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R. A. BIGGS

2,745,523

SHEET METAL WALL VENEER CONSTRUCTION

Filed Aug. 22, 1950

3 Sheets-Sheet 1



May 15, 1956

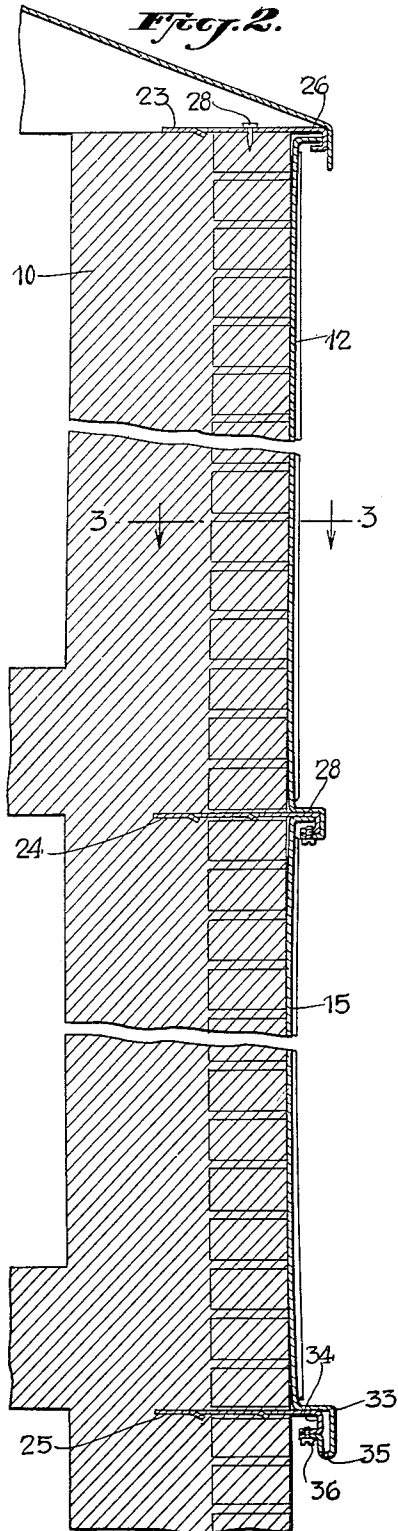
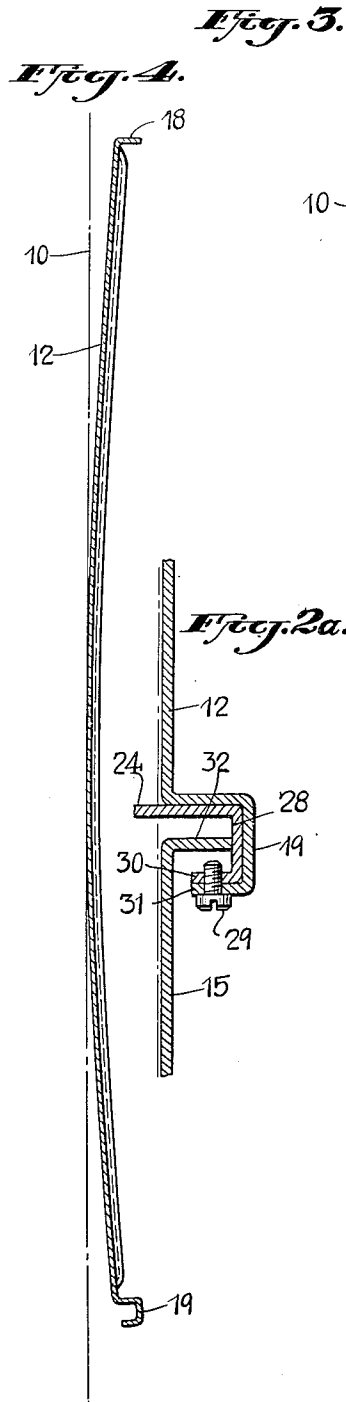
R. A. BIGGS

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3 Sheets-Sheet 2



INVENTOR.
RICHARD A. BIGGS.
BY *Wood, Crouse & Neal.*
ATTORNEYS.

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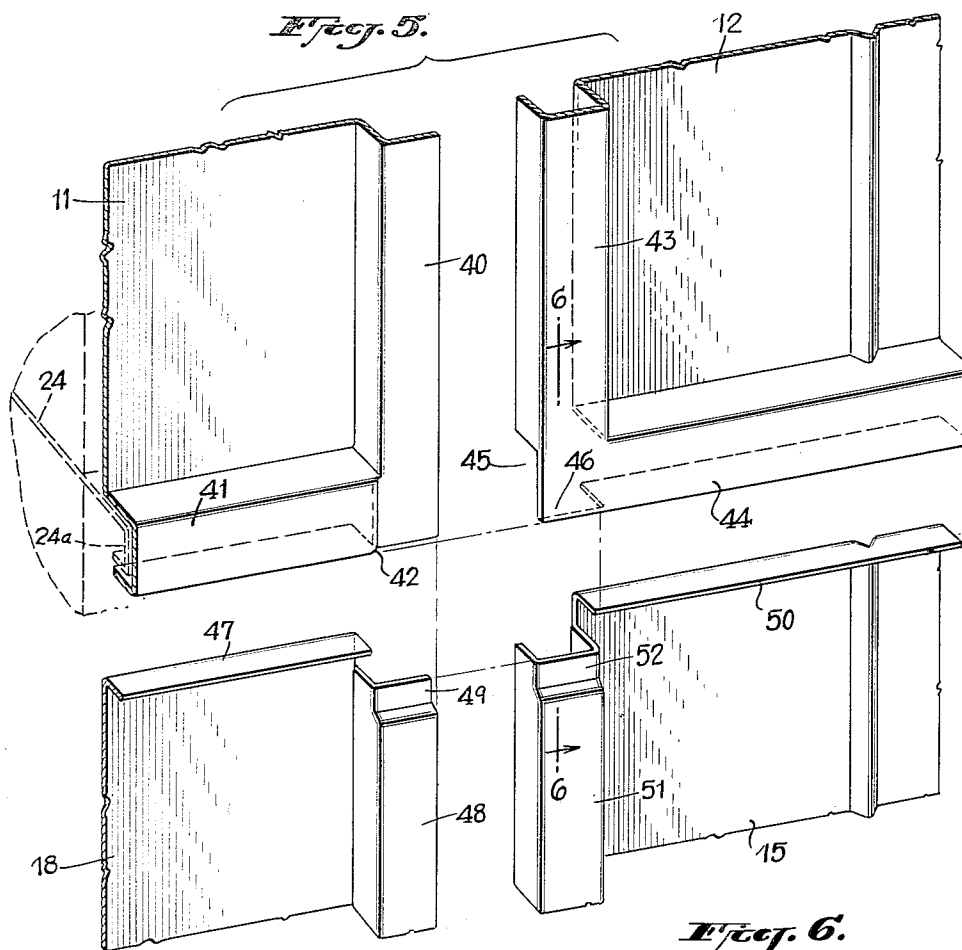
R. A. BIGGS

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SHEET METAL WALL VENEER CONSTRUCTION

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3 Sheets-Sheet 3



Прим. 6.

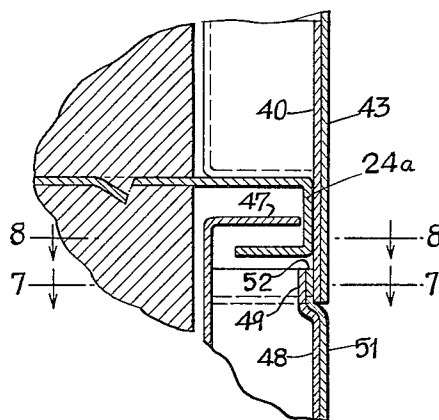


Fig. 7.

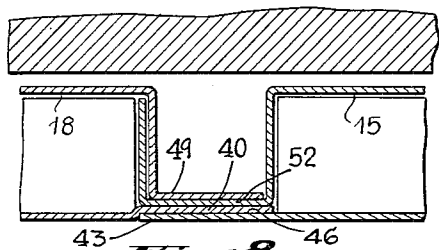
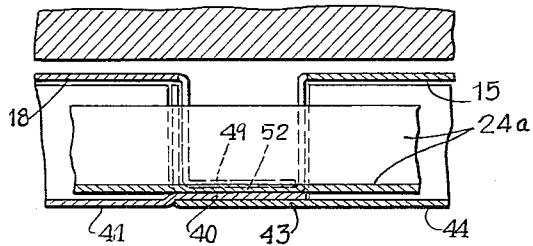


Fig. 8.



INVENTOR.

RICHARD A. BIGGS.
BY *Wood, Cuthy & Neal.*
ATTORNEYS.

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SHEET METAL WALL VENEER CONSTRUCTION

Richard A. Biggs, New York, N. Y., assignor to Crucible Steel Company of America, New York, N. Y., a corporation of New Jersey

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5 Claims. (Cl. 189—86)

This invention pertains to a light gauge, stainless or corrosion resisting, sheet metal wall veneer of novel construction and mode of application, and to the sheet metal components thereof, likewise of novel construction and configuration, easily applied in interlocking relationship and adapted to press snugly against a backing wall of concrete, brick or the like.

An object of the invention is to provide a sheet metal wall veneer of the character aforesaid having the solid appearance and deadened sound effect when struck of metal wall paneling composed of heavy metal plates.

A further object is to provide a sheet metal wall veneer as above which may be easily and quickly assembled and disassembled as a whole or as to individual panels thereof for replacement or repair.

It has heretofore been known to employ metal sheets for covering the walls of buildings, but as heretofore constructed and applied, they required fastening to the building wall at closely spaced points so as to provide proper engagement with the wall. Such fastening requires either a wall penetrable at many points by fastening devices or a special set of members to which the sheets are fastened at many points but which themselves are fastened to the wall at only a few points.

With the above mentioned prior types of construction, there are portions of the sheets which are not in intimate contact with the supporting wall or members caused either by buckling of the sheets, the desired shape of the sheets, or merely by the fastening arrangement employed to hold the sheets against the wall or members. Consequently, these portions when struck by an object, such as rain drops, hail, etc., or when flexed by winds emit an objectionable, metallic or "tinny" sound.

To make the sheets more rigid or to provide a particular appearance, the sheets have been made with ribs or corrugations. Even with the addition of ribs or corrugations, however, the sheets do not make contact with the supporting wall over substantially all of their surface areas because of curvatures and irregularities in the wall, and hence it has been the practice, as stated, to fasten these ribbed sheets to a wall at many points around the edges of the sheets.

It is an object of the present invention to provide a sheet metal covering for walls and similar surfaces, comprising sheets which are relatively thin, light in weight and simple to manufacture, and which will conform closely to a supporting wall even though they may be installed easily, and which are preferably made of a stainless or corrosion resisting material which is not appreciably oxidized or discolored by atmospheric conditions, such as stainless steel, aluminum or the like.

The sheet metal wall veneer of the invention comprises sheets made of a relatively light gauge metal having a thickness of the order of twenty-five hundredths of an inch and preferably having a gauge in the range from 20-30 so that the sheets may readily conform to the wall which they cover. The metal may be of any type suitable for outdoor use but preferably is stainless steel or

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aluminum. In the preferred form, the sheets are long relative to their width, for example 4 to 10 feet in length and 18 to 24 inches wide, and which are preferably provided with struck-up or embossed strengthening ribs, corrugations, or other shapes.

The component sheets are in accordance with novel aspects thereof, bent or preflexed into a shallow arc, the chord of the arc extending longitudinally of the sheet, and are mounted on a supporting wall with their length dimensions vertical and with their convex faces against the wall so that substantially the entire wall-facing surface of each sheet snugly engages the wall. Also the sheets are provided along opposite edges respectively with upturned and with upturned and bent over or channel-like edges for mounting contiguous sheets in interlocking assembly and to avoid the need of securing the sheets to the wall at all edges. The sheets may be simply and easily installed in interlocking relationship, or removed by disengaging the interlocking, and when installed, the sheets are pressed snugly against the face of the wall by virtue of the arcuate preflexing referred to. The sheets are also provided with interlocking corners having overlapping portions which are weather tight. The sheets are secured to the backing wall at their opposite longitudinally disposed ends and by means of channel-like fastening strips mounted in the wall at appropriate intervals.

The invention includes the novel features embodied by way of example in the sheets and arrangements hereinafter described with reference to the accompanying drawings, as illustrating a preferred form of the invention and the invention will be more particularly pointed out in the appended claims.

In the drawings:

Figure 1 is a perspective view of the sheet metal wall veneer of my invention as applied to the exterior wall of a building.

Figure 2 is a view in vertical sectional elevation of an exterior building wall having the sheet metal veneer of the invention applied thereto as taken substantially at 2-2 of Fig. 1. Figure 2a is an enlarged sectional detail of the Fig. 2 showing.

Figure 3 is a horizontal section of the Fig. 1 showing as taken at 3-3 thereof.

Figure 4 is a view in side elevation of one of the metal sheets prior to application to the wall, and illustrating the longitudinal arcuate preshaping or preflexing thereof.

Figure 5 is an exploded perspective view of the corner portions of four contiguous sheets, illustrative of the manner in which they fit together at the corners in assembled relationship; while Figure 6 is a sectional side elevation of the Fig. 5 showing, as taken at 6-6 thereof.

Figures 7 and 8 are sectional plan views taken at 7-7 and 8-8 respectively of Fig. 6.

Referring more particularly to Figs. 1 to 4 inclusive, the sheet metal wall veneer of the invention is shown as applied as a wall covering for a brick wall 10. The veneer comprises a plurality of thin metal sheets or panels 11 to 17 inclusive, which are mounted, as explained below, in intimate contact with the exterior surface of the wall 10. Because the sheets are fastened to the wall at only a relatively few points, as explained below, the invention is particularly useful for covering hard walls of the brick or concrete types, but the veneer may also be applied to walls made of other materials, such for example as wood.

Referring to Fig. 4, each sheet, such as 12, is preshaped or preflexed to have a slightly arcuate contour in longitudinal section, as shown, and is mounted with the convex curvature of the arc disposed against the backing wall 10. The depth of the arc is preferably of the order of 1/2 to 1 inch for a panel approximately 8 feet in length. As further shown in Fig. 4 the upper transverse edge of each sheet is turned up substantially at right angles to the panel

proper, as at 18; while the lower transverse edge is turned up and bent under being substantially U-shaped or channel-like in configuration, as at 19.

Referring to Fig. 3, one longitudinal or side edge of each sheet, such as 12, is turned up and bent under into substantially U shape or channel-like configuration, as at 20; while the opposite longitudinal or side edge is bent up substantially at right angles to the panel proper, and preferably thence parallel thereto to provide an upturned edge of substantially L-shaped configuration as at 21, whereby the L-shaped edge 21 of the panel 12 engages the opposite or U-shaped edge 22 of a contiguous panel 13, in interlocking engagement as shown.

Referring to Figs. 1 and 2, the sheet metal panels 11-17 inclusive are secured to the backing wall 10 by means of fastening strips, such as 23, 24 and 25. These fastening strips are mounted upon the wall as at 23, or embedded in the wall as at 24, 25, at appropriately spaced intervals corresponding to the lengths of the strips 12, 15, Fig. 2. Each fastening strip projects beyond the wall surface and is provided with a bent over edge of substantially U-shaped or channel-like configuration as at 26, Fig. 2. For mounting purposes each strip is provided with a plurality of perforations such as 27, through which mortar may extend in the embedded strips, such as 24, 25, or through which attaching bolts, such as 28, may extend for the upper strip 23.

For reinforcing purposes, the sheet metal panels such as 11 to 17 inclusive, may be provided with longitudinally extending ribs such as 29, which may also extend transversely of the panels if desired, or other reinforcing shapes may be impressed or embossed therein.

The procedure for assembling the sheet metal panels on the backing wall is as follows, referring more particularly to Figs. 2 to 4 inclusive. The upper upturned edge 18 of a sheet metal panel member such as 12 is inserted in the U-shaped or channel-like projection 26 of the upper fastening strip 23, and the sheet metal panel 12 thereupon flexed snugly against the backing wall 10, until the lower U-shaped end 19 thereof, overlaps the channel-like projection 24a of the next lower fastening strip 24, in the manner shown more clearly in the enlarged fragmentary view, Fig. 2a. Thereupon the end 19 of the sheet metal panel 12 and the projecting portion 24a of the fastening strip 24 are secured together by means of a self tapping screw 59, threaded through the lower projecting portions 30, 31 of the U-shaped members 19 and 24a respectively, Fig. 2a. Thereupon the upper upturned edge 32 of the next lower panel member 15 is inserted in the U-shaped portion 24a of the fastening strip 24, and the panel member 15 flexed against the backing wall 10 until its lower upturned end 33 overlaps the projecting portion 34 of the next lower fastening strip 25. Assuming the panel strip 15 to be the lowermost strip of the wall veneer, it may terminate in an upturned channel-like edge similar to 19 of Fig. 2a, but preferably has the configuration shown at 33 of Fig. 2, for water shedding purposes. Drain holes 35 may be provided therein for draining off condensed moisture. With either construction however the terminus 33 of the panel member 15 is secured to the projecting portion 34 of the fastening strip 25 by means of a self tapping screw 36 in the manner illustrated in Fig. 2a.

Referring to the horizontal sectional view of Fig. 3, the sheet metal panels are assembled on the backing wall 10, in the horizontal direction in the order of the panel numberings 11 to 14 inclusive, that is to say the panel 11 is first installed, and the panel 12 next installed with the channel-like edge 20 overlapping the L-shaped edge 37 of panel 11, and so on progressively for the remaining panels.

In addition to making the overlapping edges of the sheet metal panels relatively weather-tight as above described, it is also desirable that the corners of the sheets overlap each other so as to form a substantially weather-

tight joint. In Fig. 5 there is shown the manner of constructing the corners of the various sheets so that when the sheets are assembled, the corners overlap in a weather-tight fashion. In this figure the lower right hand corner of sheet 11 is shown having an up-turned, L-shaped edge 40 and an up-turned, U-shaped edge 41, which at the corner portion 42 reduces in size to the size of the up-turned edge 40. The lower left hand corner of sheet 12 has a pair of up-turned, U-shaped edges 43 and 44, which are cut away at 45 and 46 respectively so that the edges 43 and 44 may overlappingly engage the up-turned edges 40 and 41 respectively of sheet 11.

The upper edge 47 of sheet 18 has an up-turned edge which engages with the inside of the U-shaped portion 24a of fastening strip 24. This up-turned edge 47 is cut away at the end for ease of manufacture and for ease of assembly with the strip 24 and the corners of the sheets 11, 12 and 18. Sheet 18 also has a right hand U-shaped edge 48, which reduces in size, as indicated at 49, so that it may be inserted under the U-shaped edge 40 of sheet 11.

Sheet 15 also has an up-turned edge 50 which fits within the U-shaped portion 24a of strip 24 and a U-shaped edge 51 which reduces in size at the portion indicated by the numeral 52 so as to fit under the L-shaped edge 42 of sheet 11 and over reduced portion 49 of the U-shaped edge 48 of sheet 18.

I claim:

1. A rectangular, sheet metal, veneer panel, of substantially uniform gauge throughout and having side edges and upper and lower transverse edges, said panel being of slightly arcuate contour in the direction between one pair of its oppositely disposed edges for mounting said panel substantially flat and in flexed condition against a backing wall engaging the normally convex surface of said panel, said panel terminating along one side edge and said lower edge in struck-up, side and transverse ribs of substantially U-shape in cross section, the open sides of said ribs facing in the same direction as said convex surface and an extension of a portion of at least one of said ribs at the contiguous ends thereof forming a corner of said panel, and the oppositely disposed side and upper edges being up-turned for disposition within the ribs of an adjacent similar panel, said side rib and said upturned side edge having upper ends adjacent said upper edge and at least one of said upper ends having a spacing from the edge contiguous thereto which is less than the width of said transverse rib whereby said extension overlaps said one end when a plurality of said panels are mounted adjacent each other with said upturned edges disposed within the ribs of the next adjacent panel, and certain of said ribs being adapted for reception of and attachment to supporting members for mounting said panel on said backing wall.

2. A rectangular, sheet metal, veneer panel, of substantially uniform gauge throughout, said panel being of slightly arcuate contour in the direction between one pair of its oppositely disposed edges for mounting said panel substantially flat and in flexed condition against a backing wall engaging the normally convex surface of said panel, said panel terminating along one pair of contiguous edges in struck-up ribs of substantially U-shape in cross section, the open sides of said ribs facing in the same direction as said convex surface and extensions of a portion of at least one of said ribs at the contiguous ends thereof and at the opposite end of one of said ribs forming corners of said panel, and the oppositely disposed contiguous edges being up-turned for disposition within the ribs of an adjacent similar panel, and certain of said ribs being adapted for reception of and attachment to supporting members for mounting said panel on said backing wall, one of said ribs being of reduced dimensions at the end thereof opposite from said contiguous ends and said end being spaced from the edge contiguous thereto a distance less than the width of said ribs, and the other end thereof as well as

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the ends of the contiguous rib and the ends of said up-turned edges, being in part, cut away, to permit fitting contiguous panels together with an overlap at the corners.

3. In combination, a backing wall and a plurality of rectangular, sheet metal veneer panels facing the same, each panel being of substantially uniform gauge throughout and being formed with a slightly arcuate contour in the direction between one pair of its oppositely disposed edges and each panel having side edges and upper and lower transverse edges, means mounting said panels substantially flat and in flexed condition against said backing wall with said wall engaging the normally convex surface of each said panel, each said panel terminating along one side edge and said lower edge in struck-up, side and transverse ribs of substantially U-shaped configuration in cross section, the open sides of said ribs facing in the same direction as said convex surface and an extension of a portion of at least one of said ribs at the contiguous ends thereof forming a corner of said panel, and the oppositely disposed side and upper edges thereof being up-turned and disposed within the ribs of adjacent said panels, said side rib and said upturned side edge having upper ends adjacent said upper edge and at least one of said upper ends having a spacing from the edge contiguous thereto which is less than the width of said transverse rib whereby said extension overlaps said one end when said panels are mounted as aforesaid.

4. In combination, a backing wall and a plurality of rectangular, sheet metal veneer panels facing the same, each panel being of substantially uniform gauge throughout and being formed with a slightly arcuate contour in the direction between one pair of its oppositely disposed edges and each panel having side edges and upper and lower transverse edges, means mounting said panels substantially flat and in flexed condition against said backing wall with said wall engaging the normally convex surface of each said panel, each said panel terminating along one side edge and said lower edge in struck-up, side and transverse ribs of substantially U-shaped configuration in cross section, the open sides of said ribs facing in the same direction as said convex surface and extensions of a portion of at least one of said ribs at the contiguous ends thereof and at the opposite end of said transverse rib forming corners of said panel, and the oppositely disposed side and upper edges thereof being up-turned and disposed within the ribs of adjacent said panels, said side rib of each panel being of reduced dimensions at the end thereof adjacent said upper edge and said last-mentioned end having a spacing from said upper edge which is less than the width of said transverse rib and the other end of said side rib as well as the ends of the transverse rib and the ends of the said up-turned edges of said panel, being in part, cut

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away to permit fitting contiguous panels together with an overlap at the corners, and contiguous said panels being so mounted.

5. In combination, a backing wall and a plurality of rectangular, sheet metal veneer panels facing the same, each panel being of substantially uniform gauge throughout and being formed with a slightly arcuate contour in the direction between one pair of its oppositely disposed edges and each panel having side edges and upper and lower transverse edges, means mounting said panels substantially flat and in flexed condition against said backing wall with said wall engaging the normally convex surface of each said panel, each said panel terminating along one side edge and said lower edge in struck-up, side and transverse ribs of substantially U-shaped configuration in cross section, the open sides of said ribs facing in the same direction as said convex surface and extensions of a portion of at least one of said ribs at the contiguous ends thereof and at the opposite end of said transverse rib forming corners of said panel, and the oppositely disposed side and upper edges thereof being up-turned and disposed within the ribs of adjacent said panels, said side rib of each panel being of reduced dimensions at the end thereof adjacent said upper edge and said last-mentioned end having a spacing from said upper edge which is less than the width of said transverse rib, and the other end of said side rib as well as the ends of the transverse rib and the ends of the said up-turned edges of said panel, being in part, cut away to permit fitting contiguous panels together with an overlap at the corners, and contiguous said panels being so mounted, said mounting means comprising supports secured to and projecting from said walls at intervals corresponding to the spacing of certain said ribs, said supports extending into the grooves formed by the inner faces of said ribs, and means securing said supports to said ribs thereat.

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