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PREFABRICATED WALL UNITS WITH EXPANSIBLE CONNECTING MEANS

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FIG. 1.

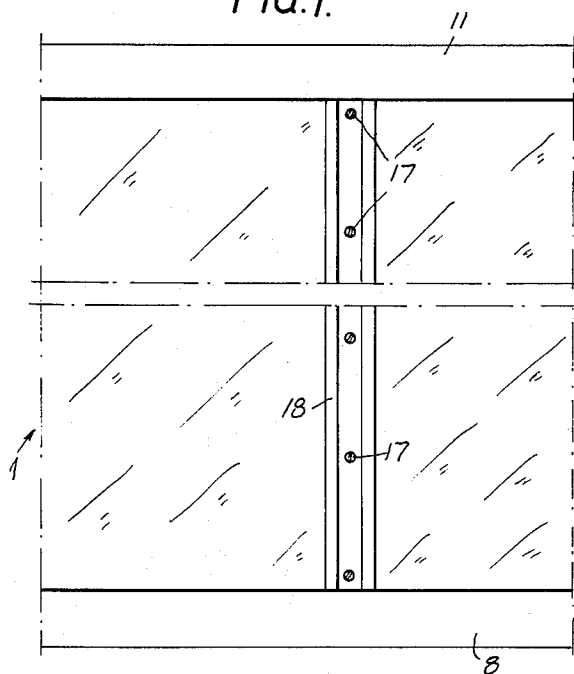


FIG. 2.

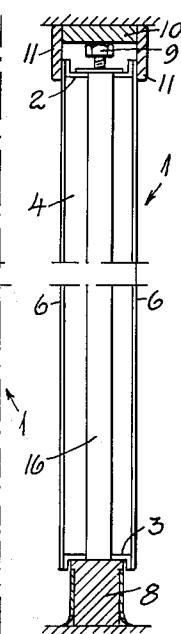


FIG. 3.

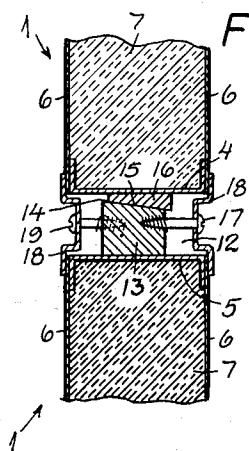
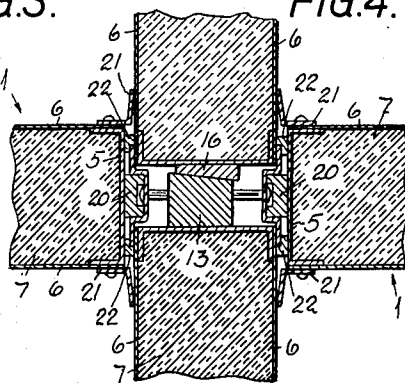


FIG. 4.



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1 Claim. (Cl. 52-241)

The present invention relates to unit walls and more particularly to a joining or connecting device for prefabricated wall units for lightweight walls or partitions of the non-supporting type.

One object of the invention is to provide a unit wall of the above mentioned type which is easy to install and dismantle, which is light in weight and yet has good stability, flexibility and acoustic properties.

A further object of the present invention is to provide joining or connecting means for the units of the wall, which means afford a perfect seal of the seams between adjacent units in the whole height thereof and simultaneously lock and stiffen the units in relation to one another so that they obtain increased stability while keeping the desired flexibility.

The above and other objects and attendant advantages of this invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawing showing, as an example, a preferred embodiment of the invention.

In the drawing:

FIG. 1 is a side elevation of a portion of a unit wall according to the invention,

FIG. 2 shows a unit fitted in the wall and seen from the edge thereof,

FIG. 3 is a horizontal cross-section of the connection between two adjacent units of the wall, and

FIG. 4 is a similar cross-section through the abutment of two walls at right angles to each other.

The units, generally denoted 1, of which the wall is built up, may be of any suitable construction but in the embodiment shown the individual units consist of a rectangular frame of channel metal, suitably of aluminium, the upper and lower horizontal parts of the frame, 2 and 3 respectively, have the open face of the cross section turned outwards, while the vertical parts 4 and 5 respectively, have the closed sides outwards as shown. On either side this frame is covered by a sheet or panel 6 preferably of metal, such as aluminium, or other suitable material and the inner cavity of the frame is filled or partly filled with a suitable insulating material 7.

In the erection of the units to form a wall, the lower, outwardly open frame section 3 serves to fit over a guide lath 8, fixed to the floor, while the upper end of the unit, near each side edge thereof is fitted with vertical screw bolts 9, which when screwed outwards, are made to press against a lath 10 which is fastened to the ceiling, thus securing the units between laths 8 and 10 and holding them in an upright position. At the top a beading 11 is fitted on either side of the lath 10, as shown in FIG. 2.

In the fitting of the units in the way described above, the individual units are, according to the invention, placed at such a distance from each other that a chosen space or aperture 12, FIG. 3, is formed between the opposite plane side edges of adjacent units. These spaces serve to receive expansible sealing and fastening devices, each of which, in the embodiment shown, consists of a vertical wedge-shaped lath 13, extending in the whole height of the space and having a width at right angles to the wall of about half the thickness of the unit. The lath 13 is positioned with a plane side surface against the side edge 5 of the one unit and with a bevelled edge 14 against a corresponding bevelled surface 15 at a relatively thin

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strip or lath 16 which is fixedly secured to the opposing edge by means of adhesive, or detachably by means of screws. Instead of forming the bevelled surface 15 on a separate lath 16, said surface 15 may be formed by using a channel section 4 with the bevel incorporated therein such as by rolling. The laths 13 and 16 may suitably be made of wood.

When the wedge-shaped lath 13 is inserted in position between the side edge 5 and the lath 16, it is made to exert the desired wedging pressure in the longitudinal direction of the wall by being drawn in the direction of the thick edge of lath 16 by means of a number of screws 17, distributed throughout the height of the lath.

Said screws 17 are passed through a covering strip or lath 18 for the aperture 12, and are screwed into the wedge lath 15 as shown. The covering lath 18 may suitably be made of sheet metal, e.g. aluminium, with a cross section comprising a central channel-shaped part adapted to be received in the space 12 and bearing flanges protruding at both sides thereof. In this form of the covering lath 18 the heads of the fastening screws will be situated countersunk to the wall plane so that the latter is as smooth as possible, and at the same time the channel-shaped central part serves to connect units of an abutting wall as will be described below.

After the wedge-shaped lath 13 has been drawn in by means of screws 17 so as to exert the necessary pressure on the adjacent unit end edges 4, 5, the space on the opposite side of the wall is closed with a covering lath 18 which is in all respects similar to covering lath 13, and which is fastened to the wedge lath 13 by means of screws 19. Insulation material may be placed in the spaces behind the covering laths 18.

As will be understood, the wedge lath 13 may be bevelled on both sides and can co-operate with laths 16 on both units.

The above described device gives a joint or connection between the units which is tight throughout the height of the units and which, by means of the expansion caused, locks and stiffens the units in relation to each other so that they achieve increased stability while keeping the desired flexibility.

The expansible device also effects a displacement of the natural oscillation out of the normal frequency range, resulting in a lightweight wall of very high acoustic property, about 40 decibel.

The construction of the device further makes possible the removal of any wall unit for replacement by another unit, e.g. a door or window unit, without disturbing the adjacent units.

When a wall is to be erected at right angles to the wall described, this is effected in the simple manner shown in FIG. 4. The side edges 5 of the units abutting to the wall are fitted with a lath 20 adapted to fit into the channel-shaped central portion of a covering lath 18 and on both sides of the unit are fastened angle-shaped closing laths 21, and packing strips 22 may be inserted between the end edges of the units 5 and the intermediate wall.

I claim:

A lightweight unit wall of the non-supporting type comprising prefabricated panel-shaped units placed in a consecutive row in spaced relation to provide a space between opposite vertical side edges of adjacent units, an upper and a lower support for said row of units, clamping means at the upper edge of each unit engaging said upper support and securing the units in position between said upper and lower supports, expansive sealing means arranged within each of said spaces and extending in the whole height thereof, said expansive sealing means comprising a lath having a wedge-shaped cross-section at right angles to the wall, a bevelled surface on at least

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one of said opposing unit side edges co-operating with said lath, displacing means for displacing said lath relative to said bevelled surface in the direction at right angles to the wall so as to exert pressure against the opposite vertical side edges of said adjacent units, and covering laths closing the space at both sides of the wall, said displacing means including screws which pass freely through the covering lath adjacent the narrower edge of said wedge shaped lath and are screwed into said edge.

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