March 9, 1937. R. L. HOHL 2,073,277

GLASS PANEL BUILDING CONSTRUCTION

Original Filed Feb. 14, 1934

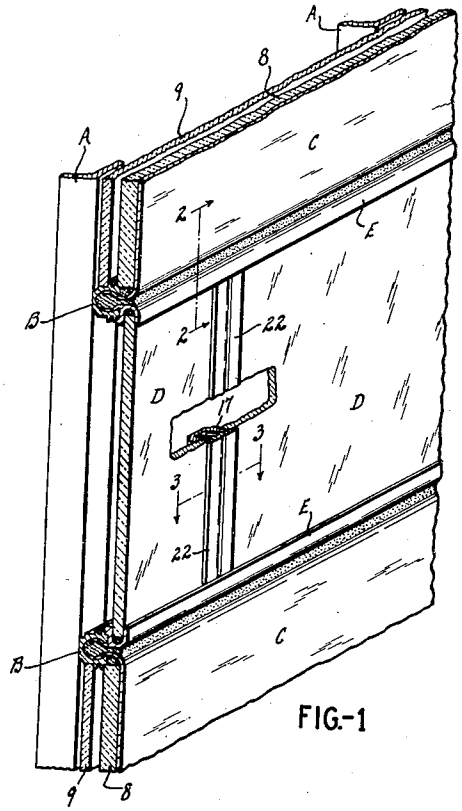


FIG.-1

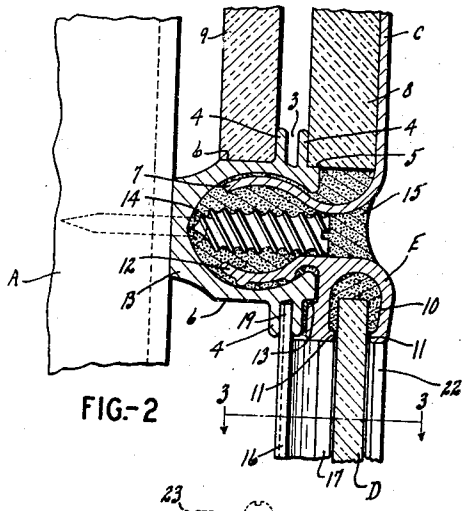


FIG.-2

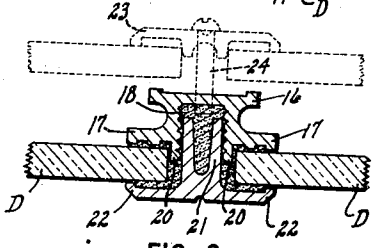


FIG.-3

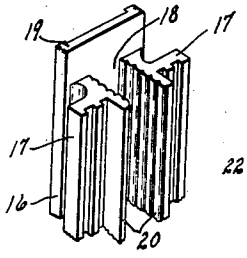


FIG.-4

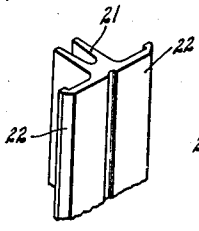


FIG.-5

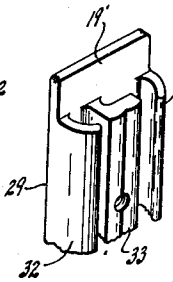


FIG.-8

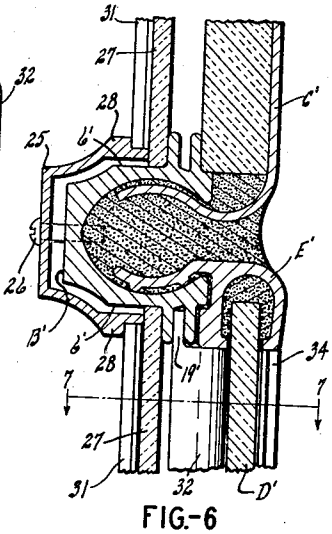


FIG.-6

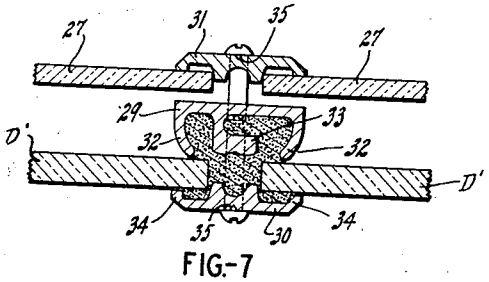


FIG.-7

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GLASS PANEL BUILDING CONSTRUCTION

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Renewed January 22, 1937

18 Claims. (Cl. 72—24)

This invention relates to building structures, and is particularly adapted to building walls either exterior or interior. More particularly, the invention relates to such structures of the type generally known as metallic as distinguished from those employing as their principal materials wood, masonry, plaster and the like, although the structure contemplated is not necessarily wholly metallic, as will appear.

The objects of the invention are generally to improve the structure disclosed in the copending applications, Serial No. 655,224 filed February 4, 1933 jointly by Monroe W. Copper, Jr., and me now Patent No. 1,973,795 of Sept. 18, 1934, and Serial No. 673,190 filed by me May 27, 1933, now Patent No. 2,005,994 of June 25, 1935.

Said copending applications disclose a manner and means for mounting panel units as a sheathing upon a wall base or frame. The present invention has for an object to provide that such panel units may be of glass, phenolithic composition, or other materials than solely of metal. To this end the invention includes as another object, the employment of runner and stretcher elements of extruded metal. Still another object is to provide that the panel units, as of glass or the like, may be undeformed at their edges, yet may be employed in an assembly with other panel units deformed at their edges as taught in said copending applications.

And other objects are to provide for improved securement of the panel units and sealing therebetween, and for the employment of two spaced sets of panel units arranged in parallel planes as where a wall structure of double sheathing thickness is desired.

The exact nature of this invention together with further objects and advantages thereof will be apparent from the follqwing description taken in connection with the accompanying drawing, in which Fig. 1 is an assembly view in perspective showing the general arrangement of the parts, some of which are shown as broken away; Fig. 2 is an enlarged sectional detail at one of the horizontal joints between panel units taken as in the transverse plane indicated by line 2—2, Fig. 1; Fig. 3 is a detail in horizontal section, taken at one of the vertical joints, as in the plane indicated by line 3—3, Figs. 1 and 2, and showing in broken lines, the manner of providing double wall thickness where desired; Figs. 4 and 5 are details in perspective of the backing and finishing members respectively of the stretcher employed in Figs. 1 to 3; Fig. 6 is a view generally similar to Fig. 2 but illustrating a modified arrangement at a horizontal joint; Fig. 7 is a detail in horizontal section through a vertical joint as in the plane of line 7—7, Fig. 6; and Fig. 8 is a perspective detail illustrating the type of stretcher backing member employed in the construction of Figs. 6 and 7.

With reference now to the drawing and first to Figs. 1 to 5 thereof, A, A, are risers indicated of angle iron and representing conventionally a wall base or frame. Represented generally at B is a runner, a plurality of which, in parallel spaced relation, are mounted on the wall base A—A, as indicated in Figs. 1 and 2. The manner of mounting the runners upon the wall base is immaterial, as is the exact nature of the base itself; but as indicated in Fig. 2, self-threading screws are employed for the purpose, these screws being disposed at intervals along the runners each passing through the base part of its runner and into the underlying part of the wall base or frame.

Each runner is generally of channel form with its base part flat as indicated, to provide that the runner shall be immovable upon the wall base when mounted. The inner faces of the side walls of the runner are concavely curved as indicated, being thus reentrant for a purpose which will appear. Extending oppositely from the sides of the runner are a pair of longitudinally extending ears. Each ear is deeply grooved as at 3 so that in fact each ear comprises a pair of spaced projections 4 which may, however, for the present purpose be considered collectively as a single grooved ear. The sides of the runner extend somewhat beyond the ears to provide shoulders 5 at each base and therebeyond, there being also immediately inside each ear an effective shoulder 6.

Considering now an adjacent pair of runners, it will be apparent that there may be mounted thereon extending therebetween, a panel unit generally designated C here indicated as of sheet metal, having at its opposite horizontally running edges lip parts 7 extending into the hollows of the runners with spring engagement against the near inner sides thereof, and a nonmetallic panel unit backing 8, as for heat and sound insulation, may seat in the runner shoulder 5. Also, if further insulating properties be desired in the wall, another non-metallic panel unit may be positioned as indicated at 9 between the two runners, seating in their shoulders at 6 and secured as by means to be later described or in any other convenient manner.

Means are provided whereby panel units of glass or the like as indicated at D, having unde-

formed edges along the runners, may be mounted upon pairs of the latter. For this purpose a clip generally indicated at E is provided, preferably of uniform section throughout its length. The clip includes a mounting part recessed as at 10 to receive the edge of the panel unit D, with clearance thereabout to include the plastic sealing indicated, with lips 11 which may bear upon the faces of the panel unit D to locate the plane of the latter and to retain the sealing material, which latter may be inserted into the recess 10 in plastic condition before assembly of the clip with its panel unit.

The clip E has a lip part 12 adapted to enter the hollow of the panel runner B, which lip part is shaped to conform with the reentrant characteristic of the adjacent runner wall, that is to say, the corresponding lip and runner wall faces are shaped so that the reentrant characteristic of the latter is utilized to maintain the lip of the clip within the runner as indicated, Fig. 2. The lip 12 may have the beads indicated for the purpose.

The clip is provided with a shoulder as at 13 engageable with the near shoulder 5 of the runner to maintain the clip against substantial displacement from the relation indicated in Fig. 2, in the direction of the plane of the panel D; the shoulders 5 and 13 being so proportioned and arranged, however, to permit insertion of a pair of clips E into the corresponding pair of runners B after mounting of the clips upon the opposite edges of a panel unit D. It will be quite apparent that by the use of a pair of clips E mounted as molding beads or ferrules along the opposite horizontal edges of a panel unit D, the latter may be mounted upon a pair of adjacent runners B, extending therebetween, by interengagement of the lip parts 12 of the clips E generally similar to that of engagement of the lips 7 of a metallic panel unit C.

A plurality of runners B being suitably mounted in parallel spaced relation, the wall facing of panel units of either type C or D may be applied thereto without the use of tools, each panel unit lying generally between an adjacent pair of runners B and being secured to the latter along its horizontal edges.

Simple means are provided for positively maintaining such assembled relation between panel units and runners. Such means may be in the form of a plug or self-threading screw 14, so pointed and of such diameter that it may be inserted into the hollow of a runner B after the panel units have been assembled upon the latter, first acting as a wedge to spread the lip parts of the panel units toward engagement with the channel sides of the runner, and thereafter cutting threads in the panel unit parts between which it bears; so that the screw will be self-maintaining in position. The length of the screw plug 14 is such that when bottomed in the runner, its head will lie beneath the general plane of the wall surface. Such plugs 14 may be inserted at intervals along the runners to insure permanence of the assembly.

Sealing means 15 in plastic form may thereafter be inserted into the hollows of the runners filling the cavities thereof to effect a seal along the horizontal joints between panel units, and concealing the plugs 14.

Stretcher means are provided for finishing and sealing the vertical joints between adjacent pairs of panel units. At each such joint a stretcher is provided comprising a pair of members including a backing member as indicated in Fig. 4, and a finishing member as indicated in Fig. 5.

The backing member includes a base part 16, a pair of oppositely extending flanges 17 somewhat spaced from the base part, with an intermediate part recessed as at 18. The base part 16 of the backing member extends at each end of the latter beyond the other parts thereof to provide a tongue 19 at each end as indicated in Fig. 4. The parts are so proportioned and arranged that the tongues 19 of a stretcher backing member may enter the near grooves 3 of an adjacent pair of runners B, whereby the backing member may be mounted thereon as indicated in Fig. 2. Also, the arrangement is such that when so mounted the outer faces of the flanges 17 will bear gainst the inner faces of the corresponding pair of panel units D as indicated in Fig. 3. The central part of the backing member preferably extends as at 20, between the edges of the panel units D to establish their spaced relation. Also, the arrangement is such that the flange parts 17 of the backing member may clear the clip E, which latter therefore may extend uninterrupted horizontally past a stretcher.

The finishing member of the stretcher comprises a stem part 21 and a pair of flange parts 22. The stem part 21 is adapted to extend within the recess 18 of the backing member and is split as indicated in Figs. 3 and 5 and so proportioned as to be self-expansible within the recess 18, to yieldably engage the sides of the latter.

The flange parts 22 of the finishing member are arranged to lie opposite the flange parts 17 of the backing member so that the corresponding edge parts of the adjacent pair of panel units may be clamped between the flange parts of the stretcher simply by inserting the finishing member into the backing member. Preferably plastic sealing material may be added before this operation, the parts being so proportioned as to provide a clearance for such plastic sealing means about the edges of the panel units as indicated in Fig. 3. The depth of the interengageable parts of the stretcher members is such that various thicknesses of panel unit may be accommodated as will be apparent from inspection of Fig. 3.

By the arrangement described, a stretcher may be provided between runners, wherever a vertical joint between panel units occurs, the stretcher backing member being mountable at any point along the runners and being thereafter slidable for horizontal adjustment therealong.

Where a wall section of double thickness is desired, as where extra panel units, as shown at 9, Fig. 2, are desired to be employed, an extra member 23 may be secured to the backing member of the stretcher as by a screw 24, the member 23 having flanges and a central part to position the adjacent members 9, all as indicated in broken lines, Fig. 3.

The modification of Figs. 6, 7 and 8 will be observed as comprising an arrangement generally similar to that above described, with exceptions to be noted. The runner B', metallic panel unit C', non-metallic panel unit D' and its clip E', are all identical as in the foregoing, and their manner of assembly and relation in the assembly is as before, the horizontal joints between panel units being unchanged.

A finishing cap member 25 is shown secured to the runner B' as by occasional screws 26, extends along runner parts otherwise exposed at the

rear face of the wall to improve appearance, the cap 25 being finished as desired. The cap extends at its sides to provide flanges 26 for bearing second or inner panel units 27 against the shoulders 6' of the runner, whereby each panel unit 27 may be mounted between a pair of runners.

As to the vertical joints, stretchers are provided, each stretcher comprising a backing member 29, a finishing member 30 and another similar finishing member 31 which may be employed in case the extra panel units 27 are employed. The backing member 29 as illustrated in Figs. 7 and 8, has tongue parts 19' performing the same mounting functions as in the backing member illustrated in Fig. 4. The member 29 has a pair of flange members 32 adapted to bear against the inner faces of the panel units D' where the latter have undeformed edges as illustrated. The flanges 32 provide therebetween a cavity for receiving sealing means, which cavity also may be employed for receiving the inturned vertically extending edge parts of metallic panel units where the latter are to be employed, as illustrated in said copending application, Serial No. 673,190 now Patent No. 2,005,994. The backing member 29 includes a central longitudinally extending tongue part 33 with offset base part within the main cavity of the backing member, to overhang a longitudinal hollow and adapted to receive screws as indicated, for the purpose of mounting the finishing member 30 of the stretcher upon the runner member as indicated in Fig. 7. The finishing member 30 has flanges 34 adapted when so mounted to bear the panel units against the flanges 32 of the backing member, and has a central part adapted to extend between the panel units for their endwise spacing.

The finishing member 31 where employed, is mounted upon the backing member by screws turned into the base part of the latter, and may be identical with the finishing member 30 as illustrated in Fig. 7. The function of the finishing member 31 is to secure and finish the extra panel units 27 at their vertical joints.

In practice the screw-receiving openings in the several members of the stretchers may be made in the field, only where necessary, as by drilling to receive the screws which may themselves be self-threading. That the holes may be always properly centered longitudinally of the stretchers, grooves are provided as at 35 longitudinally extending along the parts to receive and position the point of the drill.

What I claim is:

1. Wall structure of the class described comprising a runner having associated supporting means and arranged to provide a channel opening from said supporting means with reentrant sides, a clip having a part recessed to receive an edge part of a panel unit and position the latter clear of said runner, said clip having a lip part extending into said channel to engage a side thereof, and means for maintaining said lip in engagement with its channel side, whereby to secure said panel unit edge.

2. Wall structure of the class described comprising a runner having associated supporting means and arranged to provide a channel opening from said supporting means with reentrant sides, a clip having a part recessed to receive an edge part of a panel unit, said clip having a lip part extending into said channel to engage a side thereof, and sealing means arranged in the hollow of said channel to maintain said lip against removal from its channel side.

3. Wall structure of the class described comprising a runner having associated supporting means and arranged to provide a channel opening from said supporting means with reentrant sides, a clip having a part recessed to receive an edge part of a panel unit, said clip having a lip part extending into said channel to engage a side thereof, and means arranged in the hollow of said channel for positively maintaining said lip against removal from its channel side, whereby to positively secure said panel unit edge relative to said runner.

4. Wall structure of the class described comprising a runner having associated supporting means and arranged to provide a channel opening from said supporting means with reentrant sides, a clip having a part recessed to receive an edge part of a panel unit, said clip having a lip part extending into said channel to engage a side thereof, a second panel unit having an associated lip extending into said channel to engage the opposite side thereof, and means arranged in the hollow of said channel between said lips to maintain said lips against removal from their channel sides and to provide a seal effective between said panel units.

5. Wall structure of the class described comprising a runner having associated supporting means and arranged to provide a channel opening from said supporting means with reentrant sides, a clip having a part recessed to receive an edge part of a panel unit, said clip having a lip part extending into said channel to engage a side thereof, a second panel unit having an associated lip extending into said channel to engage the opposite side thereof, and plug means disposed between said lips to positively maintain their spaced relation engaging their channel sides.

6. Wall structure of the class described comprising a runner having associated supporting means and arranged to provide a channel opening from said supporting means with reentrant sides, a clip having a part recessed to receive an edge part of a panel unit, said clip having a lip part extending into said channel to engage a side thereof, a second panel unit having an associated lip extending into said channel to engage the opposite side thereof, and plug means disposed between said lips to positively maintain their spaced relation engaging their channel sides, said plug means comprising a screw arranged for self-threading relation against said lips.

7. Wall structure of the class described comprising a runner having associated supporting means and arranged to provide a channel opening from said supporting means with reentrant sides, a clip having a part recessed to receive an edge part of a panel unit, said clip having a lip part extending into said channel to engage a side thereof, a second panel unit having an associated lip extending into said channel to engage the opposite side thereof, and plug means disposed between said lips to positively maintain their spaced relation engaging their channel sides, said plug means comprising a screw arranged for self-threading relation against said lips, adapted to bottom in said channel, and to be concealed by sealing means between said lips.

8. Wall structure of the class described comprising a pair of runners having associated supporting means and arranged thereon in parallel

spaced relation, each runner having a channel opening from said supporting means with reentrant sides, for each runner a clip having a part recessed to receive the corresponding edge part of a panel unit, each clip having a lip part extending into its channel to engage the near side thereof, and means for maintaining said lips in engagement with their channel sides whereby said panel unit may be supported generally between said runners, at its edges adjacent the latter.

9. Wall structure of the class described comprising a runner having associated supporting means and arranged to provide a channel opening from said supporting means with reentrant sides, a clip having a part recessed to receive an edge part of a panel unit, said clip having a lip part extending into said channel to engage a side thereof, said runner and clip having parts interengageable to limit motion of said clip from said panel unit in the plane of the latter.

10. A clip for the purpose described having a part recessed to receive an edge part of a panel unit with clearance thereabout for sealing means effective between clip and panel unit, with edges adapted to engage the opposite faces of the panel unit, said clip having a lip part adapted for cooperation with a supporting runner.

11. Wall structure of the class described, comprising a stretcher including cooperative backing and finishing members having opposed laterally extending flange parts adapted to receive therebetween adjacent edge parts of a pair of adjacent panel units, and having means interengageable for mounting said finishing member on said backing member, said backing member having a base part extending longitudinally beyond said finishing member to provide a tongue for mounting the backing member upon runner means.

12. Wall structure of the class described, comprising a stretcher including cooperative backing and finishing members having opposed laterally extending flange parts adapted to receive therebetween adjacent edge parts of a pair of adjacent panel units, and having means interengageable for mounting said finishing member on said backing member, said backing member having a base part extending longitudinally beyond its said flange parts to provide a tongue for mounting the backing member upon runner means.

13. Wall structure of the class described comprising a stretcher including a backing member having opposed flange parts adapted to bear against adjacent edge parts of a pair of adjacent panel units, said backing member having a base part longitudinally extending for mounting said backing member upon runner means, and a pair of finishing members each having flanges opposite said backing member flanges whereby the adjacent edge parts of two pairs of adjacent panel units disposed in parallel relation, may be mounted on said backing member.

14. Wall structure of the class described, comprising a stretcher including cooperative backing and finishing members having opposed laterally extending flange parts adapted to receive therebetween adjacent edge parts of a pair of adjacent panel units, and having means interengageable for mounting said finishing member on said backing member, said backing member having a base part, and a second finishing member secured with said base part to clamp thereagainst a second pair of panel units disposed parallel to said first pair thereof.

15. A runner for wall structure of the class described, generally of channel form, with reentrant inner side walls, and having oppositely disposed ears running longitudinally at each side, each ear being grooved and thereby comprising a pair of spaced projections adapted to receive therebetween projecting tongue parts of stretchers, whereby when a plurality of such runners are disposed in parallel spaced relation in a wall structure, stretchers may be mounted upon the runners, each stretcher extending between an adjacent pair of runners, slidable therealong.

16. A runner for wall structure of the class described, generally of channel form, with reentrant inner side walls, and having oppositely disposed ears running longitudinally at each side, each ear being grooved and thereby comprising a pair of spaced projections adapted to receive therebetween projecting tongue parts of stretchers, said ears providing shoulders thereadjacent, adapted to position panel members in the wall structure.

17. In a stretcher for the purpose described, of extruded metal and adapted to receive mounting perforations at oddly spaced intervals therealong, a member having a longitudinally extending groove adapted to center the leading point of a perforating tool on the stretcher, said member having a hollow opposite said groove, decreasing the section to be penetrated by said tool.

18. A runner generally of channel form, with reentrant side walls having longitudinally extending ears oppositely projecting therefrom, means extending within the cavity of said runner for mounting the adjacent edge parts of an adjacent pair of panel members, a finishing cap member generally of channel form proportioned and arranged to embrace the intermediate parts of said runner, with longitudinally extending extremities adjacent said runner ears, and means interconnecting the intermediate parts of said runner and cap, to clamp the adjacent edge parts of a second adjacent pair of panel units, each between one of said ears and the corresponding extremity of said cap, said second pair of panel units being disposed in parallel relation with said first pair.

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