June 9, 1953 F. H. TRIMMER 2,641,029

COUPLING MEANS AND TRIM FOR LAMINATED BUILDING UNITS

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FIG. 1

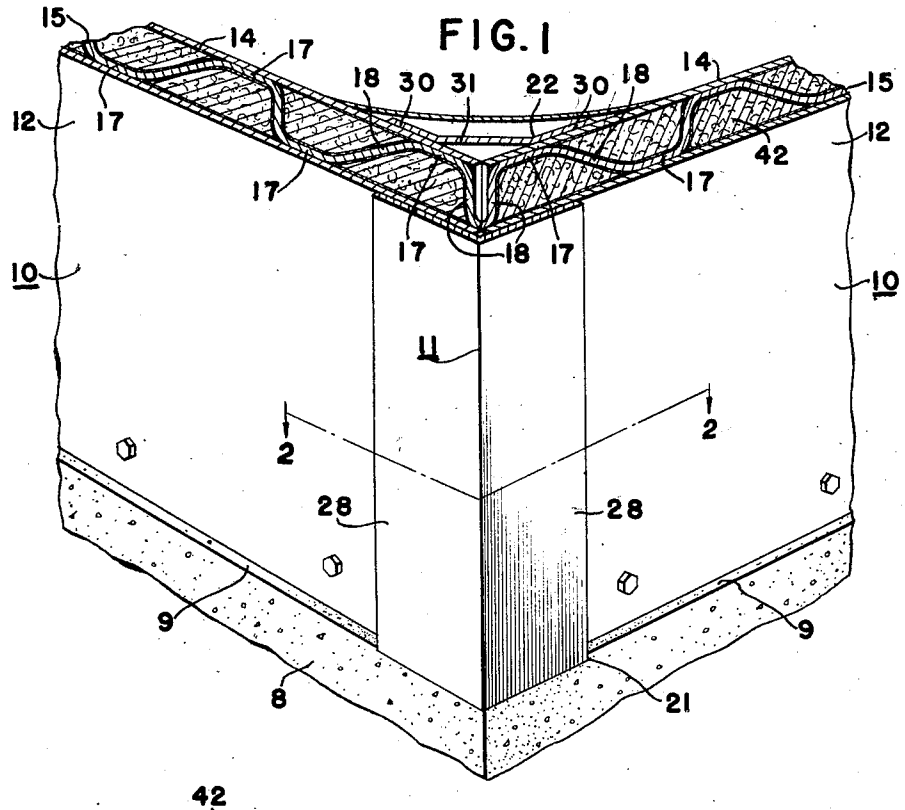
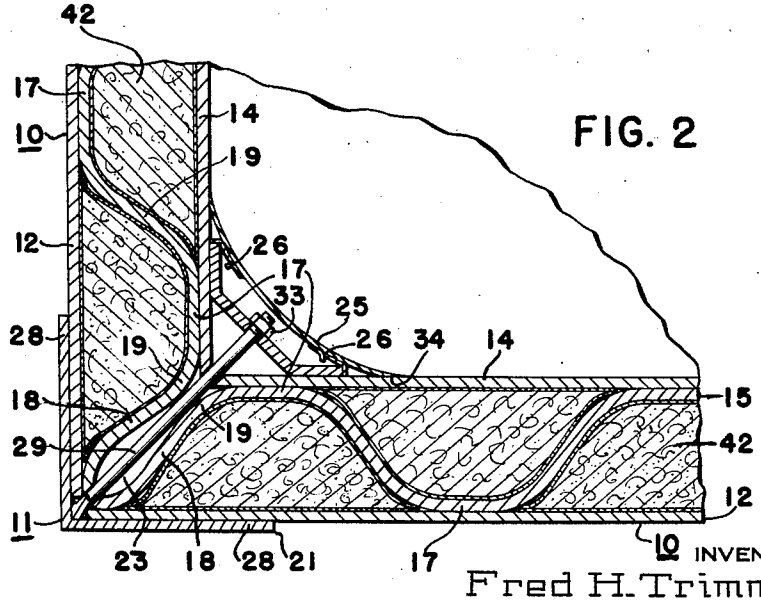


FIG. 2



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FIG. 3

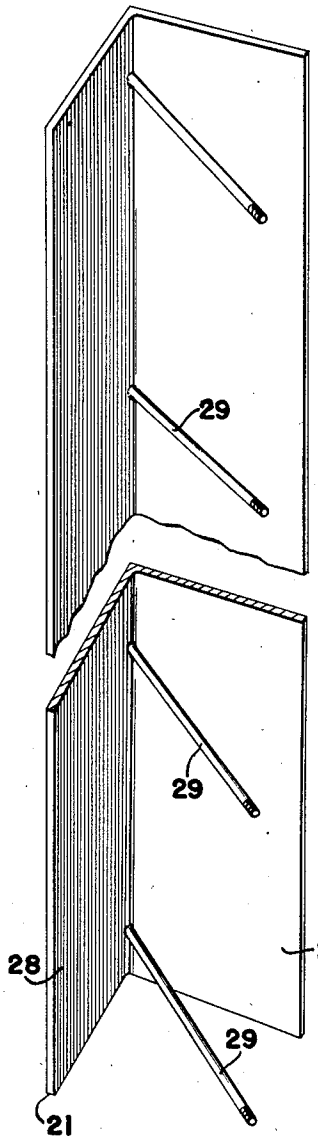


FIG. 4

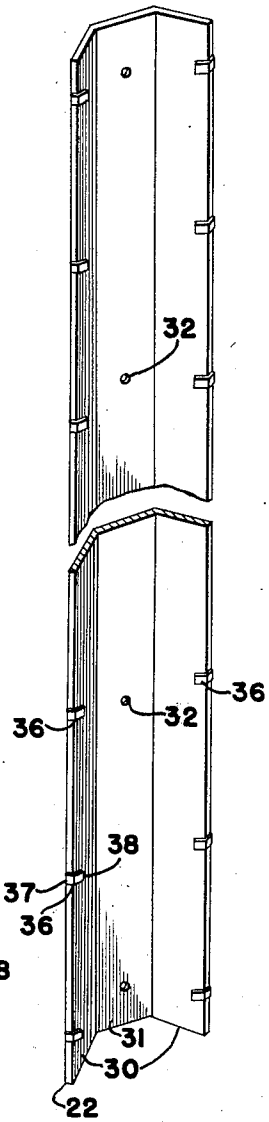
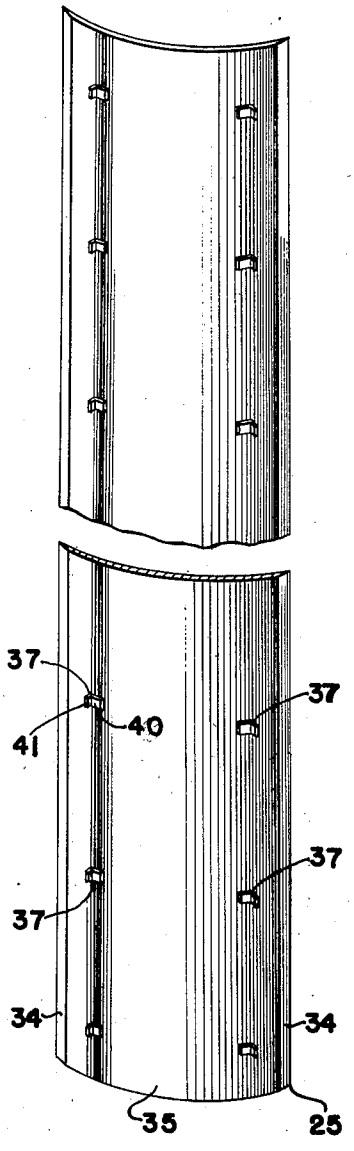


FIG. 5



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UNITED STATES PATENT OFFICE

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COUPLING MEANS AND TRIM FOR LAMINATED BUILDING UNITS

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Application February 24, 1950, Serial No. 146,012

2 Claims. (Cl. 20—4)

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This invention relates to building construction and more particularly to coupling means and trim for panel sections of buildings at corners or where they are angularly related one to another.

The invention is particularly well adapted for use in building construction, such as is shown in my copending application filed February 24, 1950, Serial Number 146,010, and for use with laminated load bearing and insulating units or panel sections shown in my copending application filed February 24, 1950, Serial No. 146,011.

The principal object of the present invention is to provide coupling means and trim which is inexpensive to manufacture, neat in appearance, easy to install and efficient as means to retain panel sections in angular relationship without the use of corner posts or studs.

Other objects and advantages will appear in the following detailed description of a highly satisfactory embodiment of the invention, taken in connection with the accompanying drawings, forming a part of this specification, and in which drawings:

Fig. 1 is a fragmentary perspective view looking toward the outside of a corner of a building foundation and wall, showing my invention in use.

Fig. 2 is a detailed horizontal sectional view on the line 2—2 of Fig. 1.

Figs. 3, 4 and 5 are perspective views of portions of the coupling means and trim, parts being broken away and removed to condense the views.

In the drawing I have disclosed the invention as applied to a corner of a building and more particularly an external corner, however, it is to be understood that it is applicable to internal corners, and to roof construction at the ridge of a gable roof.

Mounted upon a foundation 8 are plates or sills 9 supporting panel sections 10 in angular relation to one another. The coupling means and trim for the panel sections is designated generally by the character 11.

In the preferred embodiment of my invention, each panel section preferably comprises outer facing sheet 12, an inner facing sheet 14 and an intermediate corrugated sheet 15 of the character disclosed in the aforesaid application Serial No. 146,011. As there disclosed, the corrugated sheet is preferably shaped so that ridges thereof have straight crown portions 17 secured to the facing sheets, diagonal straight side portions 18, extending diagonally between the facing sheets,

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and curved or arcuate side portions 19 joining the portions 16 and 17 whereby the corrugated sheet acts as a strut-like unit, resisting compressive forces acting upon the facing sheets. The straight side portions 18 preferably lie in planes at angles of 60° to the planes of the facing sheets, thus enabling a wkorkman to cut a bevel at the end of each panel section, in a plane closely adjacent to and substantially paralleling the plane of one of the straight side portions 19, so that two of the panels may be disposed with the beveled faces in confronting relation at a corner of the building and with the panel sections in angular relation one to another, as shown in Figs. 1 and 2, where the various portions of the intermediate sheet effectively act as a strut to resist compressive forces acting in planes substantially paralleling a plane bisecting the angle between the planes of the panel sections 10.

The coupling means and trim 11 comprise a first or outer coupling member 21, a second or inner coupling member 22, and means 23 for drawing the members 21 and 22 toward each other and retaining them in clamping relationship to the panel sections 10. A trim strip 25 for cooperation with the second or inner coupling member 22 and for concealing parts of means 23, and means 26 for detachably securing the trim strip 25 to the coupling member 22, may be provided, but is not claimed in this particular application.

The coupling member 21 may be made from a strip of rolled or cast metal stock of angular cross section or from sheet metal rolled to angular cross section having the flanges 28 to be disposed in planes paralleling the planes of the angularly related panel sections 10 for bearing relationship with the outer faces of the outer facing sheets 12 thereof. If desired any suitable insulating material, such as asbestos paper or plastic, not shown in the drawing, may be interposed between the flanges 28 and the panel sections. In the example shown the coupling member 21 is provided with a plurality of screw threaded shanks 29 forming a part of means 23. These shanks are integral with the coupling member 21 and are in spaced apart relation longitudinally of the strip in a plane bisecting the angle between the planes of the flanges 28 and normal to the vertex between the said flanges, as indicated in Figs. 2 and 3.

Referring now to the second or inner coupling member 22 is also preferably made a strip of rolled, cast or fabricated metal, of channel shaped cross section, providing angularly related flanges,

30 and a web 31 joining the flanges 30. These flanges 30 are in planes paralleling the planes of the panel sections 10 and in bearing relationship with the outer faces of the inner facing sheets 14. Here, also, any suitable material, not shown in the drawing may be interposed between the flanges 30 and facing sheets 14. The web 31 is provided with a plurality of openings 32 in spaced apart relation longitudinally of the coupling member, through which the shanks 29 project when the coupling means is being assembled.

The means 23 for drawing the coupling members 21 and 22 toward each other and retaining them in clamping relationship to the panel sections 10, in addition to the screw threaded shanks 29 may include nuts 33 secured on the shanks and bearing against the web 31.

With reference to the trim strip 25 it is preferably made of some suitable material such as stainless steel or solidified plastic and of concavo-convex cross section. The longitudinal edges are preferably beveled to provide faces 34 for surface to surface contact with the exposed faces of the facing sheets 14 as shown in Fig. 2. In use the convex face 35 of strip 25 confronts and conceals the means 23. This trim strip provides a neat internal corner construction, free of recesses or cracks and hence will not harbor dirt or other objectionable matter.

The means 26 for detachably securing the trim strip 25 to the coupling member 22 may comprise a plurality of companion clips 36 and 37, of resilient material, carried by the flanges 30 and the trim strip 25, respectively. The clips 36 each have obtuse angularly related arms 37 and 38, the arms 37 of these clips 36 being welded or otherwise secured to the edges of flanges 30 and the arms 38 extending toward the web 31 but spaced from the faces of the flanges 30. The clips 37 are likewise each of a similar shape having obtuse angularly related arms 40 and 41, the arms 40 of these clips 37 being welded or otherwise secured to the convex face 35 of strip 25, and the arms 41 projecting toward the longitudinal edges of the strip but spaced from the convex face 35. The spacing of the sets of clips is such that the trim strip may be snapped into place, after the nuts 33 have been turned tight.

By making the screw threaded shanks 29 integral with the coupling member 21, the workman may more readily locate the position for boring any necessary notches or holes in the panel sections, for the reception of the shanks 29 by positioning the coupling member near the angularly related panel sections with the free ends of the screw threaded shanks abutting the corner edges of the panels and marking the places where notches or holes are to occur.

The action of tightening the nuts 33 exerts pressure by coupling sections 21 and 22 upon the outside surfaces of the panel sections in a clamping action and at the same time tends to pull the two panel sections toward the apex of the angle of panel sections 21 and 22. The net effects are to provide continuity of external surface and to rigidly hold the two panel sections to each other. When pressure is transmitted to the corrugated sheet 15, in the example shown, the particular side portions of the ridges thereof which are nearest the edges of the panel sections 10, tend to pinch against the shanks 29 and thereby resist collapsing of the panel sections due to the clamping action of the coupling members 21 and

22, the adjacent portions 18 and 19 of the corrugated sheet 15, acting effectively as a strut.

If desired the voids between the ribs of the corrugated sheet 15 and the facing sheets 12 and 14 may be filled with insulating material 42, a suitable example being shown in the aforesaid application Serial No. 146,011.

I claim:

1. In building construction, the combination with two laminated panel sections in angular relation to one another, said panel sections each including spaced apart facing sheets and an intermediate corrugated sheet, the crowns of the ridges of which are secured to said facing sheets and the side portions of the ridges of which extend diagonally between the facing sheets, the ridges nearest the adjacent edges of said panel sections having their particular outermost side portions substantially paralleling a vertical plane bisecting the angle between the planes of said panel sections to act as struts between their respective facing sheets; of coupling means and trim for said panel sections, comprising external and internal strips having bearing faces engaging the external exposed faces, respectively, of said facing sheets outwardly of the zones of said particular side portions of the ridges of the panel sections, and means for drawing said strips toward each other and retaining them in clamped relationship to said panel sections, and whereby collapsing of the panel sections is resisted by said particular side portions of the ridges thereof.

2. In building construction, the combination with two laminated panel sections in angular relation to one another, said panel sections each including spaced apart facing sheets and an intermediate corrugated sheet, the crowns of the ridges of which are secured to said facing sheets and the side portions of the ridges of which extend diagonally between the facing sheets, the ridges nearest the adjacent edges of said panel sections having their particular outermost side portions substantially paralleling a vertical plane bisecting the angle between the planes of said panel sections to act as struts between their respective facing sheets; of coupling means and trim for said panel sections, comprising external and internal strips having bearing faces engaging the external exposed faces, respectively, of said facing sheets outwardly of the zones of said particular side portions of the ridges of the panel sections, and means for drawing said strips toward each other and retaining them in clamped relationship to said panel sections, said means including bolt shanks extending between and engaging said particular side portions of the ridges of the panel sections, whereby collapsing of the panel sections is resisted by said particular side portions of the ridges thereof.

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