July 27, 1943. V. LEFEBURE 2,325,254

PARTITION CONSTRUCTION

Filed Sept. 6, 1940

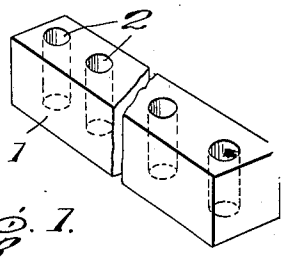


Fig. 1.

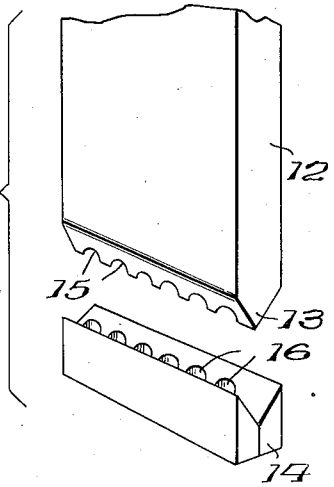


Fig. 4.

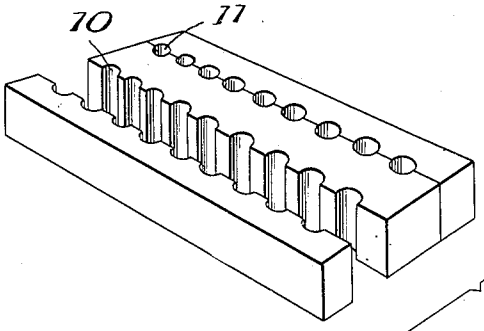


Fig. 2.

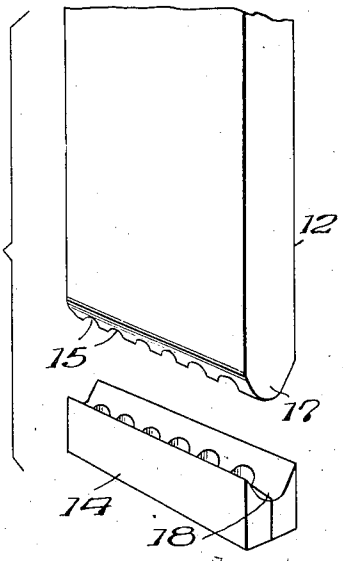


Fig. 5.

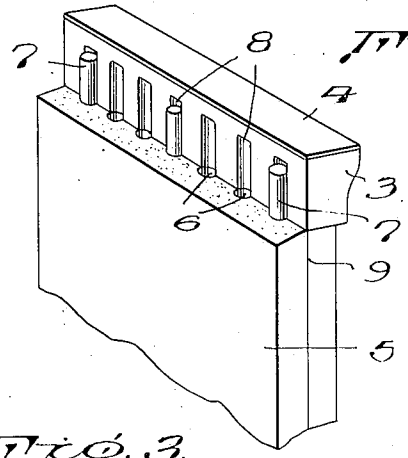


Fig. 3.

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UNITED STATES PATENT OFFICE

2,325,254

PARTITION CONSTRUCTION

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Application September 6, 1940, Serial No. 355,681
In Great Britain October 20, 1939

3 Claims. (Cl. 72—46)

This invention relates to an improved method of constructing partitions or of facing structures, and in particular to the construction of internal partitions in buildings, to the construction of ceilings, and to the facing of existing walls or other surfaces.

Plaster board, which is a composite board made by allowing a layer of water-setting plaster or cement to set while in contact on both sides with liners of paper, pulp board, cardboard or the like, is generally manufactured by a continuous sheeting method in which a layer of wet plastic is fed on to a moving sheet of the liner material supported on a conveyor, a further sheet of liner material being fed under a roller on to the layer of plastic. When the plastic has set, the board is cut into suitable lengths and is dried in an oven. The maximum length of board which can be conveniently handled in practice is about 12 feet and accordingly the largest size of plaster board generally available is about 12 feet long by 3 to 4 feet wide. In erecting partitions with such boards, the boards are usually arranged with their long sides vertical and their edges abutting, the boards being nailed to the framework of the partition or held by vertical battens fixed over the abutting edges of the boards. In the construction of ceilings similar methods are adopted, care being taken to support the board lengthwise to prevent sagging.

The object of my invention is to provide a rapid and convenient method of fixing plaster board or the like, without nailing or otherwise damaging the board, so that when desired the board can be readily dismantled and used again.

According to my invention I make use of plaster board or other board the interior of which is traversed by a number of parallel holes extending from one edge of the board to the opposite edge. For convenience, board of this kind will hereinafter be termed cavitied board.

According to my invention primary fixing members such as rods or tubes are passed through some or all of the holes of the cavitied board so that the end of the members project beyond the edges of the board, and the said ends are then caused to engage with sockets in secondary fixing members extending transversely to the primary fixing members and secured to the main structure.

In the accompanying drawing Figure 1 is a perspective view of a secondary fixing member; Figure 2 is a perspective view of a modified form of secondary fixing member adapted to receive two sets of primary members; Figure 3 is a perspective view of a portion of a partition showing the method of fixing the primary fixing members in a secondary fixing member. Figures 4 and 5 are respectively perspective views of portions of cavitied board the edges of which are shaped so as to co-operate with the secondary fixing members to provide an entirely concealed fix.

Referring to Figure 1, the secondary fixing member 1 consists of a length of wood or other suitable material of rectangular cross-section having a number of holes bored through it as shown at 2. The member 1 is bisected lengthwise in a plane passing through the axes of the holes so that the two halves may be separated for insertion of the ends of the primary fixing members (not shown) into the holes. When the primary fixing members carrying the board are in position the two halves of the member 1 may be fixed together by screws or bolts (not shown) at convenient intervals.

Referring to Figure 2, the secondary fixing member has two parallel sets of holes 10, 11, to enable a double walled partition to be made. The member is divided along the planes passing through the axes of the sets of holes, one of the pieces being shown separated.

Referring to Figure 3, reference numeral 3 denotes one half of a secondary fixing member shaped on its exposed side so as to serve as a cornice. A rubber strip 4 is placed on top of the member 3 to reduce the transmission of sound from the ceiling or the joists when the partition is in place. The partition consists of a plaster board 5 having a number of vertical holes 6 through three of which pass primary fixing members in the form of rods 7. The upper ends of these rods fit into the holes 8 of the member 3 as shown. When this stage in the erection of the partition is reached a similar member to the member 3 is added to complete the secondary fixing member in a similar manner to that illustrated in Figure 1.

The vertical edges of the boards may be plane or may be shaped as shown at 5 so as to have a shallow V-shaped groove 9, so that when a board with a corresponding projecting ridge is placed in position, with the vertical edges of the two boards abutting, a close joint is formed by the tongue and groove construction. The usual methods of caulking or reinforcing edge joints can be employed as in ordinary plasterboard fixing technique.

Referring to Figure 4, the edge of the cavitied board 12 is tapered as shown at 13 so as to co-

operate with the secondary member 14, which has a tapered recess similar in shape to the tapered edge of the board, to provide an entirely concealed fix when the primary fixing members are passed through the holes 15 and into the socket holes 16. The constructions shown in Figure 5 is similar to that of Figure 4 but instead of the edge of the board being tapered to an angle, it is rounded as shown at 17 to engage with the correspondingly rounded recess 18 in the secondary fixing member.

A complete wall may be built up in the above way, the plaster board being of such length as to extend from floor to ceiling and the secondary fixing members at the top and bottom of the board acting as cornice and skirting respectively, or having separate cornice and skirting members attached thereto. The surface of the wall is then quite free from projections, and the fixing members are completely concealed. Such a "secret" fix is a desirable feature in building practice and is obtainable according to the present invention in a simpler and less costly manner than according to known systems.

If an entirely concealed fix is required, with no skirting and cornice, I can operate in two ways:

(1) The secondary fixing members are let into the floor and ceiling or the two side walls, so that the length of the board corresponds with the length of the treatment. No secondary fixing members are seen;

(2) That part of the secondary fixing member which is above floor level or below ceiling level is made no thicker than the board itself, and it is given such a cross-section, say triangular or semi-circular, that it fits into a groove of this section in the contacting edge of the board, or the board itself may be tapered or rounded and the secondary fixing member recessed.

If the wall to be built, or space to be covered, is larger than the size of the board unit in one or both directions, secondary fixing members can be employed to break up the space into such sizes as are compatible with the fixing of the sheets.

An important case is the use of this system for suspended ceilings. The secondary members are fixed to the bottom of the flooring joists, or other flooring system, or to the sides of the walls. The boards, with their primary fixing members, are then fixed as before. In this way a ceiling can be erected with great speed, and with the important advantage of remarkable ease of removal for dealing, say, with services such as electric conduits above the ceiling. If it is desired to reduce the transference of sound from upper to lower rooms, and notably impact sound, the secondary fixing members are not attached to the floor above, say to the joists, but to the sides of the walls. Further to divorce the ceiling from impact sound travelling through walls, the primary fixing members can be made to rest on rubber or cork or similar insulator, itself lining or otherwise serving as support for these members, within the holes of the secondary fixing members.

The system can be divorced from the stresses introduced by building movement, through contact of walls and floors, or side walls, by several methods:

(1) The secondary fixing members can rest upon a cushion of such material as rubber, fibreboard or cork;

(2) The length of the holes in the secondary fixing members, and the length of the projecting primary fixing members, can be so arranged that the secondary fixing members can be forced by building movement towards each other, without any pressure bearing upon the primary fixing members; see Fig. 3 at 8. The position of the secondary fixing members can also be such that there is a free space between them and the inner edge of the board itself. This free space can be concealed by cornice and skirting.

(3) A cushion, as of rubber or cork or fibreboard, can be placed in the bottom, as the seating of the holes in the secondary fixing member. Thus any pressure on the primary fixing members is taken up by movement in the cushion.

It will be understood that the holes of the cavitied plaster board need not be circular in section. The primary fixing members may be of any convenient cross-section, not necessarily the same as that of the holes. The preferred forms of primary fixing members are firstly thin walled metal tubes and secondly metal members of I-section. Wooden rods may also be employed as primary fixing members. Members which are a reasonably close fit within the holes of the board are conveniently employed. If desired they may be grouted into the holes or treated with a suitable adhesive prior to insertion.

The secondary fixing members may be of wood or metal, or they may be cast from plaster or cement, with reinforcement if necessary.

As regards the board itself the holes may be provided merely at the desired intervals for the purpose of receiving the primary fixing members, or a board may be used which has relatively closely spaced holes. In this case the secondary fixing members are preferably provided with similarly spaced holes.

An important advantage of the constructions according to the invention is their high fire resistance, due to the shielding of the primary fixing members by the fire resistant plaster core of the board.

The invention is particularly applicable to cavitied boards made by the process of U. S. Patent 2,260,081 corresponding to application No. 263,760 of Victor Lefebure and John B. Sandford, viz. plaster boards having tubular cavities, lined or unlined, extending lengthwise of the board.

Instead of plaster board we may use blocks or sheets made from water-setting plasters or cements, which may or may not have a cellular structure resulting from the incorporation of foam. The invention may also be applied to synthetic resin moulded products and to ceramic materials. The term board as used in the claims includes all such types of structural elements.

I claim:

1. In building constructions, in combination a board having cavities therein opening out of at least one edge thereof, primary fixing members in said cavities extending out therefrom beyond said edge, and a secondary fixing member adapted for attachment to a building part and extending longitudinally along said edge and provided with socket portions therein adapted to enclose and receive said primary fixing members, said secondary fixing member being divided through said socket portions longitudinally thereof into two parts whereby on separating the parts said primary fixing members can be introduced into or removed from the socket portions by simple lateral movement of the board without requiring movement in the plane of the board.

2. In building constructions, in combination a board having cavities therein opening out of opposite edges thereof, primary fixing members in said cavities extending out therefrom beyond said edges, and a secondary fixing member adjacent to each edge, attached in spaced relation to each other to a building part and extending longitudinally along said edges and provided with socket portions adapted to enclose and receive said primary fixing members, each of said members being divided through said socket portions into two parts whereby on separating the parts said primary fixing members can be introduced in or taken out from the socket portions by lateral movement of the board without requiring movement in the plane of the board.

3. In building constructions, in combination a board having at least one edge which is of convex cross-section, with cavities therein opening out of said edge, primary fixing members in said cavities extending out therefrom beyond said edge, and a secondary fixing member extending longitudinally along said edge and adapted for attachment to a building part, of concave cross-section whereby to conceal said board edge, and provided with socket portions therein adapted to enclose and receive said primary fixing members, said member being divided through said socket portions into two parts whereby on separating the parts said primary fixing members can be introduced in the socket portions by simple lateral movement of the board.

VICTOR LEFEBURE.