June 21, 1932. L. L. LEVENE 1,863,723

PARTITION WALL CONSTRUCTION

Filed Aug. 29, 1930 2 Sheets-Sheet 1

Fig. 1.

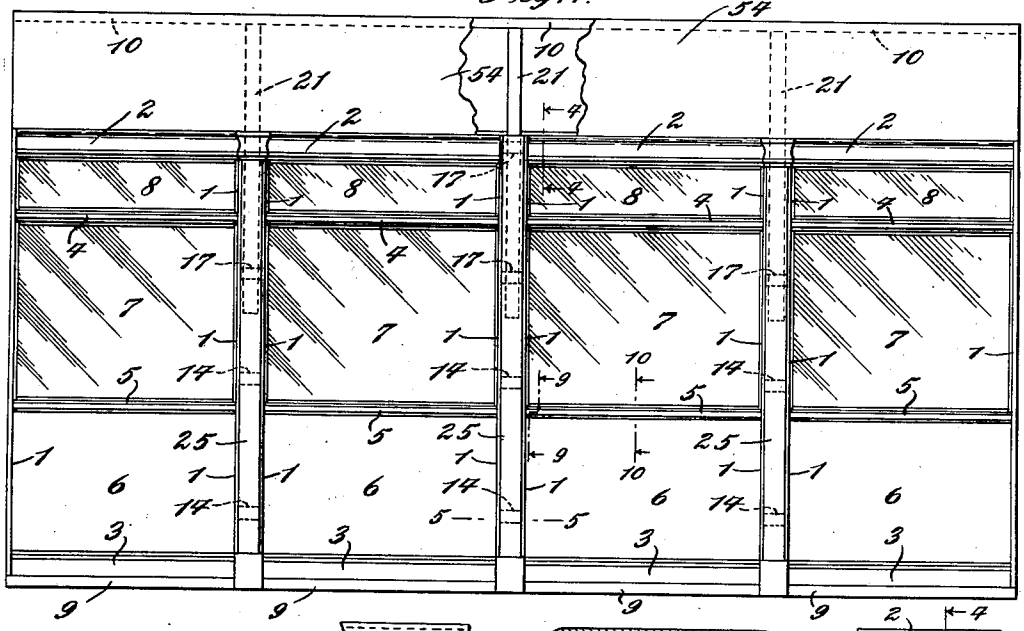


Fig. 2.

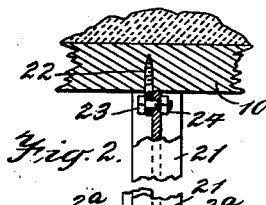


Fig. 2a

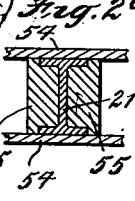


Fig. 3.

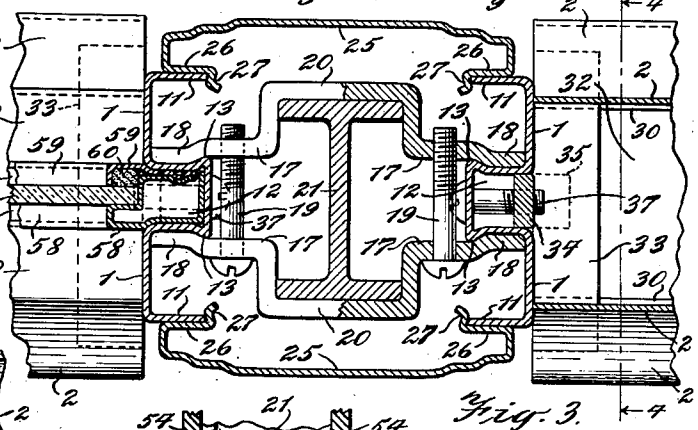


Fig. 4.

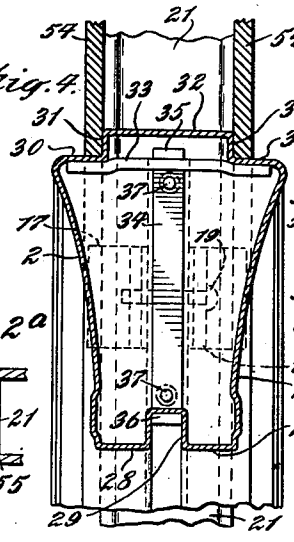
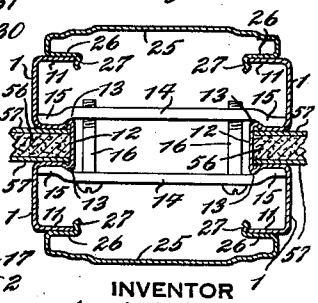


Fig. 5.



INVENTOR
Louis L. Levene
BY
Victor D. Borst
ATTORNEY

June 21, 1932. L. L. LEVENE 1,863,723

PARTITION WALL CONSTRUCTION

Filed Aug. 29, 1930 2 Sheets-Sheet 2

Fig. 6.

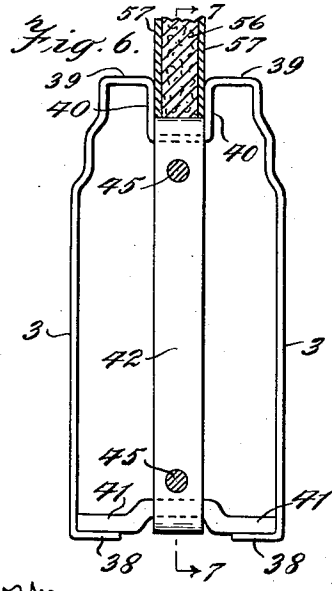


Fig. 7.

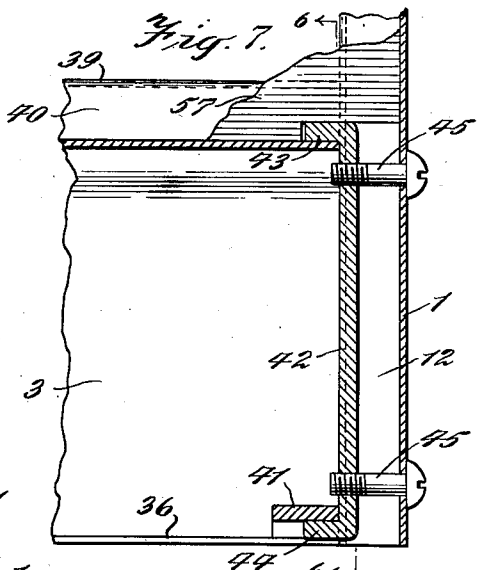


Fig. 9.

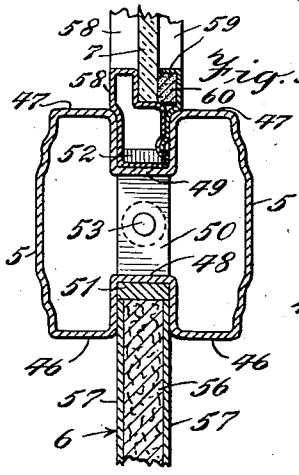


Fig. 8.

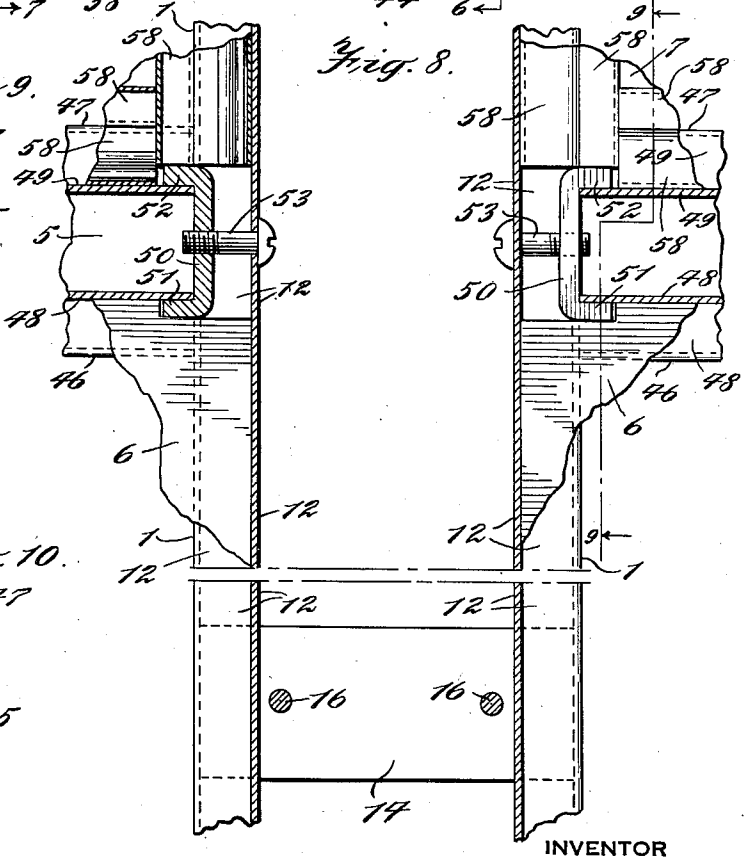
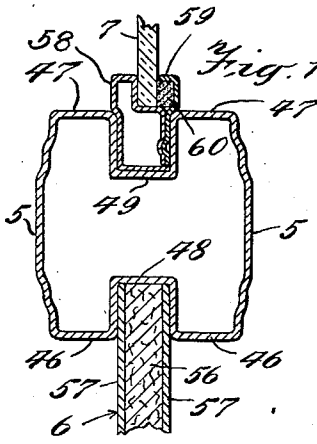


Fig. 10.



INVENTOR
Louis L. Levene
BY
Victor J. Evans
ATTORNEY

Patented June 21, 1932

1,863,723

# UNITED STATES PATENT OFFICE

LOUIS L. LEVENE, OF MERRICK, NEW YORK

## PARTITION WALL CONSTRUCTION

Application filed August 29, 1930. Serial No. 478,675.

This invention relates in general to the construction of partition walls of the type having separate or structurally independent wall sections which may be assembled together in the wall, or which may be removed therefrom as a unit. The invention relates more particularly to features of construction of the wall sections themselves, together with features relating to the assembling of these sections together to form the partition wall.

The feature disclosed, but not claimed herein, relating to the stiffening against yielding of such a partition wall, is disclosed and claimed in my copending application for patent, Serial No. 478,673, filed on even date herewith, for means for stiffening partition walls, while the feature disclosed but not claimed herein relating to the mounting of panels in the frames of the wall sections, is disclosed and claimed in my copending application for patent, Serial No. 478,674, filed on even date herewith, for a panel frame construction.

One object of this invention is to facilitate the assembly and disassembly of the wall sections relatively to each other in the wall, and similarly to facilitate the assembly or disassembly of the panel-holding frames of the wall sections themselves. Other objects of the invention are convenience of use, simplicity of construction, strength, rigidity, durability, and convenience and economy of maufacture. Other objects and advantages of the invention will hereinafter appear.

In carrying out the invention, the stiles of adjacent sections are directly secured together, these stiles of the adjacent sections in the consecutive series being spaced from one another, and these spaced stiles being firmly but detachably secured together by means of a vertical series of clamping devices, the stiles and these clamping devices being shaped to have an interlocking cooperating relation. The invention also includes features of construction of these clamping devices, and of the cooperating frame bars of the wall sections, including the stiles and the cross rails by which these stiles are detachably connected together. In this connection, as a feature of the invention, the cross rails are provided at their ends with clips which have a cooperating relation with these stiles and provide means for firmly but detachably securing the ends of the cross rails to the stiles. Another feature of the invention relates to the shaping of the top rail of the panel-holding frame in such manner that this rail will guide into place and form a backing stop for the lower edge of additional panels or filler members, which may extend upwardly from this top rail. The invention also further includes various features of construction and combinations of parts, as will appear from the following description.

One embodiment of the invention, shown in the accompanying drawings, will now be particularly described, and thereafter the invention will be pointed out in claims, reference now being had to the drawings, in which:

Fig. 1 is a side elevation, slightly broken away at the top, of a partition wall construction in which the invention is embodied;

Fig. 2 is a substantially similar enlarged view of parts of the partition wall shown in Fig. 1;

Fig. 2*a* is a horizontal section on the line 2*a*—2*a* of Fig. 2;

Fig. 3 is a further enlarged inverted horizontal section taken on the zig-zag line 3—3 of Fig. 2;

Fig. 4 is a somewhat less enlarged vertical section, in normal upright position, taken on the lines 4—4 of Figs. 1 and 3;

Fig. 5 is a partial horizontal section drawn substantially to the same scale as Fig. 4, taken on the line 5—5 of Fig. 1;

Fig. 6 is a partial vertical section adjacent to one end of the lower cross rail, drawn substantially to the scale of Fig. 3, taken on the line 6—6 of Fig. 7;

Fig. 7 is a partial vertical section in the plane of the wall taken on the line 7—7 of Fig. 6;

Fig. 8 is a substantially similar vertical section in the plane of the wall, including parts of two adjacent connected wall sections, together with their intermediate cross rails;

Fig. 9 is a partial vertical section on the zig-zag lines 9—9 of Figs. 1 and 8; and

Fig. 10 is a similar vertical section on line 10—10 of Fig. 1.

For conservation of space on the drawings, a series of only four consecutively assembled wall sections are shown in Fig. 1. However, it is to be understood that this sectional wall, of similar construction, may be extended substantially indefinitely to whatever length may be required in any particular installation. Each of these wall sections has a panel-supporting frame, the frame bars of which comprise stiles 1 which are firmly but detachably connected together by an upper cross rail 2 between the upper ends of these stiles, a lower cross rail 3 between the lower ends of these stiles and, in the embodiment of the invention shown in the drawings, also including two intermediate similar cross rails 4 and 5. The means for thus connecting together these cross rails and the stiles 1 forms a feature of the invention which will be hereinafter described. Each of these panel-supporting frames thus provides for the mounting therein of a tier of three panels, 6, 7 and 8. So far as the invention claimed herein is concerned, these panels may be of any desired material. The particular kind of lower panel 6 shown in the drawings will be hereinafter described. The two upper panels 7 and 8 are shown as of glass and means shown in the drawings for mounting these glass panels and also the lower panel 6 in the panel-supporting frame, as shown in the drawings, will be hereinafter described, although not forming features of the invention claimed herein.

The lower ends of the consecutive series of assembled wall sections shown in Fig. 1, at the lower ends of their stiles 1 and along the lower sides of their lower cross rails 3, may rest upon and be suitably secured in any convenient manner to a substantially usual floor strip 9 which in turn may be secured to the floor of the building. Also a substantially usual ceiling strip 10 is secured to the ceiling and is shown in the drawings, Figs. 1 and 2, as being some distance above the upper ends of the assembled wall sections, as determined by the upper ends of their stiles 1 and their upper cross rails 2. It will be noted, as indicated in Fig. 1 and as clearly shown in Figs. 2, 3, 5 and 8, that the stiles 1 belonging to the adjacent consecutive wall sections in the partition wall are spaced from one another to a considerable extent.

In carrying out the invention, the spaced stiles 1 of the adjacent wall sections are rigidly and firmly but detachably secured together or to one another by means of clamping devices which bridge the space between these stiles. By reason of the shaping of the stiles and the complementary shaping of the clamping devices, the latter have a firm and secure interlocking engagement with the stiles, with no necessity for drilling holes in the stiles and also without placing any reliance upon mere frictional engagement. Each of these stiles 1 is formed from a suitably heavy strip of sheet metal, such as steel. This stile 1 is in general of a channel shape continuously and uniformly throughout its length. Thus the stile 1 has edge flanges 11 which project at right angles outward from its web portion, this web portion being flat and directed inwardly of the wall section towards its panel.

This web portion of the stile comprises, as shown, two parts in alignment, since at the middle of this web between the flanges 11, the web is indented outward continuously throughout the length of the stile to form a substantially rectangular panel-holding groove or channel 12. This groove 12 thus forms a longitudinal ridge at the outer side of the stile between the flanges 11, the outer surface of this ridge being flat and shown as substantially in alignment with the edges of the flanges 11. The side walls of this ridge-forming groove 12 are shown as parallel throughout the major portion of their width but are indented outwardly immediately adjacent to the flat bottom of this groove, thereby to form, at each side of the ridge, a laterally projecting locking bead 13, extending continuously throughout the length of the stile. These outer ridges formed by the panel-holding groove 12, together with their projecting beads 13, which form laterally projecting overhanging portions constituting locking means, are utilized for connecting together the spaced stiles of the adjacent wall sections by means of the above noted clamping devices.

These clamping devices for connecting together the spaced stiles 1 of the adjacent wall sections are shown as of slightly different construction, as applied towards the lower part of the wall formed by these connected sections, as compared with the clamping devices which are shown as applied adjacent to the upper part of this wall. It might be noted that the clamping devices used adjacent to the upper ends of the stiles 1 could also be used adjacent to their lower ends if so desired, but are not there required in the partition wall construction shown in the drawings. In the particular wall construction shown in the drawings, both of the two lowermost of these clamping and locking devices, which interlock with the stiles 1, are of the form shown in Figs. 5 and 8, while the two uppermost of these clamping and locking devices each includes a further feature and are of the form shown in Figs. 2 and 3.

Where the clamping device has no other function to perform other than the connecting together of the stiles 1 of the adjacent sections, the clamping device shown more

particularly in Figs. 5 and 8 may be employed. Accordingly, this form of clamping device is shown in the drawings as used for connecting together the lower end portions of the spaced stiles 1 of the adjacent wall sections. This clamping device comprises a pair of substantially similar laterally spaced horizontal clip members 14 which are shown as straight or flat throughout their middle portions, while their end portions 15 are offset towards each other for these respective clips.

These offset end portions 15 engage in clamping and interlocking relation with the opposite sides of the ridges formed by the panel-holding groove 12, with the extremities or ends of these end portions abutting against the webs of the stiles 1, and with the shoulders formed by the offsetting of these end portions 15 engaging with the laterally projecting overhanging portions formed by the beads 13 on these ridges of the respective stiles 1. These clips 14 are firmly drawn towards each other and into clamping and interlocking engagement with the ridges of the stiles and their lateral beads 13 by means of a pair of screws 16 which, as shown in Fig. 5, pass freely through one of these clips 14 and are screwed through the companion clip 14, just inwardly from the offset clamping ends 15 of these clips and near to the flat outer surfaces of the ridges provided by the panel-holding grooves 12 in the stiles 1.

In the partition wall construction shown in the drawings, the two upper clamping devices for connecting together the upper end portions of the adjacent stiles 1 of the series of the consecutive wall sections, each comprises, as shown in Figs. 2 and 3 more particularly, a pair of clip members 17 having similar inwardly offset clamping and interlocking end portions 18. These clip members 17 are drawn towards each other into clamping and interlocking relation with the ridges and with the laterally projecting overhanging portions formed by the beads 13 of the stiles 1 by means of a pair of screws 19 passing freely through one of these clips 17 and screwed through the other clip 17. In these respects the construction and operation are the same as above described with reference to the clips 14 of the two lower clamping devices. However, the clips 17 of these two upper clamping devices are formed with relatively shallow substantially U-shaped rectangular yokes 20 which open inwardly towards each other, as is clearly shown in Fig. 3.

All of the clamping devices, formed by the respective pairs of clips 14 and 17, together with their clamp screws 16 and 19, have in common the function of firmly but detachably connecting the spaced stiles 1 together in a similar manner, and constitute the only means provided or required for that purpose. It will be noted that the heads of the screws or bolts 16 and 19 are readily accessible between the spaced edges of the flanges 11 of the stiles 1, for conveniently either installing these clamping devices or for their removal. It is now to be noted that the two upper pairs of clamping devices, formed by the yoke-shaped clips 17, have a further particular function in the partition wall construction shown in the drawings for carrying out the invention.

The yoke portions 20 of the two uppermost pairs of the clamping clips 17 snugly engage with and firmly clamp between them the lower end portion of a substantially rigid stiffening member for the upper portion of the wall construction, this stiffening member extending downward from an upper or overhead part of the building above the upper ends of the stiles 1 and of the assembled sections of which these stiles form a frame part. These stiffening members are shown as I-bars 21 which are shown as extending downward from the lower side of the ceiling strip 10 between the adjacent spaced stiles 1, to the upper portions of which this I-bar 21 is rigidly connected by means of the yoke-shaped clips 17. These stiffening bars 21 extend downward only into part way overlapping relation with the stiles 1, and the extent of this downward overlapping relation may be varied, being determined by the height of the ceiling or other upper part of the building from the upper ends of the stiles 1 and wall sections. In the wall construction shown in the drawings, the lower ends of these stiffening members 21 terminate at a point above the middle of the height or upward length of the wall sections and their stiles 1.

A holding device is provided to engage with the upper end of the stiffening member 21 to prevent lateral or transverse movement thereof, in order that thereby this stiffening member may be effective to perform its function of stiffening the upper portion of the wall along the top rails 2 of the wall formed by the connected wall sections. In the construction shown in the drawings, an eye-bolt or large screw-eye 22 is screwed upwardly into the ceiling strip 10 and an ordinary headed bolt 23 passes through the eye of the screw 22 and through a hole drilled in the web of the I-bar 21 near its upper end, as shown in Fig. 2.

The above described means for stiffening the wall against lateral yielding, comprising the stiffening members 21, together with other features with which they directly cooperate, is claimed in my above noted application, Serial No. 478,673.

The space between the edges of the flanges 11 of the connected spaced stiles 1, at each side or face of the wall formed by the series of connected sections, is covered by a sheet metal pilaster 25 which forms a readily attachable

and detachable face plate. This pilaster 25 has flat flange portions 26 turned over inward to lie against the outer flat sides of the stile flanges 11. The edge portions of these pilaster flanges 26 are turned inward in substantially S form, thereby to form snap catches 27 which, as shown in Figs. 3 and 5, have a detachable snap engagement with the edges of the stile flanges 11. It will be obvious from the drawings that these pilasters 25 may be easily snapped into place after the above described clamping clips 14 and 17, together with the stiffening members 21, have been secured in place in their assembled relation with the spaced stiles 1, and that these pilasters 25 may be readily unsnapped or pulled off in order to gain access to the clamping screws 16 and 19, or for any reason whatever whenever desired.

The particular construction of the cross rails 2, 3, 4 and 5 and the means for firmly but detachably connecting the ends of these rails to the stiles 1 between the latter, in carrying out the invention, will now be described. All of these cross rails together with their connecting devices, have features of construction in common and also embody some features of dissimilarity, with reference to the upper cross rail 2, the lower cross rail 3, and the two intermediate cross rails 3 and 4, these intermediate cross rails 3 and 4 being duplicates of one another.

The construction of the upper cross rail 2, appearing in Fig. 1, together with the means for securing it to the upper ends of the stiles 1, is more particularly shown in Figs. 2, 3 and 4. This cross rail 2 may be a continuously unbroken hollow metal shell or tube of the cross sectional shape shown most clearly in Fig. 4. This upper cross rail 2 has a divided or two-part flat lower or inner side 28, which along the middle of its length is indented inwardly to provide a rectangular panel-holding groove or channel 29, which holds in place the upper edge of the uppermost glass panel 8, by means which will be hereinafter described.

The side walls of this top rail 2 flare laterally outward towards its upper side, where each of these side walls is turned inwardly on a curve to provide a horizontal ledge 30. Inwardly from each of these ledges 30 is a vertical shoulder 31, the tops of these shoulders being connected together by a flat horizontal top wall 32 of this rail 2. The particular function of these horizontal ledges 30 and laterally spaced vertical shoulders 31 will presently appear. The ends of this top rail 2 are squared, that is to say, extend in a vertical plane, and fit in abutting relation up against the flat surfaces of the webs of the stiles 1, as shown in the drawings.

Immediately adjacent to each end of this upper cross rail 2 and shown as flush therewith, a flat bridge piece 33, shown as slightly offset upwardly in its middle portion, connects together the opposite side walls of this cross rail at its upper side below its top wall 32, this bridge piece 33 having its ends overlapped beneath and firmly secured to the lower sides of the horizontal ledges 30, for example by means of spot welding. A vertical clip bar 34, which extends across the end of the rail 2, has upper and lower end portions 35 and 36 turned over at right angles along the length of this rail 2, with the upper end 35 of this flat clip bar overlying the middle portion of the bridge piece 33 and with its lower end portion 36 fitting snugly into and lying against the lower side of the flat wall which forms the bottom of the panel-holding groove 29. The upper end portion 35 is firmly secured to the bridge piece 33, while the lower end 36 is firmly secured in the groove 29, which may be conveniently accomplished by means of spot welding.

The intermediate straight vertical portion 34 of this clip bar, which extends across the end of the rail 2 at the outside thereof, fits snugly into the outer portion of the panel-holding groove 12 in the stile 1, as is perhaps most clearly shown at the right side in Fig. 3. A pair of vertically spaced screws 37 pass through the bottom wall of this groove 12 in the stile 1 and are screwed through the vertical clip bar 34 adjacent to its upper and lower ends, as is shown in the drawings, Figs. 2, 3 and 4. These screws 37 thus firmly clamp the end of this upper cross rail against the flat web surfaces of the stile 1, while the seating of the clip bar 34 in the panel-holding groove 12 prevents any turning or twisting movement of this rail. Thus the opposite ends of this upper cross rail 2 are firmly but detachably secured to the respective stiles 1 at the opposite sides of the wall section, the heads of the screws 37 being readily accessible for the insertion or removal of these screws, from the outer sides of the stiles 1.

The squared vertical ends of the lower cross rail 3 abut against the adjacent flat inner surfaces of the webs of the stiles 1 and are firmly but detachably secured to these stiles by means of securing devices which are substantially similar to those above described for securing in place the top rail 2. One of these securing devices for the respective ends of this bottom rail 3 is particularly shown in Figs. 6 and 7. It will be noted that this lower or bottom rail 3 is rather deep or wide in a vertical direction and that for the most part it has vertical parallel side walls. This lower rail 3 is shown as formed of sheet metal with a rather wide slot extending longitudinally along its bottom between a pair of inturned longitudinally extending horizontal flanges 38. This lower cross rail 3 is shown as having a flat divided or two-part upper or inner wall 39 which, at its middle along its length, is indented inwardly to form a rec-

tangular panel-holding groove or channel 40 having parallel side walls and a flat bottom wall.

A transverse horizontal bridge piece 41 connects together the opposite side walls of the cross rail 3 at its lower side or bottom immediately adjacent to the end thereof and shown as flush with this end. The flat ends of this bridge piece 41 are firmly secured, such as by means of spot welding, to the upper sides of the bottom flanges 38 of the cross rail, and the intermediate middle portion of this bridge piece 41 is offset upwardly, as shown in Figs. 6 and 7. A vertical clip bar 42 extends across the end of this lower rail 3, with its upper end 43 turned right angularly inward on the bottom of the panel-holding groove or channel 40, and with its lower end portion 44 similarly turned inward beneath the upwardly offset portion of the bridge piece 41, each of these end portions 43 and 44 being firmly secured in place, such as by means of spot welding.

It is to be understood that there is a similar bridge piece 41 and a vertical clip bar 42 at each of the ends of the lower cross rail 3. The straight flat vertical portion 42 of this clip bar fits snugly into the panel-holding channel or groove 12 in the stile 1, but in spaced relation from the bottom of this groove 12, as shown in Fig. 7. A pair of vertically spaced securing and clamping screws 45 pass through the bottom wall of this panel-holding groove 12 and are screwed through the clip bar 42 adjacent to its ends at the inner side of this bottom rail 3, as shown in Figs. 6 and 7. These screws 45 thus draw the squared or vertical end of the lower rail 3 into close and firm abutting relation with the adjacent flat inner surfaces of the stile 1 along the opposite sides of its channel 12, while the seating of this clip bar 42 in the channel 12 securely holds this lower rail 3 against twisting movement relatively to the stile 1, to which it is thus secured. It is obvious that the screws 45 may be readily removed for disconnecting and removing the lower rail 3 from its assembled relation with the stiles 1.

The means provided, in carrying out the invention, for securing the opposite ends of the intermediate cross rails 4 and 5 at their ends to the stiles 1 are in general substantially similar to the means already described for securing the top rail 2 and the bottom rail 3 in place in assembled relation with the two stiles 1 of the panel frame. In the partition wall construction shown in the drawings, both of these two intermediate cross rails 4 and 5, together with the securing devices for the ends thereof, are of the same or duplicate construction, so that thus a description of one of these intermediate cross rails and the devices by means of which its ends are secured to the stiles 1, will suffice for both of the cross rails 4 and 5. The construction in this respect for the lower intermediate cross rail 5 is shown in Figs. 8, 9 and 10.

This intermediate cross rail 5, as will be noted from Figs. 9 and 10, is of uniform or symmetrical shape or contour from side to side and also vertically. It is shown as a continuously unbroken hollow metal shell or tube, with its walls of suitable thickness to provide adequate strength. It is shown as having a divided or two-part flat lower wall 46 and a similar upper wall 47. At the middle, between the two parts of the lower wall 46, a rectangular panel-holding groove 48 is indented upwardly or inwardly of the shell of the tube longitudinally throughout the length of this cross rail. Similary, at the upper side of this cross rail 5, at an intermediate point between the two parts of its upper wall 47, the shell of the tube is indented inwardly or downwardly to provide a rectangular panel-holding groove 49. Each of these panel-holding grooves 48 and 49 have, as clearly shown in the drawings, opposite parallel side walls and a flat bottom wall. Each of the ends of this cross rail 5 is squared or disposed in a vertical plane, thereby to fit closely up against the adjacent inner flat surfaces of the webs of the stiles 1 at the opposite sides of its panel-holding groove 12, as shown in Figs. 1 and 8.

At each of its ends, as is shown in Fig. 8 for two of these lower intermediate cross rails 5, and also shown in Fig. 9 for one of these cross rails, a vertical clip bar 50 extends across the end of the cross rail, with lower and upper end portions 51 and 52 turned over inwardly along the rail at right angles, against the flat bottom walls of the respective lower and upper panel-holding grooves 48 and 49, to which these end portions 51 and 52 are firmly secured, such as by means of spot welding. The straight flat middle portion 50 of this clip bar fits snugly into the adjacent portion of the panel-holding groove 12 in the stile 1, as is clearly shown in Fig. 8. These clip bars 50, it will be noted, are relatively short in length.

A combined securing and clamping screw 53 passes inwardly through the bottom wall of the panel-holding groove 12 in the stile 1 and screws through the middle of the clip bar 50. This screw 53, not only holds the cross rail 5 securely to the stile 1, but draws its end firmly against the adjacent flat faces of the web of this stile at the opposite sides of its panel-holding groove or channel 12. Also the fitting into the panel-holding groove 12 in the stile 1 of the vertical clip bar 50, precludes the possibility of any twisting or turning movement of the cross rail 5. It will be noted that the heads of the screws 53 are readily accessible from the outer sides of the stiles 1 along the edges of the panel-holding frame, for either quickly assembling or dis-

assembling the intermediate cross rails 4 and 5 relatively to these stiles 1.

Since, as hereinbefore noted, the stiles 1 are of uniform cross sectional shape or contour continuously throughout their length from end to end, it is obvious that intermediate cross rails, such as 4 and 5, may be installed at any vertical position and any number desired of such cross rails may be employed. Similarly, the stiles 1 may be of any length desired, with the upper and lower cross rails 2 and 3 installed between the ends thereof, in the manner hereinbefore described. Likewise, it will be seen that the pairs of interlocking clamping clips, such as 14 and 17, may be employed in any number which may be desirable in any particular installation, and may be placed at any vertical position along the spaced stiles 1 of adjacent sections which may be desired, there being in this instance, as has already been noted, no requirement for punching or drilling any holes in these stiles.

As is shown in Figs. 1 and 4 taken together, the space above the top rails 2 of the wall sections up to the ceiling, is closed by means of a pair of laterally spaced filler members 54, which may be in the form of continuous strips, as indicated in Fig. 1, although, so far as this invention is concerned, a plurality or horizontal series of separate filler sections or panels could be used, if so desired. Along their upper edge margins these filler strips 54 are shown as overlapping upon the sides of the ceiling strip 10, while their lower edges respectively rest upon the above described ledges 30 and abut against the vertical backing shoulders 31, provided along the top at the opposite sides of the upper cross rail 2, as hereinbefore described.

These filler members 54, in the construction shown, may be easily and quickly installed, by reason of the ledge 30 providing a guide for the lower edge of the filler member, guiding this filler member 54 into place against the backing shoulder 31, which forms a stop therefor. These filler members 54 may be conveniently secured in place. They may be nailed to the ceiling strip 10. It will be noted that the filler members 54 at their inner sides lie flat against the flat surfaces provided by the flanges on the I-bar 21, which, as hereinbefore described, forms a stiffening member for the wall. At each of these stiffening member 21 the filler members or strips 54 may be nailed to wooden filler pieces 55 which are chamfered or grooved at their inner corners to fit between the flanges of the I-bar 21, with their projecting outer portions flush with the outer sides of these flanges, as is shown in Figs. 2 and 2*a*.

Substantially any kind of panels desired may be mounted in the panel frame provided by the connected frame bars, comprising the pair of stiles 1, the upper cross rail 2, the lower cross rail 3, and the intermediate cross rails 4 and 5. It will be noted from the preceding description and as shown in the drawings, that all of these frame bars are provided on their inner or panel sides with similar substantially rectangular panel-holding grooves or channels, thus, for example, the lower panels 6 shown in Fig. 1 may be of the laminated construction that is shown for these panels 6 in Figs. 5 to 10 inclusive. Each of these panels 6, as there shown, comprises three layers or plies, having a rather thick intermediate or middle layer 56 of asbestos and outer layers or facing plates 57 of sheet metal, such as steel. The edge margins of these composite panels fit snugly into the panel-holding channels 12 of the stiles 1, the panel-holding channel 40 of the lower cross rail 3, and similarly into the lower panel-holding channel 48 of the lower intermediate cross rail 5. It will be understood of course that these lower panels 6 are to be put in place when the frame is assembled and, if occasion should arise, may be removed by taking the frame apart.

A different construction is provided for holding in place relatively thin panels, such as the glass panels 7 and 8 shown in the drawings. This construction is shown more particularly in Figs. 3, 9 and 10. As there shown, a pair of differently constructed sheet metal molding strips 58 and 59 are provided, which are inserted together into the panel-holding channel and project from this channel to form between these projecting portions a panel-receiving groove at the outside of this channel. The strip 58 is a hollow resilient abutment strip forming a backing molding for the glass panel, such as the middle panel 7 shown in Figs. 9 and 10, or the upper panel 8, as shown in Fig. 3. The other molding strip 59 is a holding strip which is readily insertable into or removable from the channel alongside of the abutment strip 58 and is provided at the outside of the channel with a resiliently yieldable gasket 60, such as soft rubber, which is pressed against the glass panel. This construction provides for the flatwise installation or removal of the glass panels 7 and 8, with the panel frames in their assembled condition, as shown in the drawings. This feature of the invention is separately claimed in my above noted application, Serial No. 478,674.

A few slight modifications as to some of the features of the particular construction shown in the drawings and hereinbefore described, which may be employed while still carrying out the invention, might be noted. It is to be understood that the ceiling strip 10 may be, and in some installations would be, omitted, while the upper end of the stiffening member 21 could be secured directly to the ceiling, or other upper part of the building, by means of the screw-eye 22, or otherwise.

In the case of the upper cross rail 2, the top wall 32 could be offset downwardly, instead of upwardly, as shown, and in such case a wooden filler block or strip could be inserted in the wide channel or groove thus formed, to project above the guide ledges 30, there to form stop shoulders for the filler members 54, similar in that respect to the stop shoulders 31 shown in the drawings and serving a like function.

In the case of the upper cross rail 2, the bridge piece 33 could be omitted, and the upper inturned end 35 of the clip bar 34 could then be seated in a groove or channel in the top wall 32, substantially similar in that respect to the lower inturned end 36 of this clip bar 34. Similarly with the lower cross rail 3, the slot along its bottom between its flanges 38 could be omitted and this bottom wall made continuous, similar in that respect to the upper cross rail 2 and the intermediate cross rails 4 and 5. In such case, the bridge piece 41 could be omitted and the lower inturned end 44 of the clip bar 42 could then be seated in a groove or channel formed in this continuous lower wall, similarly to its upper inturned end 43.

Furthermore, it is expected that in some installations it may prove desirable to employ solid or non-tubular cross rails of suitable material, for example, wood, for the cross rails 2, 3, 4 and 5 shown in the drawings. The several vertical clip bars, such as 34, 42 and 50, would then have their inwardly turned over end portions seated in upper and lower grooves or channels in the respective cross rails, similar to the panel-holding grooves in the cross rails shown, for example, in Figs. 9 and 10. The screws, corresponding to the screws 37, 45 and 53, could then pass through the clip bar and screw directly into the solid end of the cross rail. It is obvious that these clip bars would still serve as guides for convenience in assembling, and also their engagement in the panel-holding grooves or channels 12 of the stiles 1 would be effective to prevent any turning or twisting of these cross rails.

It is obvious that various modifications, some of which have been noted, may be made in the partition wall construction shown in the drawings and above particularly described, within the principle and scope of the invention as defined in the appended claims.

I claim:

1. In a partition wall, the combination of a consecutive series of structurally independent wall sections each having a frame including stiles which are spaced from one another between adjacent sections, each of the said stiles being shaped throughout along its length to provide longitudinally continuous locking portions by which the stile may be gripped and held, a pair of clamping members bridging the space between these spaced stiles and shaped with locking portions to have interlocking engagement with the said locking portions on the stiles, and means whereby said clamping members may be caused to grip or to release the locking portions on the stiles for thereby rigidly but detachably securing these stiles to one another.

2. In a partition wall, the combination of a consecutive series of structurally independent wall sections each having a frame including metal stiles each of which is provided continuously throughout its length with a panel-holding groove which forms a ridge outwardly on the other side of the stile from the groove, the said ridge being provided continuously throughout its length with lateral beads which project from the opposite sides of the said ridge, the said stiles of adjacent sections being spaced from one another, and a vertical series of vertically spaced clamping devices bridging the space between and detachably securing together the said spaced stiles, each of these clamping devices comprising a pair of laterally spaced clip members having their ends shaped with offset portions to engage with the respective opposite sides of the said ridges and with the beads thereon, together with screw means for drawing the clip members of a pair towards one another into clamping and locking relation with the said ridges and their beads for thereby firmly but detachably securing together the spaced stiles of adjacent sections and constituting the only means provided for that purpose.

3. A partition wall section including a top rail provided on its upper side adjacent to each of its opposite edges with a substantially horizontal outwardly unobstructed combined guiding and abutment ledge for the lower edge of a vertical filler member and further provided inward from this ledge with a substantially vertical backing shoulder forming a stop for the lower edge portion of the said filler member at its inner side so that thereby a pair of laterally spaced filler members may be installed in assembled relation with the said top rail to extend upwardly therefrom merely by pushing the lower edge of the filler member in each instance inwardly over the said ledge and against the said backing shoulder.

4. A partition wall section having a frame including a hollow sheet metal top rail shaped on its lower side to provide for holding the upper edge of a panel and shaped on its upper side to receive and hold in spaced relation the lower edges of a pair of upwardly extending filler members by means of transversely spaced vertical backing shoulders on the upper side of the said rail and a horizontal ledge extending laterally outward from each of the said shoulders in unobstructed relation thereto for guiding the lower edge of a filler member inwardly into place

against the said backing shoulder which forms a stop therefor.

5. In a partition wall section, the combination of a stile having therein throughout its length a panel-holding groove, a cross rail to abut at an end thereof against the grooved side of the stile, a substantially U-shaped clip having its leg portions overlapped upon and secured to the end of the cross rail and with its intermediate portion forming a vertical bar fitting into the groove in the stile, and a screw releasably passing through the stile at the bottom of its said groove and engaging with the said bar of the clip for thereby firmly but detachably securing the end of this cross rail to the stile.

6. In a partition wall section, the combination of a metal stile having therein throughout its length a substantially rectangular panel-holding groove with flat aligned wall surfaces adjacent to this groove, a hollow sheet metal cross rail having a squared end to abut against the said flat aligned surfaces of the stile at the opposite sides of its groove, a vertical clip bar extending across this end of the cross rail and having its upper and lower end portions turned over at right angles on the cross rail and rigidly secured thereto with the vertical portion of this bar fitting snugly into the said groove in the stile, and a screw passing through the stile at the bottom of its said groove and engaging with the said clip bar for thereby firmly but detachably securing the end of the cross rail to the stile.

7. In a partition wall section, the combination of a pair of metal stiles each of which has throughout its length on its inner side a substantially rectangular panel-holding groove with adjacent flat inner surfaces in alignment outward from the groove, hollow sheet metal upper and lower cross rails having squared ends to abut against the said flat inner surfaces of the stiles and each provided on its inner side throughout its length with a substantially rectangular panel-holding groove, a bridge piece within each end of each of the said cross rails connecting together the opposite lateral walls of the cross rail adjacent to its side opposite to the said groove, a vertical clip bar extending across the end of the cross rail with the upper and lower end portions of this clip bar extending horizontally at right angles along the length of the rail with one of these end portions firmly secured in the said groove and with the other said end portion extending across and firmly secured to the said bridge piece with the intermediate vertical portion of the said clip bar snugly fitting into the said groove in the stile, and a pair of vertically aligned screws passing through the stile at the bottom of its groove and having engagement with the said vertical clip bar for thereby firmly but detachably securing the end of the cross rail to the stile.

8. In a partition wall section, the combination of a pair of metal stiles each having on its inner side throughout its length a substantially rectangular panel-holding groove with aligned flat surfaces on the stile at its side outward from opposite sides of the said groove, an upper cross rail detachably connecting together the upper ends of the stiles, a lower cross rail detachably connecting together the lower ends of the stiles, a hollow tubular sheet metal intermediate cross rail having a substantially rectangular panel-holding groove throughout its length on its upper and lower sides respectively with the ends of this cross rail squared to fit against the said flat inner surfaces of the stiles, a vertical clip bar extending across each end of the intermediate cross rail with its ends turned over at right angles into the bottoms of the said upper and lower grooves therein and firmly secured thereto, and a screw passing through the stile at the bottom of its groove and engaging with the said vertical clip bar which is snugly received into the said groove for thereby firmly but detachably connecting the ends of the said intermediate cross rail to the respective stiles.

9. In a partition wall section, the combination of a stile having therein throughout its length a panel-holding groove, a cross rail to abut at an end thereof against the grooved side of the stile, a vertical clip bar extending across this end of the cross rail and having its upper and lower end portions turned over at right angles along the rail and held by the rail against both angular and bodily movement transverse to the length of the rail, with the vertical portion of this clip bar fitting into the said groove in the stile thereby to prevent both transverse bodily and twisting movements of the rail on the stile, and means for firmly but detachably connecting the end of the rail to the stile including a screw passing inwardly through the stile at the bottom of its said groove and through the clip bar.

10. In a partition wall, the combination of a stile having therein throughout its length a panel-holding groove, a cross rail to abut at an end thereof against the grooved side of the stile and having a groove along its upper and lower sides respectively, a vertical clip bar extending across the end of the cross rail and having its upper and lower end portions turned over at right angles into the said upper and lower grooves in the cross rail and with the vertical portion of this clip bar fitting into the said groove in the stile so that thereby this clip bar prevents both transverse bodily and twisting movements of the rail on the stile, and means for firmly but detachably connecting the end of the rail to the stile including a screw passing inwardly through the stile.

11. In a partition wall, the combination of a consecutive series of structurally independent wall sections each having a frame with a pair of metal stiles, each of these stiles having in the panel side thereof a longitudinal panel-holding groove which forms a correspondingly shaped ridge outwardly on the other side of the stile from this groove, the opposed side walls of the said ridge being shaped throughout their length to provide oppositely projecting overhanging locking portions, and clamping means for firmly but detachably securing to one another the adjacent stiles of consecutive sections, the said clamping means comprising a pair of opposed spaced clip members shaped with inturned terminal locking portions to have clamping interlocking engagement at the opposite sides of the said ridge with the said oppositely projecting overhanging locking portions of the side walls of this ridge, and clamp screws passing between the said ridges of the respective stiles and engaging with the said clip members for drawing these clip members into clamping and interlocking relation with the said locking portions of the side walls of the respective ridges.

12. In a partition wall, the combination of a consecutive series of structurally independent wall sections having a frame the stiles of which are metal channels the flanges of which project from the edges of the sections, each of the stiles being provided with a panel-holding groove in the panel side thereof which forms a ridge between the said flanges, the side walls of each of the said ridges being shaped throughout their length to provide locking portions, the said stiles of adjacent sections being spaced from one another, and a series of vertically spaced clamping devices each of which comprises a pair of opposed spaced clip members having their ends shaped to have clamping interlocking engagement with the said locking portions of the respective opposite side walls of the said ridges belonging to the respective spaced stiles, and clamp screws accessible between the flanges and passing between the ridges of the said spaced stiles for drawing these clip members into clamping and interlocking relation with the said locking portions of the side walls of the said ridges for thereby firmly but detachably securing the spaced stiles of adjacent wall sections to one another.

13. In a partition wall, the combination of a consecutive series of structurally independent wall sections having a frame the stiles of which are metal channels the flanges of which project from the edges of the sections, each of the stiles being provided with a panel-holding groove in the panel side thereof which forms a ridge between the said flanges, the side walls of each of the said ridges being shaped throughout their length to provide locking portions, the said stiles of adjacent sections being spaced from one another, a series of vertically spaced clamping devices each of which comprises a pair of opposed spaced clip members having their ends shaped to have clamping interlocking engagement with the said locking portions of the respective opposite side walls of the said ridges belonging to the respective spaced stiles, and clamp screws accessible between the flanges and passing between the ridges of the said spaced stiles for drawing these clip members into clamping and interlocking relation with the said locking portions of the side walls of the said ridges for thereby firmly but detachably securing the spaced stiles of adjacent wall sections to one another, and at each face of the wall a sheet metal pilaster forming a face plate to cover the space between the flanges of the respective spaced stiles, the said pilaster being shaped at its edges to have a detachable snap engagement with the edges of the said flanges of the respective spaced stiles.

In witness whereof, I hereunto subscribe my signature.

LOUIS L. LEVENE.