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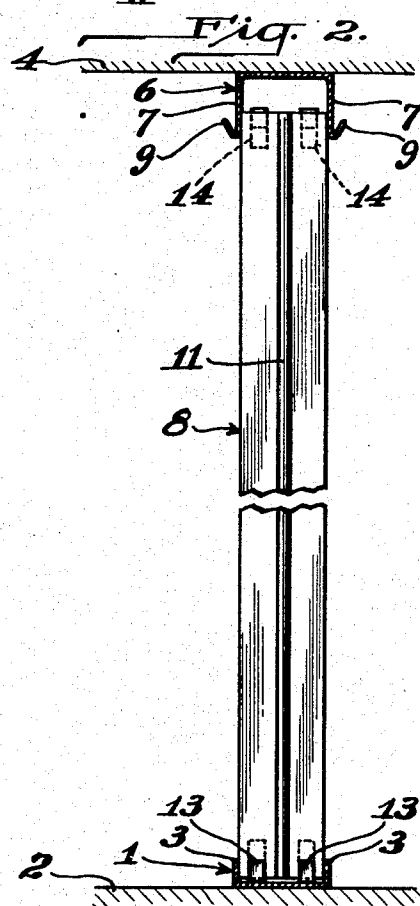
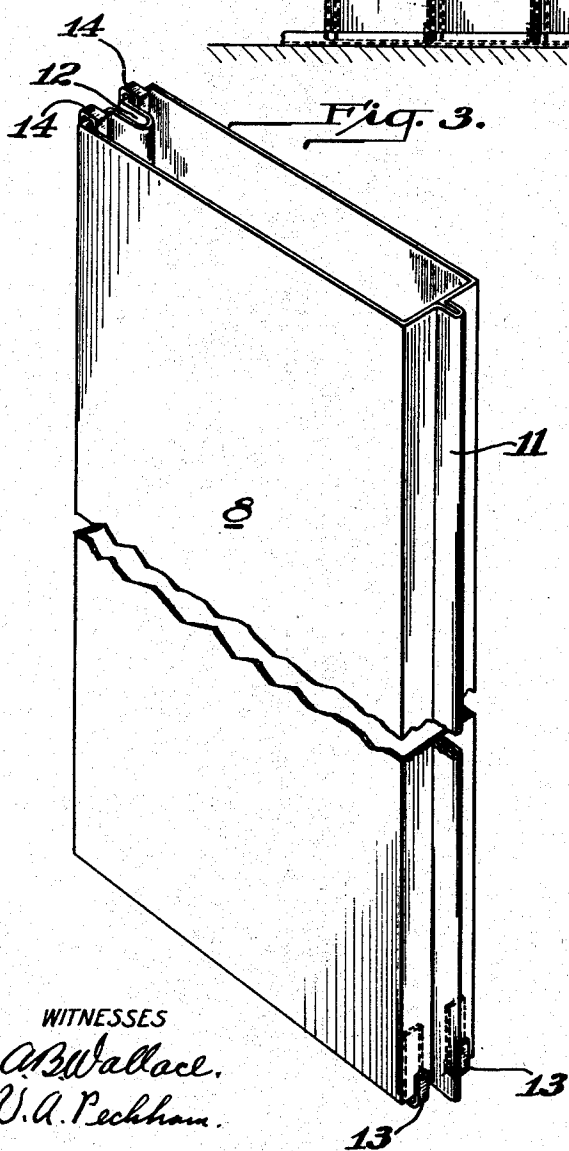
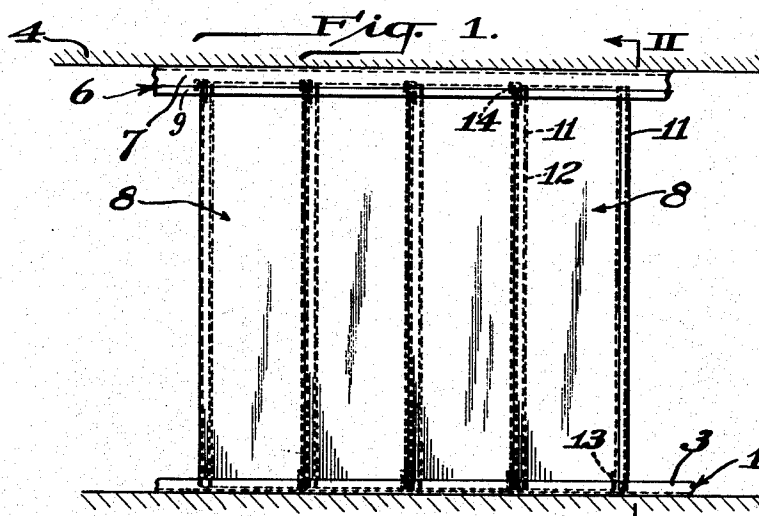
H. E. MARKS

2,097,697

WALL STRUCTURE

Filed July 5, 1935

2 Sheets-Sheet 1



WITNESSES

A. B. Wallace.
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INVENTOR.

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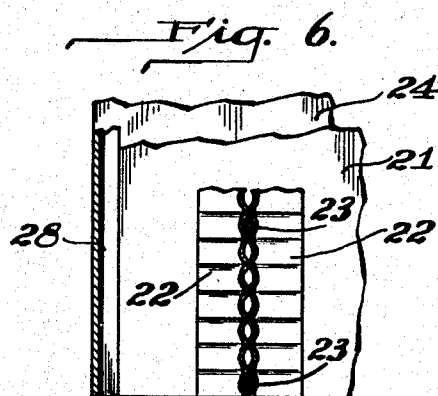
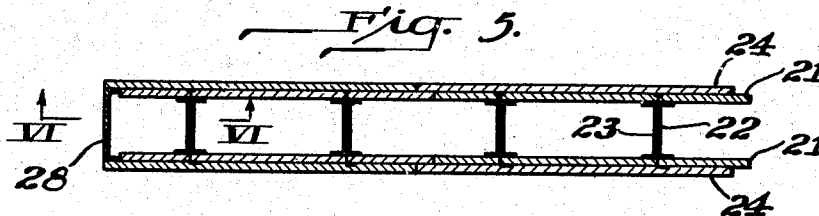
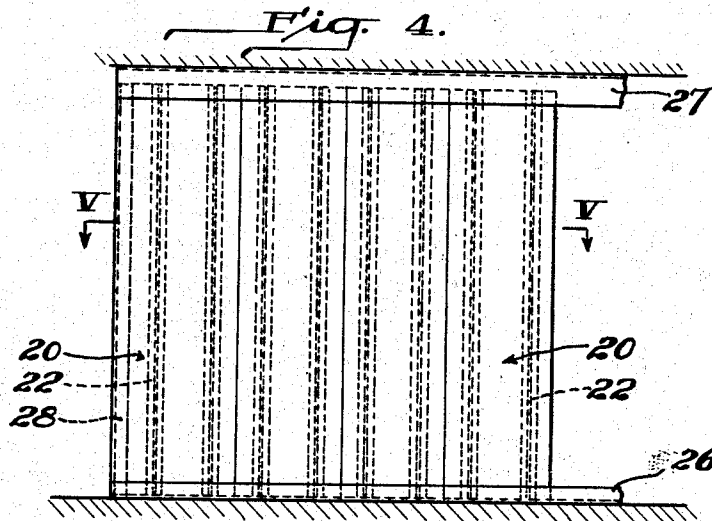
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UNITED STATES PATENT OFFICE

2,097,697

WALL STRUCTURE

Herbert E. Marks, Sewickley, Pa.

Application July 5, 1935, Serial No. 29,816

8 Claims. (Cl. 72-46)

This invention relates to wall structures, and more particularly to partition walls.

In erecting partition walls it is the general practice to first build up a supporting framework extending from floor to ceiling, and to then attach plaster-supporting means of some kind, such as wood or wire lath or plaster board, to both sides of the framework, after which plaster is applied. Erecting a wall in this manner involves a considerable amount of time and labor to handle and fasten together the numerous parts. Furthermore, when the distance from floor to ceiling is not uniform throughout the length of the wall, the upright members may have to be cut off or pieced to compensate for the irregularities. This requires still more time and labor and often results in a wall of unpleasing appearance.

It is among the objects of this invention to provide a wall structure which can be quickly and easily erected, in which both sides of the wall are formed simultaneously, in which irregularities in the distance from floor to ceiling are automatically taken care of, and in which all joints are tight and durable.

The invention is illustrated in the accompanying drawings in which Fig. 1 is a side elevation of a portion of a wall; Fig. 2 is an end view taken on the line II—II of Fig. 1; Fig. 3 is a perspective view of one of the wall panels shown in the preceding figures; Fig. 4 is a side elevation of a modified embodiment of the invention; Fig. 5 is a horizontal section taken on the line V—V of Fig. 4; and Fig. 6 is an enlarged fragmentary vertical section taken on the line VI—VI of Fig. 5.

Referring to Figs. 1 and 2 of the drawings, the web of a metal channel member 1 is secured in any suitable manner to the floor 2 along the line where the wall is to be erected, with the side flanges 3 of the channel projecting upwardly. Secured to the ceiling 4 directly above this channel is another metal channel 5 the side flanges 7 of which project downwardly. These horizontal upper and lower channels are the only supporting members for the wall, and serve the purpose of the built-up framework used heretofore.

The main portion of the wall is formed of prefabricated panel members 8 the ends of which are disposed between the vertical side flanges of the channels by which the panels are supported in upright position. The two outer surfaces of each panel are substantially identical in appearance and form the opposite sides of the wall, thereby making it unnecessary to panel first one side of the wall and then the other. As is shown in Fig. 2, the panels do not engage the web of upper chan-

nel 6, but are spaced therefrom a distance greater than the width of flanges 3 of the lower channel. Also, flanges 7 of the upper channel are considerably wider than flanges 3 in order to overlap the upper ends of the panels.

This construction permits the wall to be quickly and easily erected by mounting the panels in the supporting channels after the latter have been secured in position. That is, the upper end of each panel is inserted between the flanges of the upper channel, and the panel is then raised until its lower end clears the tops of flanges 3. The lower end is then swung inwardly until the panel is in a vertical plane, whereupon the panel is lowered until it rests on the web of the lower channel, as shown in Fig. 2. The flanges of the upper channel are sufficiently resilient to yield the necessary slight amount when the upper end of a panel is inserted between them at a slight angle before the lower end can be swung into position, and to grip the panel after it is in position. Preferably, the lower edges of upper flanges 7 are turned outwardly and upwardly to form lips 9 that strengthen the flanges longitudinally and serve as picture rails or moldings.

The panels shown in the first three figures of the drawings are made of sheet metal, each panel being hollow and formed from a single sheet of metal bent to shape (Fig. 3). To maintain the wall surfaces of adjoining panels in the same parallel vertical planes, one side of each panel is provided with a tongue 11 formed by bending one vertical edge of the metal sheet outwardly and overlapping it with the opposite edge and the opposite edge of the panel is provided with a tongue-receiving groove 12. The tongues and grooves of adjoining panels register with each other in an obvious manner when the panels are placed side by side in the wall, whereby the panels are prevented from moving transversely relative to one another.

To lock the panels together, two diametrically opposite corners of each panel are provided with hook-like members which may be integral with the panels or attached thereto, such as by welding. The hooks 13 at the bottom of the panels open upwardly while the hooks 14 at the top open downwardly, and they are all spaced the thickness of the sheet metal from the panels to which they are attached. Consequently, just prior to lowering a panel into the lower channel it is moved up tight against the preceding panel which is already in position so that when the first-mentioned panel is lowered one lower edge slides down behind lower hooks 13 on the adjoining

panel while upper hooks 14 on the first-mentioned panel slide down over the upper edge of the second panel.

A wall constructed in accordance with this invention can be quickly and easily erected in the manner just described without the use of tools or fastening members. It can likewise be removed just as easily, which is particularly advantageous when used in office buildings where partition walls are frequently taken out and rebuilt in different locations to form offices of various sizes. Another advantage is that panels of a standard size can be used even though the distance from floor to ceiling is not uniform throughout the length of the wall. For example, if the ceiling is lower at one end than at the other, the panels merely extend up into the upper channel a little further at the low end. The panels are securely locked together against movement away from each other in any horizontal direction. If desired, before the panels leave the factory they can be filled with insulating material and their ends closed in any suitable manner.

In the embodiment illustrated in Figs. 4, 5 and 6 the panels 20 are made of plaster boards spaced apart by vertically disposed members. As shown in Fig. 5, two inner plaster boards 21 are spaced apart by two pairs of vertical channels 22. The two channels of each pair have transversely corrugated webs that are rigidly secured together such as by welding. The inner boards are connected to these upright channels by means of nails 23 driven through some of the spaces between the corrugations and clinched over the boards. Additional strength and rigidity is given to each panel by cementing an outer board 24 to each inner board. The outer boards do not coincide with the inner boards, but are offset sideways relative thereto, that is, they extend past the inner boards along one vertical edge and the inner boards extend past the outer boards along the opposite edge.

These panels are placed in floor and ceiling channels, 26 and 27, respectively, in the same manner as the sheet metal panels previously described, but they are not provided with hooks for locking them together. Instead, the overlapping edge portions of the plaster boards are coated with a suitable adhesive and the panels are then pushed together, whereby they are cemented together at their joints. The lap joints thus formed retain the outer surfaces of the panels in the same vertical planes so that smooth tight joints are formed.

Each end of the wall is preferably strengthened by an upright reinforcing channel 28 rigidly connected in any suitable manner to a stud or the like (not shown) at the end of the wall. The flanges of this channel engage the inner surfaces of either the inner or the outer wall boards forming the adjoining panel, depending upon at which end of the wall the channel is disposed. If desired, a reinforcing member of this general nature may also be used in the wall of Fig. 1.

According to the provisions of the patent statutes, I have explained the principle and construction of my invention and have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. A wall structure comprising substantially horizontal upper and lower channel members

having their side flanges extending toward each other in substantially the same parallel vertical planes, and a plurality of panel members supported in upright position by and between said side flanges, each of said panels comprising upright channel members with their webs rigidly connected together, said webs being provided with transverse corrugations, plaster boards disposed against the side flanges of said upright channels, and fastening members extending between the corrugations of said webs and connecting the plaster boards to the upright channels.

2. A wall structure comprising substantially horizontal upper and lower channel members having their side flanges extending toward each other in substantially the same parallel vertical planes, a plurality of panel members supported in upright position by and between said side flanges, each of said panels comprising upright channel members with their webs rigidly connected together, said webs being provided with transverse corrugations, a plaster board disposed against each side of said upright channels, fastening members extending between the corrugations of said webs and connecting said boards to the upright channels, and a plaster board cemented to the outer face of each of said first-mentioned boards.

3. A wall structure comprising substantially horizontal upper and lower channel members having their side flanges extending toward each other in substantially the same parallel vertical planes, a plurality of panel members supported in upright position by and between said side flanges, each of said panels comprising upright channel members with their webs rigidly connected together, said webs being provided with transverse corrugations, a plaster board disposed against each side of said upright channels, fastening members extending between the corrugations of said webs and connecting said boards to the upright channels, and a plaster board cemented to the outer face of each of said first-mentioned boards, the outer boards extending past the inner boards along one vertical edge and the inner boards extending past the outer boards along the opposite edge.

4. A portable wall panel comprising a pair of upright metal channel members having their webs rigidly connected together, said webs being corrugated transversely to form openings between them, an inner wall-board disposed against the side flanges of the channels at each side of the channels, fastening members extending through said boards and said openings for connecting the boards to the channels, and an outer wall-board cemented to the outer face of each of said inner boards and offset sideways relative thereto.

5. A portable wall panel comprising a pair of upright metal channel members having their webs rigidly connected together, said webs being corrugated transversely to form openings between them, a wall-board disposed against the side flanges of the channels at each side of the channels, and nails driven through said boards and frictionally engaging said channels in said openings for connecting the boards to the channels.

6. A wall structure comprising substantially horizontal upper and lower channel members having their side flanges extending toward each other with the lower edges of the upper channel member turned outwardly and upwardly, and a plurality of panel members supported in up-

right position by and between said side flanges, each of said panels comprising upright channel members having their webs rigidly connected together, said webs being provided with transverse corrugations, plaster boards disposed against the side flanges of said upright channels, and fastening members extending between the corrugations of said webs and connecting the plaster boards to the upright channels.

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7. A wall structure comprising substantially horizontal upper and lower channel members having their side flanges extending toward each other, and a plurality of panel members supported in upright position by and between said side flanges, the web of said upper channel member being spaced from the tops of the panels a distance greater than the width of the side flanges of the lower channel, each of said panels comprising upright channel members having their webs connected together, said webs being provided with transverse corrugations, plaster boards disposed against the side flanges of said upright channels, and fastening members ex-

tending between the corrugations of said webs and connecting the plaster boards to the upright channels.

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8. A wall structure comprising substantially horizontal upper and lower channel members having their side flanges extending toward each other in substantially the same parallel vertical planes, and a plurality of panel members supported in upright position by and between said side flanges, the web of said upper channel member being spaced from the tops of the panels a distance greater than the width of the side flanges of the lower channel with the flanges of the upper channel resiliently gripping the upper ends of the panels, each of said panels comprising upright channel members having their webs connected together, said webs being provided with transverse corrugations, plaster boards disposed against the side flanges of said upright channels, and fastening members extending between the corrugations of said webs and connecting the plaster boards to the upright channels.

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