right angles to the body portions of the panels, obliquely disposed flange portions formed integrally with the body portions of the panels in acute angled relation thereto so as to provide undercut shoulders adjacent to the edges of said body portions, and other flange portions formed integrally with both said inwardly extending flange portions and said obliquely disposed flange portions, and a sheet metal channel member comprising flange portions extending inwardly toward each other from opposite sides of the intermediate web portion of the member, and other flange portions formed integrally with such inwardly extending flange portions in spaced relation to said intermediate web portion and in oblique position with respect to the body portions of the panels adapted by engagement with the undercut shoulders of the panels to hold the panels yieldingly together.

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