May 5, 1936. R. M. CALKINS ET AL 2,039,293

BUILDING CONSTRUCTION

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Fig. 1.

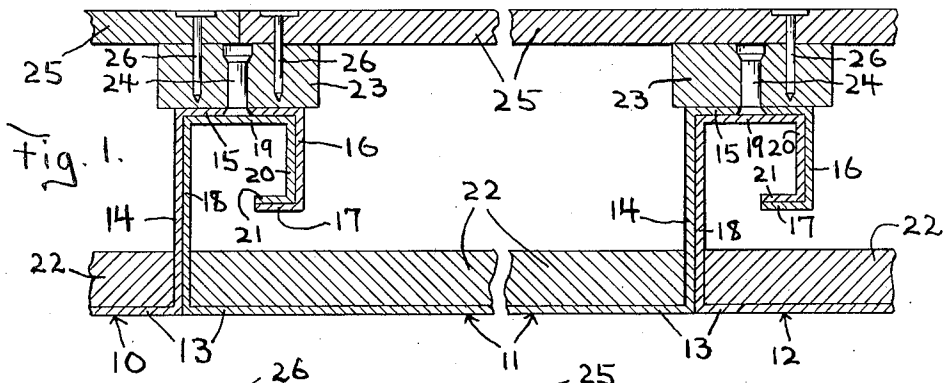
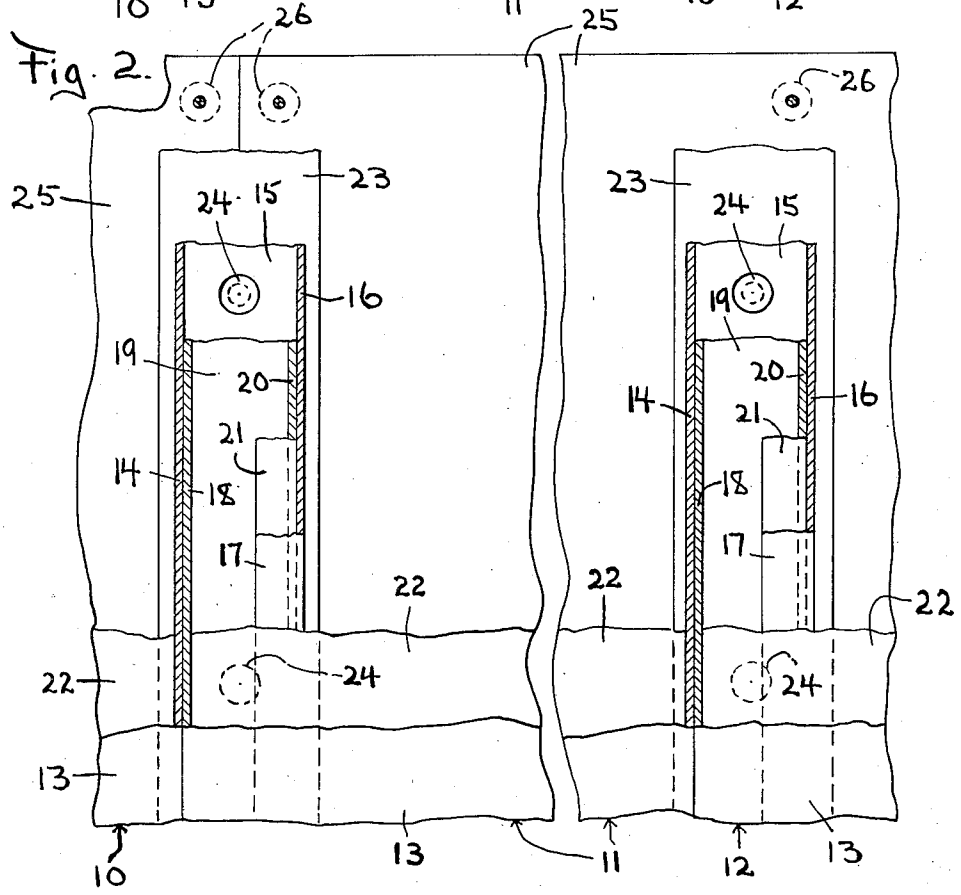


Fig. 2.



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BUILDING CONSTRUCTION

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8 Claims. (Cl. 189—1)

Our invention relates to building constructions and it has for its object the provision of a new and improved form and arrangement of parts of sheet metal and insulating material making up a panel for use with other suitable panels for forming a wall or other structure adapted to serve in any suitable capacity in a building,—as a side wall, a floor, a ceiling, a roof, and the like. Our improved construction as disclosed by the drawing employs panels made up from sheet metal and held against shifting edgewise with respect to each other by means of inter-engaging flanges formed integrally with the body portions of the panels along their edges. Panels of the type shown and claimed by Swank United States Letters Patent Nos. 1,925,417 and 1,925,418, may be used.

It is one of the objects of our invention to provide an improved arrangement comprising panels of this general type equipped with insulating means adapted not only to break the continuity of the metal through the wall or other structure from one face to the other but also very substantially to strengthen and reenforce the structure as a whole. It is a further object of our invention to provide an arrangement of this type in which a part of the insulation material shall be in the form of furring strips of wood or other material suitable for receiving and holding nails or the like for the attachment of suitable facing material to the panels.

It is another object of our invention to improve structures of this type in sundry details hereinafter pointed out. The preferred means by which we have accomplished our several objects are illustrated in the 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 cross sectional view through a wall or other structure embodying our invention; and

Fig. 2 is a face view of a portion of the structure of Fig. 1, certain of the parts being broken away for best showing the construction.

Referring to the drawing,—10, 11 and 12 indicate panels formed of sheet metal each comprising a body portion 13. At one side edge of the body portion of each of the panels in the construction illustrated, we have provided a series of flanges 14, 15, 16 and 17, the flange 14 being bent at right angles to the body portion of the panel and each succeeding flange of the series being at right angles with respect to the adjacent flange portion, the four flanges being in the form of a box open at one side. Upon the opposite edge of the body portion 13 of each of the panels as illustrated, we have provided a cooperating set of flanges 18, 19, 20 and 21 also in the form of an open box and arranged so as to have a snug sliding fit with the box of the adjacent panel, all as fully disclosed by the prior patents above referred to.

Upon the inner face of the body portion 13 of each of the panels, we have provided a board member 22 in the form of a wall board or of any other suitable construction extending along the face of the body portion from the flange 14 at one side to the flange 18 at the opposite side. In the arrangement shown, the side edges of the board 22 have snug engagement with the flange portions, and the board is secured rigidly in position both to the body portion 13 and to the flanges. We have found that a board can be very satisfactorily secured in position as described by means of a suitable adhesive or cement, and that is the form of securing means which we have used and which we prefer to employ.

On the outer face of the flange 15 of the outside box of each of the panels, we have provided a furring strip 23, preferably formed of wood. In the arrangement shown, the furring strips 23 are secured in position by means of rivets 24 by which the strips are held very securely in position and by which the inside face of the box is left clear and free of projecting parts. The board members 22 and the furring strips 23 are preferably to be attached in position at the factory so as to provide that the panel shall be ready for use when it arrives at the job. These parts, and particularly the furring strips, may however be applied to the panels at the job if desired, suitable securing means other than the rivets 24 being used if desired.

By the use of the board members 22 and the furring strips 23 as described, the strength of the panels is very substantially increased, the reenforcement secured by our improved construction being sufficient to enable us to employ a thinner gauge of metal than would otherwise be practical. We have found that this is true even when the insulation boards 22 are attached in position by means other than cement, but the reenforcement is particularly strong and effective when the faces of the boards are secured at all points to the metal, as by a suitable adhesive. With the board 22 bonded over its entire face to the body portion 13 of the panel, and further with the flanges 14 and 18 bonded to the edge portions of the board, the panel as a whole is given such stiffness and strength as to be very effective for the production of a building without the necessity for use of any frame-work other than that comprised in the panels themselves. With the insulating boards cemented into position, the metal parts are protected largely from rusting, and the sound-proofing effect is improved. By the use of the furring strips on the faces of the outside boxes, when such furring strips are used, the continuity of the metal

through the wall is broken so as to cut down very substantially the passage of heat by conduction through the wall. By the use of the board members **22**, insulating the major portion of the area of the wall, the passage of heat through the body portions of the panels is reduced to a minimum. The furring strips **23** also cooperate with the boards **22** substantially for stiffening and strengthening the structure.

In the arrangement shown, we have provided board members **25**, also in the form of wall board if desired for completing the wall or for serving as a base for plaster if desired. In the arrangement shown, the boards **25** are secured in position by means of nails **26** driven directly into the furring strips.

While we prefer to employ the form of arrangement as shown in our drawing and as above described, it will be understood that our invention is not limited specifically thereto except so far as the claims may be so limited by the prior art.

We claim:—

1. A panel structure comprising in combination a body portion of sheet metal, a series of flange portions along each side of said body portion in the form of a box adapted to have inter-engagement with the cooperating box of an adjacent panel for holding the panels against edgewise movement with respect to each other, and a board member fixedly connected with the body portion of each of said panels in spaced relation to the other panel serving substantially to rigidify the panel for handling and shipment and to insulate the panel against the passage of heat therethrough.

2. A panel structure comprising in combination a body portion of sheet metal, a series of flange portions along each side of said body portion in the form of a box adapted to have inter-engagement with the cooperating box of an adjacent panel for holding the panels against edgewise movement with respect to each other, and a board member fixedly connected with the body portion of each of said panels and engaging the flanges at its side edges in spaced relation to the flanges of the other panel serving substantially to stiffen the panel for handling and shipment and substantially to insulate the panel against the passage of heat therethrough.

3. A panel structure comprising in combination a body portion of sheet metal, a series of flange portions along each side of said body portion in the form of a box adapted to have inter-engagement with the cooperating box of an adjacent panel for holding the panels against edgewise movement with respect to each other, and a board member cemented at one face to the body portion of each of said panels in spaced relation to the other panel serving substantially to stiffen the panel for handling and shipment and to insulate the panel against the passage of heat therethrough.

4. A panel structure comprising in combination a body portion of sheet metal, a series of flange portions along each side of said body portion in the form of a box adapted to have inter-engagement with the cooperating box of an adjacent panel for holding the panels against edgewise movement with respect to each other, and a board member secured at its edges to the flanges at the opposite edges of the body portion of each of said panels in spaced relation to the flanges of the other panel serving substantially to rigidify the panel for handling and shipment and to insulate the panel against the passage of heat therethrough.

5. A panel structure comprising in combination a body portion of sheet metal, a series of flange portions along each side of said body portion in the form of a box adapted to have inter-engagement with the cooperating box of an adjacent panel for holding the panels against edgewise movement with respect to each other, and a board member cemented at one face and along its side edges to the body portion and the flanges at the opposite edges of the body portion of each of said panels in spaced relation to the flanges of the other panel serving to rigidify the panel and to hold the flanges in normally angled position with respect to the body portion for handling and shipment and serving also to insulate the panel against the passage of heat therethrough.

6. A panel structure for connection in series with other similar panels, comprising in combination a body portion of sheet metal, a series of flange portions along one side edge in the form of an inside box adapted to have inter-engagement with an outside box on the adjacent panel at that side, a series of flange portions along the opposite side edge in the form of an outside box adapted to have inter-engagement with the inside box on the adjacent panel at said opposite side, and a furring strip of insulating material fixedly secured on the outside face of said outside box serving substantially to stiffen said box and serving to assist in insulating the panel against the passage of heat therethrough.

7. A panel structure comprising in combination a body portion of sheet metal, a series of flange portions along each side of said body portion in the form of a box adapted to have inter-engagement with the cooperating box of an adjacent panel, a board member fixedly connected with said body portion serving substantially to stiffen the panel and substantially to insulate the panel against the passage of heat therethrough, and a furring strip of insulating material fixedly secured on the outside face of one of said boxes serving substantially to stiffen said box and to assist in insulating the panel against the passage of heat therethrough.

8. A panel structure for connection in series with other similar panels, comprising in combination a body portion of sheet metal, a series of flange portions along one side edge in the form of an inside box adapted to have inter-engagement with an outside box on the adjacent panel at that side, a series of flange portions along the opposite side edge in the form of an outside box adapted to have inter-engagement with the inside box on the adjacent panel at said opposite side, a board member fixedly connected at one face with said body portion serving substantially to stiffen the panel and to insulate the panel against the passage of heat therethrough, and a furring strip of insulating material fixedly secured on the outer face of said outside box serving to assist in rigidifying the panel and in preventing the passage of heat through the panel.

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