

Aug. 30, 1938.

J. A. BOHNSACK

2,128,797

WALL STRUCTURE

Filed Aug. 21, 1934

4 Sheets-Sheet 1

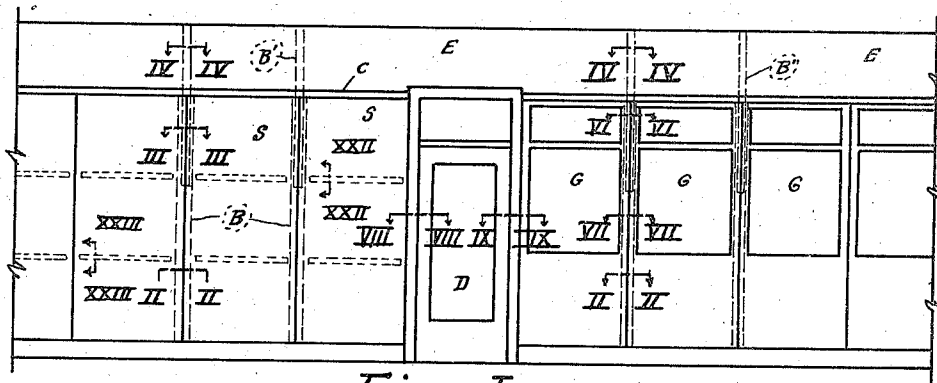


Fig I

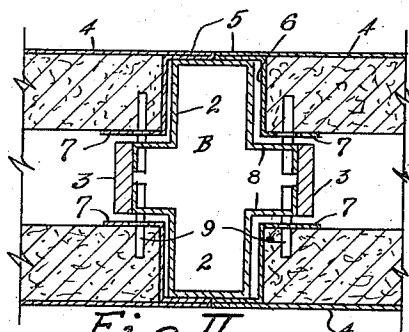


Fig II

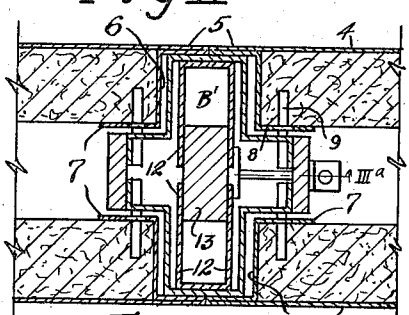


Fig III

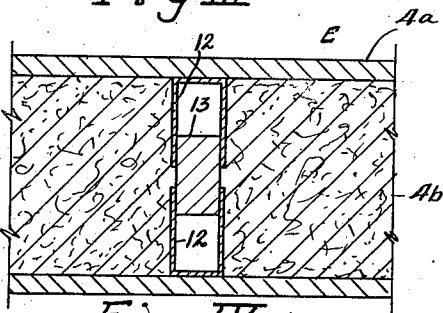


Fig IV

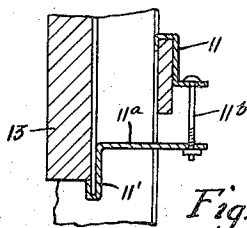


Fig IIIa

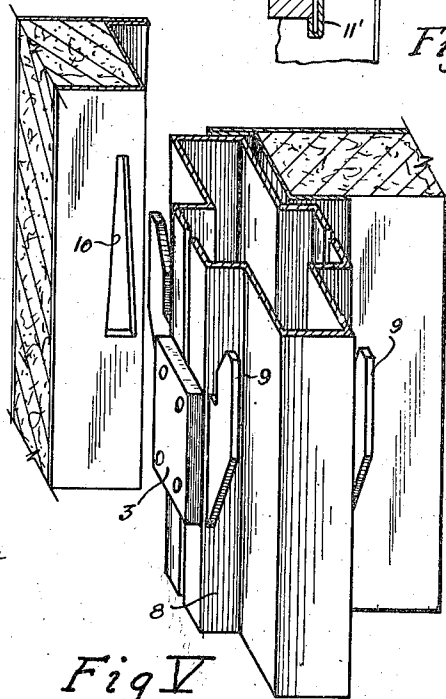


Fig V

BY

INVENTOR
John A. Bohnsack
Day, Oberlin & Day
ATTORNEYS

Aug. 30, 1938.

J. A. BOHNSACK

2,128,797

WALL STRUCTURE

Filed Aug. 21, 1934.

4 Sheets-Sheet 2

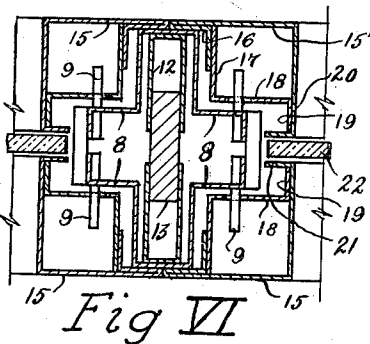


Fig VI

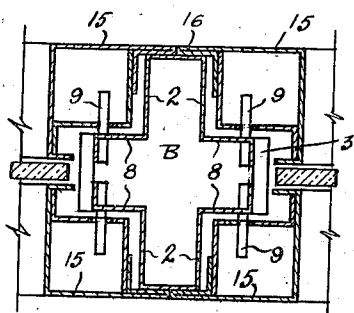


Fig VII

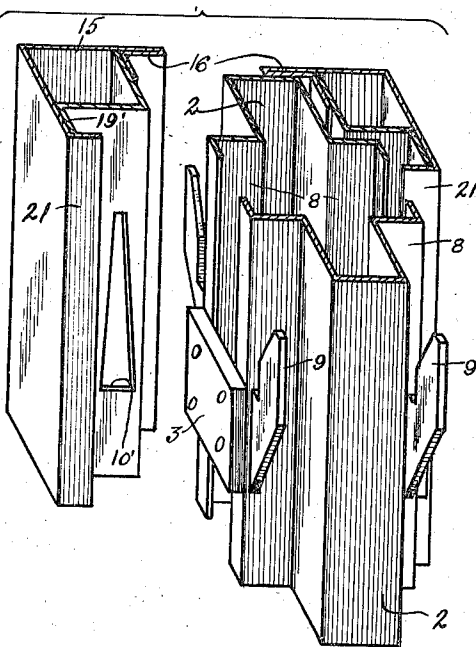


Fig IX

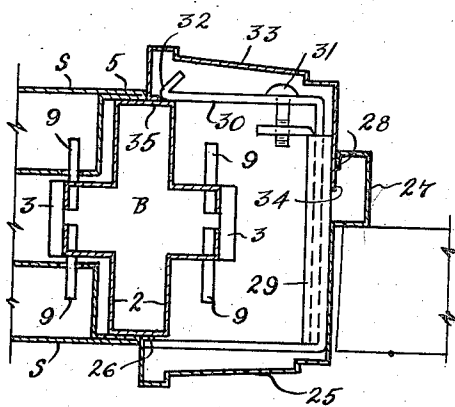


Fig VIII

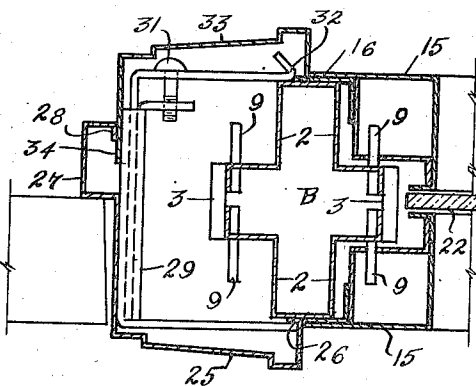


Fig IX

BY

INVENTOR
JOHN A. BOHNSACK

Ray O. Berlin & Day
ATTORNEYS

Aug. 30, 1938.

J. A. BOHNSACK

2,128,797

WALL STRUCTURE

Filed Aug. 21, 1934

4 Sheets-Sheet 3

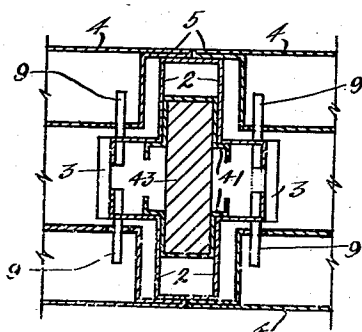
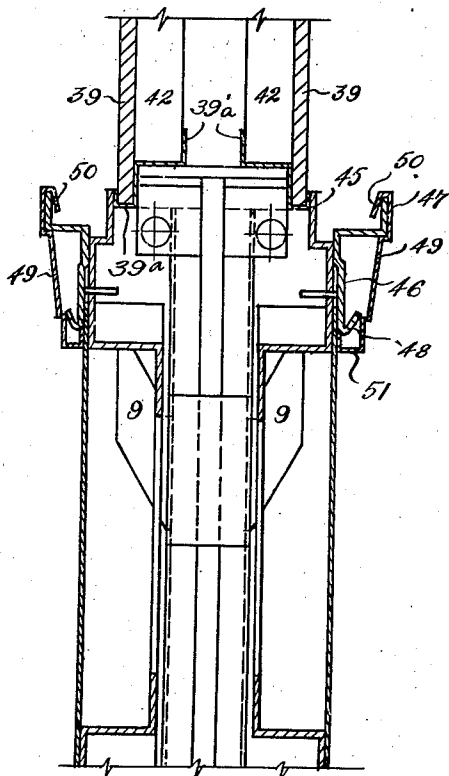
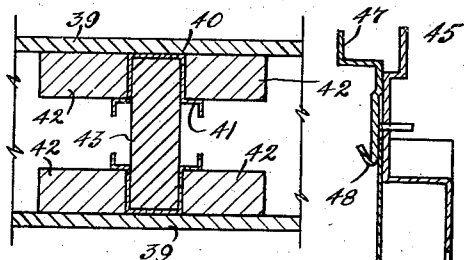
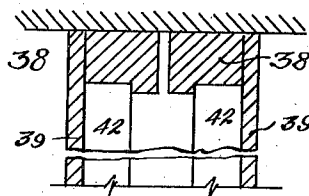
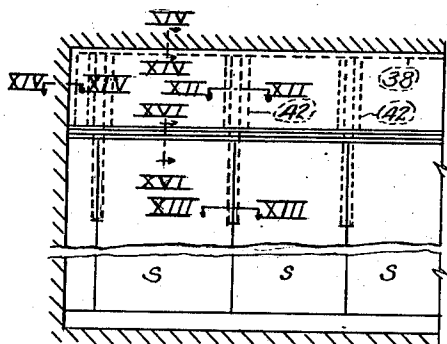


Fig XIV

Fig XIV

INVENTOR

BY *John A. Bohnsack*
Gray, O'Brien & Gray
ATTORNEYS.

Day, Oberlin & Day
ATTORNEYS.

ATTORNEYS

Aug. 30, 1938.

J. A. BOHNSACK

2,128,797

WALL STRUCTURE

Filed Aug. 21, 1934

4 Sheets-Sheet 4

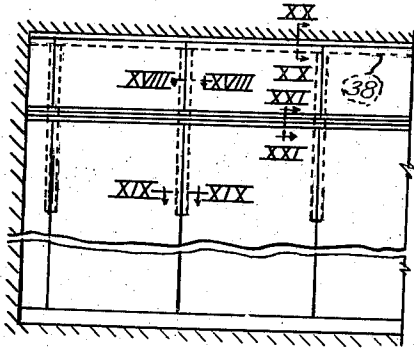


Fig. XVII

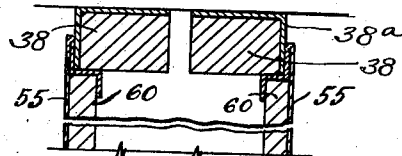


Fig. XX

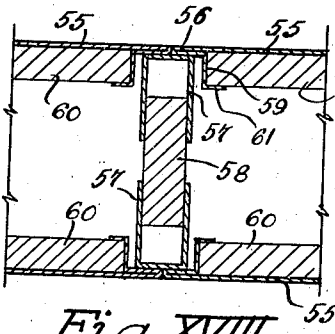


Fig. XVIII

Fig. XXII

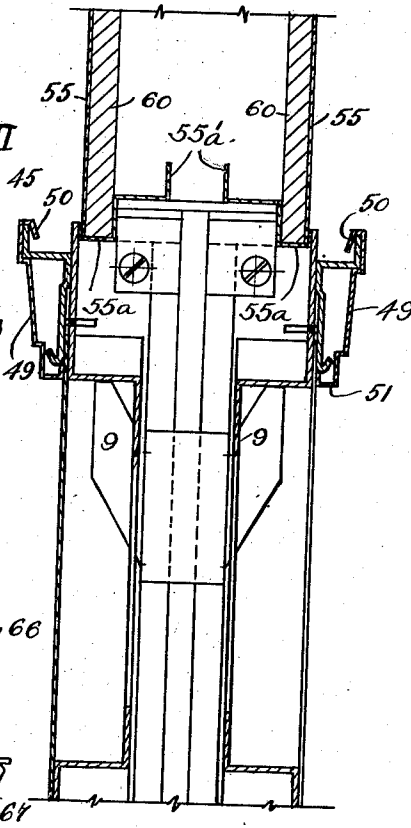
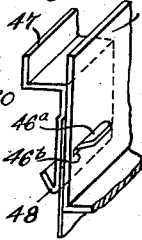


Fig. XXI

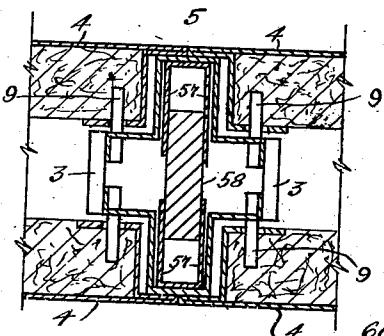


Fig. XIX

Fig. XXIII

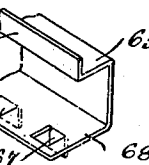


Fig. XXIV

BY

INVENTOR
John A. Bohnsack
Day, O'Neil & Day
ATTORNEYS

UNITED STATES PATENT OFFICE

2,128,797

WALL STRUCTURE

John A. Bohnsack, Cleveland Heights, Ohio, assignor to The E. F. Hauserman Company, Cleveland, Ohio, a corporation of Ohio

Application August 21, 1934, Serial No. 740,798

9 Claims. (Cl. 189—34)

This invention, relating as indicated, to wall structures, has more particular reference to partition construction involving metallic elements capable of being easily assembled and disassembled in new or old buildings; and it is among the objects of the invention to provide a construction which is firm and durable and yet light and practicably sound-proof. A further object is the provision of means affording section support without introducing the objectionably obtrusive effect of posts. Another object is the provision of a dual-face partition and means for assembling and disassembling the respective faces independently, and if desired, arranging different forms of finish on the opposite faces. Other objects and advantages will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, comprises the features hereinafter fully described, and particularly pointed out in the claims, the following description and the annexed drawings setting forth in detail certain illustrative embodiments of the invention, these being indicative however, of but a few of the various ways in which the principle of the invention may be employed.

In said annexed drawings—

Fig. I is a front elevational view of a partition embodying the invention; Fig. II is an enlarged fragmentary section taken on a plane indicated substantially by line II—II, Fig. I; Figs. III and IV are similar sections taken on planes indicated substantially by lines III—III and IV—IV, Fig. I; Fig. IIIa is a vertical section taken on a plane indicated substantially by line IIIa—IIIa, Fig. III; Fig. V is a fragmentary perspective view, partly disassembled, showing the relationship of supports and panel elements; Figs. VI, VII, VIII and IX are sections taken respectively on planes indicated substantially by lines VI—VI, VII—VII, VIII—VIII and IX—IX, Fig. I; Fig. X is a perspective view of structure corresponding to Fig. VII, in a partly assembled condition; Fig. XI is a front elevational view of a modification; Figs. XII, XIII, XIV and XVI are respective sections taken on planes indicated substantially by lines XII—XII, XIII—XIII, XIV—XIV and XVI—XVI, Fig. XI; Fig. XV is a fragmentary elevational detail of the upper end of the panel of Fig. XVI, without the finish member; Fig. XVII is an elevational view similar to Fig. XI, showing a further modification; Figs. XVIII, XIX, XX and XXI are sections respectively taken on lines XVIII—XVIII, XIX—XIX, XX—XX and XXI—XXI, Fig. XVII; Fig. XXII is a fragmentary perspective view of

the corresponding structure in Fig. XXI; Fig. XXIII is a fragmentary vertical section taken on a plane indicated substantially by the line XXIII—XXIII, Fig. I; and Fig. XXIV is a fragmentary perspective view of a detail of the same.

Referring more particularly to the drawings, there is shown in Fig. I a wall or partition having panel sections S, of uniform or non-glazed character, a door D, and further panel sections G including glazed portions, extension panels E filling the portion above the aforesaid panel sections. In its general aspects, the structure comprises supports B, to which the panel elements of dual character, are secured, concealing or covering the supports and being assemblable independently. The supports are preferably formed in a manner to interrupt transmission of sound vibration from one face of the wall to the other, and to this end they may be made up of metallic channels 2 (see Figs. II and V) secured together by spacing-plates 3. If the latter be of material which is of sound-insulative character, the maximum sound deadening result is attained. Such materials may be for instance vulcanized fibre, pressed composition, etc. The plates 3 may be secured to the channels 2 by any suitable means, as by screws, bolts or rivets, etc. The supports or studs B as thus made up of spaced-apart channels constitute anchorage for the panel elements, without undue sound conduction. By having plates 3 in transverse dimensions of graduated sizes, as 3, 3½, 4, etc. inches, a wall can be adjusted to whatever thickness is desired in each case.

The panel elements or half panels for the respective faces of the wall or partition are between the spaced supports or studs B, and desirably may be formed of sheet metal, or at least sheet metal in sufficient extent to provide such attaching points as desired. The sections may have a face sheet of metal 4, extending with a free flange 5 at each panel-edge adjacent the support, the flanges being of a width to cooperate and cover or conceal the support when in assembled position, the seam or meeting line of the flanges being inconspicuous where the flanges abut together on the front of the support. Preferably, the flanges 5 are formed by refolding the sheet metal, thereby providing a spacing-portion 6 of desired width, and from such portion the metal sheet may be bent to form an inner facing 7 which may be of sufficient extent to constitute the desired amount of interior boundary of such section, the space between being filled as preferred with a filling of mineral board or the like.

Projecting from lateral flanges or offsets 8 of the support channels 2 are hook-tongues 9, with which the panel sections may engage, by means of slots 10 formed therein, the tongues being directed upwardly or downwardly as most convenient, it being sufficient that relative longitudinal movement be attained for assembly or disassembly. Telescopic or extension supports B' may be provided within the supports B, and desirably may be made up of metallic channels 12, again preferably held in spaced relation by means of a sound-retarding-spacer 13 which may be of any suitable sound-deadening material, as fibrous, compressed composition, etc., attachment being by suitable means, as screws, bolts, rivets, etc.

With the studs or supports B set in place in spaced series, and fastened to the floor by suitable means, such as floor brackets or the like, the panel sections may then be assembled thereto by hooking the slots 10 over the hook-tongues 9, each half panel being independently set in its position. The extension supports B' being adjusted, and suitably secured to the ceiling, the extension panels E are then positioned. These may comprise mineral board 4a or like material suitably secured to the channels 12, as by screws, etc. In some cases the air space between is sufficient insulation. Where further insulation is preferred, a packing 4b of mineral wool or the like may be provided. If the supports B and B' are closely proportioned, there is frictional engagement tending to hold the extension posts, however direct fastening means may be applied or some suitable take-up, as for instance a hook bracket 11 connected to a tie plate of support B and a bracket 11a engaging the extension support B', with a takeup bolt 11b uniting the bracket members. The upper ends of the panel sections S and G may be left with plain margins or preferably finished by superposition of a simple molding C which may be secured by being snapped on over spaced projections on the panel members as referred to more particularly hereinafter.

The glazed panels G, as shown more in detail in Figs. VI and VII, similarly have supports or studs B, which may be of construction as described foregoing, and the glass may be held by modified panel framing members formed of sheet metal 15 provided with a support-engaging flange 16, as for instance by re-folding, the edge therefrom thence extending inwardly or normal to the face, such as to receive an inner member 17 of desired width, such member thence being bent to a tongue-engaging portion 18, slotted as at 10', and terminating in a further in-turned margin 19 which engages with the corresponding portion 20 of the face-framing member 15. A returned edge 21 is desirably provided on the portion 20 for engagement against the glass 22. The frame-facing members 15 thus in effect constitute easily removable holding means for the glass, either or both sides being independently placeable or removable at will, by hooking the slots 10' over the tongues 9 and setting the framing-members by relative longitudinal movement on the supports.

The door frame, as shown in Figs. VIII and IX, is of compensative thickness, being formed of a sheet metal member 25 constituting one face and having an in-turned flange 26 to engage against the support B, while its other margin is finished as a stop 27 with a return flange 28. The member 25 is secured to an internal holding element 29, which carries a coating clamp-member

30 telescopingly associated therewith, such that the members 29 and 30 may be clamped upon the support B, and be tightened in place, as by clamp-screws 31. The free end of the clamping-member 30 has a slightly rounded bend 32. In assembly, the facing member 33 of the door frame can engage by its margin 34 between the stop-portion 27 and the holding member 29. The facing-member 33 has its other margin rebent with a flange 35 to resiliently snap over the rounded end 32 of the clamp-member 30 and thereby complete the door frame assembly. As shown in Fig. VIII, the adjacent wall panels S thence abut against the adjacent surfaces of the door framing-members, thereby forming a close joint along the supports B. The glazed panels as shown in Fig. IX, are likewise abutted against the door framing-elements, the flanges 16 of the panel framing-elements forming a close joint against the door framing-members when hooked into position on the tongues 9 against the glass.

As a further refinement of the extension sections or overhead panel sections, as shown in Figs. XII, XIV and XVI, sound-deadening strips 38 may be secured along the ceiling, and the panel-facing members 39 of mineral board or like material may be engaged thereagainst, and may be nail or screw-fastened, extension supports in this case desirably being formed of channels 40 to which the members 39 may be secured, such as by screws, etc. and having flanges 41 to engage sound-deadening strips 42. The latter may be fastened to members 39 by nails or screws. The channel members 40, again, are spaced apart by a sound-deadening strip 43, being secured thereto by suitable means, as screws, bolts, rivets, etc. The extension facings 39 are in turn held in position at their lower margins by engagement behind projections 45 on the upper edge of the main panel sections S. Desirably, the facings 39 are provided with sheet metal channels 39a which extend inwardly with an offset extension flange 39a' for engaging the elements 42. Spaced holding-clips 46 are secured to the panel sections, and provided above with upstanding lugs 47 and below with rounded ends 48, whereby a finish-mold member 49 may be hooked by its flanged margin 50 over the lugs 47 and be snapped into position with its lower flange 51 engaging over the rounded ends 48. Preferably as shown more in detail in Fig. XXII, the clips 46 are removably secured by having outstanding tongues 46a engageable in slots 46b of the panels by relative movement.

Where preferred, the extension panels or upper panels may be formed of a sheet metal facing 55 (see Fig. XVIII), having again a flange 56 to engage against the extension post, which may consist of channels 57 and the spacer member 58. The flanges 56 are desirably formed by re-folding, the metal sheet thence being bent inwardly or normal, as a portion 59 of width to correspond to a backing 60 of material such as pressed board or the like, the sheet metal member having its margin further provided with a retaining flange 61 to engage the backing member. At the lower edge, the facing 55 engages the outer flange and web of a channel member 55a, which is formed to receive the element 60, the inner flange of this channel being provided with an offset extension flange 55a', adapted to engage elements such as the strips 42 shown in Fig. XVI. Again, as shown in Fig. XX, sound-deadening strips 38 are secured along the ceiling, against which the panel sections may be positioned and fastened, as by screws. If desired, the strips 38 may be secured in place

by brackets 38a. The extension panels may be secured to the strips 38, as by nailing or screw-fastening the upper edges of the facings 55 to these strips, as described above with reference to the panel-facing members 39.

Generally, the panel sections are advisably provided with horizontal reinforcement, and this may take the form of channels 65 (see Figs. XIII and XXIV) secured to the facing plate of the panel section and positioned internally thereof. Such reinforcement elements further are desirably provided with flanges for engaging the backing or filling elements, and these flanges may be of simple marginal flange character, as at 66. Tongues 67 may also be stamped into the main flange portion 68, at spaced intervals, thereby affording suitable engagement as bent against the backing.

As seen, a partition of hollow character or with an air space is thus had, and wiring and pipes may be particularly conveniently taken care of thus at points where they happen to occur. Wiring may also be simply carried up and around in the hollow of the door framing, as desired. Again, wiring may be laid along in the cornice-recess back of the mold members, as in Figs. XVI and XXI. Altogether, a partition of attractive appearance and particularly favorable form for easy assembly and disassembly is had, and providing a maximum of sound-proofness with simplicity and lightness of construction.

Other modes of applying the principle of the invention may be employed, change being made as regards the details described, provided the features stated in any of the following claims, or the equivalent of such, be employed.

I therefore particularly point out and distinctly claim as my invention:

1. In partition construction, a series of parallel studs, hook tongues on said studs, and a series of panels having flanges covering said studs and other flanges spaced from and parallel with said first-named flanges and provided with slots engaging said hook tongues.

2. In partition construction, a series of studs formed of channels with their web portions outwardly and their flange portions having lateral flanges, panel members having vertical edges flat folded and thence folded normally, the adjacent edges of said panel members abutting one another with the flat folded portions overlying the studs, and hook tongues on the lateral flanges of said studs for engaging the panel members.

3. In partition construction, a series of studs

each formed of channels with their web portions outwardly and their flange portions having lateral flanges, sound-insulating means connecting the lateral flanges of such channels, and panel members comprising metal sheets, said panel members being hung on opposite sides of the studs to the lateral flanges.

4. In partition construction, a series of studs each comprising two channels in aligned spaced opposition, such channels having lateral flanges, bridging means at spaced intervals uniting the flanges of said channels, panel members comprising metal sheets having margins to overlap the studs, and means for securing the panel members to the studs.

5. In partition construction, a sound insulating stud comprising two spaced-apart channels, sound insulating means connecting said channels with each other, said channels having their web portions directed outwardly and their flange portions provided with lateral flanges, and panel members engaging said web portions.

6. In partition construction, a series of studs each formed of channels with their web portions directed outwardly and their flange portions provided with lateral flanges, the flanges of one channel spaced from those of the other, means connecting the channels in each stud, panel members having vertical edges abutting and concealing the studs, and hook-means for securing the panel members to said lateral flanges.

7. In partition construction, a panel member comprising a metal sheet having vertical edges return flanged, and horizontal stiffening means therefor comprising a sheet metal channel secured thereto and provided with a free flange parallel to the web of said channel for retaining filler elements, and a flange normal to said web having tongues struck therefrom parallel to said first flange.

8. In partition construction, a stud formed of channels with their web portions outwardly and their flange portions having lateral flanges, sound insulating means connecting the lateral flanges of such channels.

9. In partition construction, supports each comprising spaced apart channel members, sound retarding means at spaced intervals connecting said channel members, panel members, and means for hooking said panel members on said studs by relative movement thereon.

JOHN A. BOHNSACK.