Feb. 8, 1966 H. F. ZAGRAY 3,233,379

METAL CHANNELS AND FRAMES FOR WALLS FORMED OF INTERLOCKING BUILDING BLOCKS

Filed April 6, 1962 2 Sheets-Sheet 1

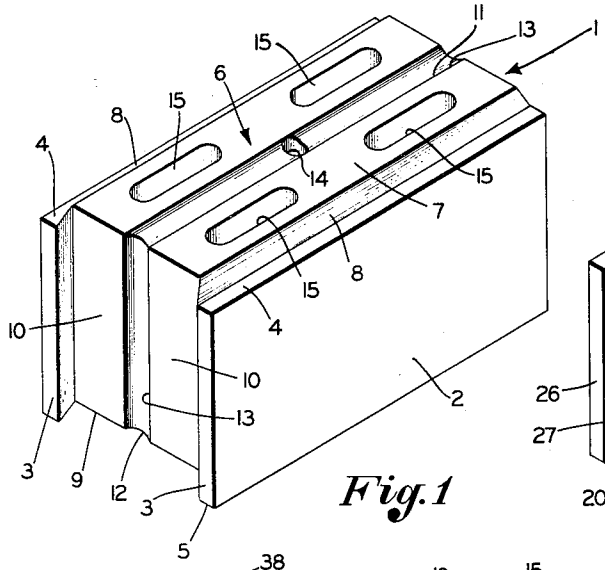

Fig. 1

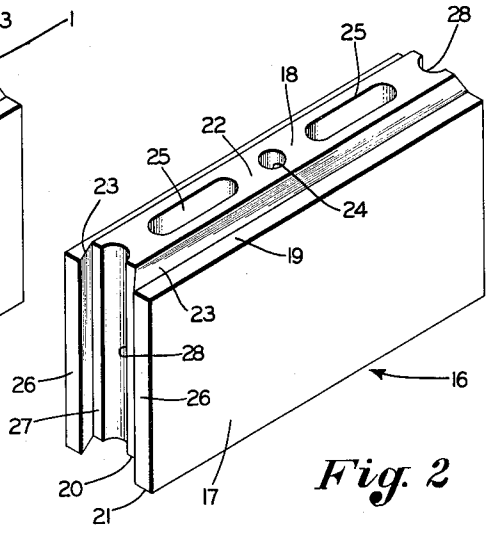

Fig. 2

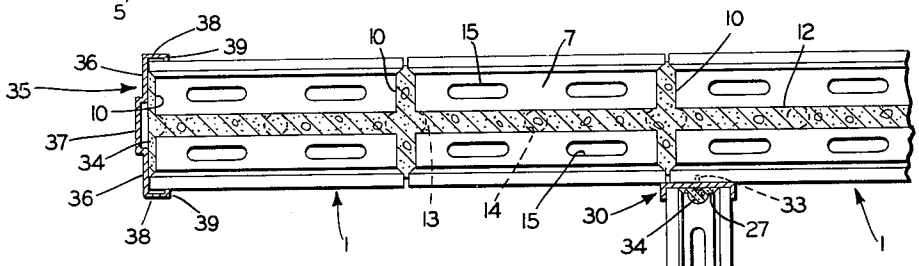

Fig. 3

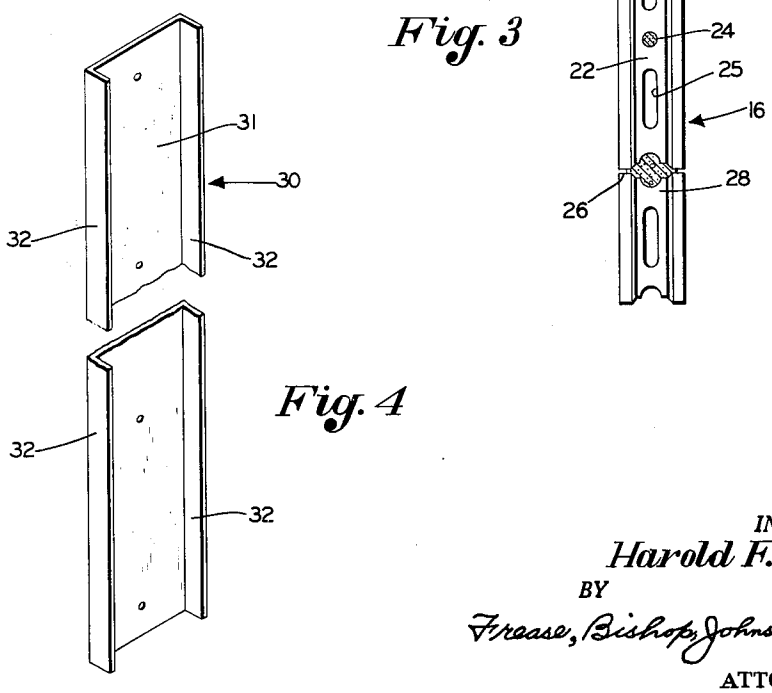

Fig. 4

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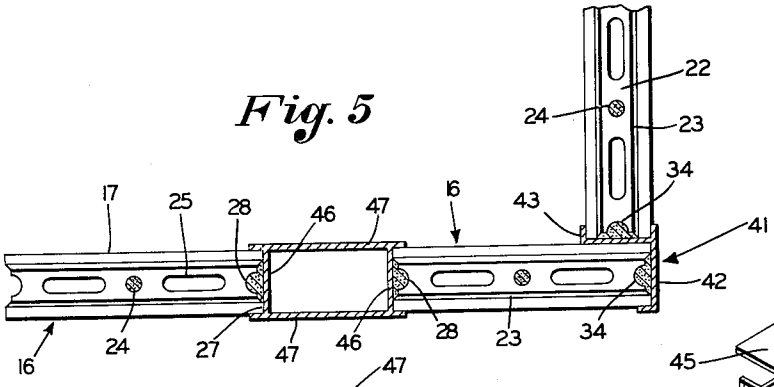
Fig. 5



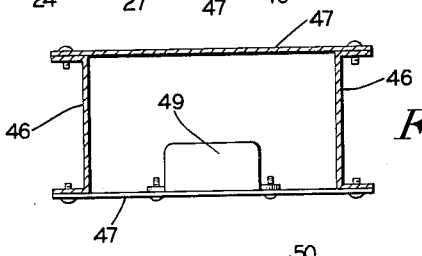


Fig. 7

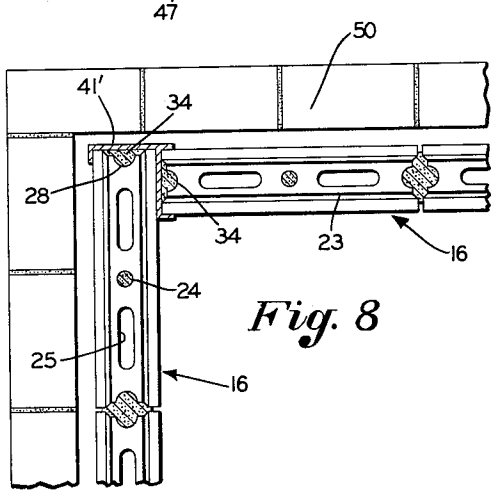


Fig. 8

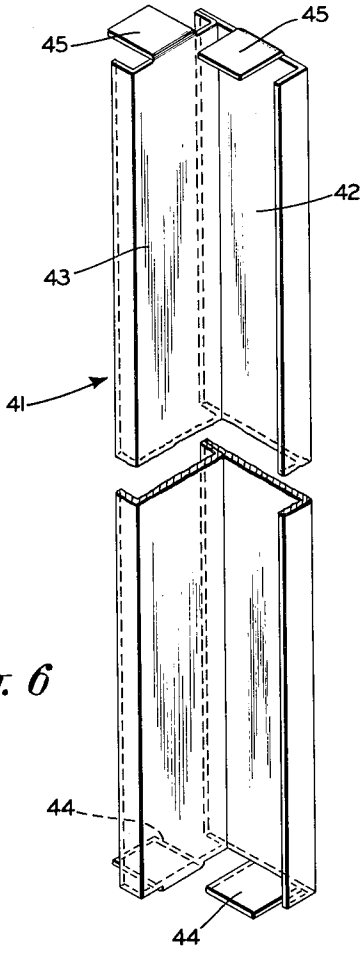


Fig. 6

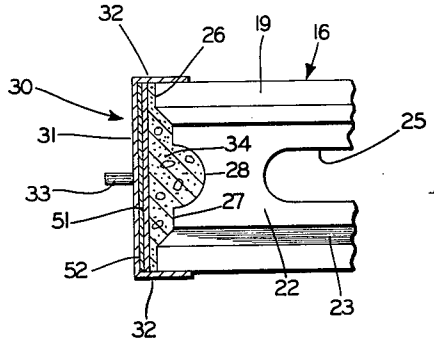


Fig. 9

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3,233,379

METAL CHANNELS AND FRAMES FOR WALLS FORMED OF INTERLOCKING BUILDING BLOCKS

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Filed Apr. 6, 1962, Ser. No. 185,577
3 Claims. (Cl. 52—396)

The invention relates to metal channels and frames in combination with interlocking building blocks of the general type disclosed in my prior patents, Nos. 2,634,602 dated April 14, 1953; 2,655,032 dated October 13, 1953 and 2,696,102 dated December 7, 1954, and partition or back-up blocks as disclosed in my companion application.

Such building blocks are of the type adapted to be laid up in the manner of a dry wall and provided with interlocking longitudinal ribs and recesses, and with interior openings and exterior grooves or recesses forming mortar spaces adapted to be filled with grout or the like after the wall is laid up, so as to bond the blocks together with no mortar joints appearing from the exterior of the wall.

The blocks disclosed in my prior patents are of the general dimensions of the ordinary concrete or cinder building blocks, being of sufficient thickness to form an exterior wall of a building, and the partition or back-up blocks shown in said application are of the same length and height but are one-half the thickness of the patented blocks.

The vertical ends of all of such blocks are recessed providing mortar spaces, and the metal channels, window and door frames, corner channels and the like have channel or "surround" portions into which the recessed vertical ends of the blocks are received, said channels forming closures for the mortar spaces.

It is therefore an object of the invention to provide a wall formed of such interlocking building blocks with recessed vertical ends, with metal frames and the like having channel portions receiving said recessed vertical ends of certain blocks in the wall.

Another object of the invention is to provide a metal channel extending from floor to ceiling, with means for pinning the outer side of the channel to an outer wall, the adjacent end of a partition wall being located in said channel.

A further object of the invention is to provide a corner channel comprising two attached metal channels located at right angles to each other for location in a corner of a partition or back-up wall.

A still further object of the invention is to provide a corner channel of the character referred to, having pads at the lower and upper ends of each channel for anchoring the same to the floor and ceiling.

Another object of the invention is to provide a fiber pad between the metal channel or frame and the grouting in the mortar space, in order to provide for insulation and expansion.

A further object of the invention is to provide a metal channel frame for enclosing electric wires or pipes within the wall.

It is also an object of the invention to form such fiber pad of fiber glass with a backing of foil or felt.

The above objects together with others which will be apparent from the drawings and following description, or which may be later referred to, may be attained by constructing the improved metal channels and frames for walls in the manner hereinafter described in detail and illustrated in the accompanying drawings, in which;

FIG. 1 is a perspective view of a block of the general

type shown in my above-mentioned patents, for use in constructing an outside wall, or the like;

FIG. 2 is a perspective view of one of the partition or back-up blocks;

FIG. 3 is a fragmentary plan sectional view of a portion of an exterior wall built of blocks of the type disclosed in my prior patents, with a portion of a partition wall attached thereto by a metal channel, showing metal door and window frames in said walls;

FIG. 4 is a perspective view of the metal channel shown in FIG. 3 for connecting the partition wall to the exterior wall;

FIG. 5 is a fragmentary plan sectional view of a portion of a partition wall, with a metal corner channel and a channel frame for electric wires or pipe therein;

FIG. 6 is a perspective view of the metal corner channel;

FIG. 7 is an enlarged sectional view of the frame for electric wires or pipe;

FIG. 8 is a plan sectional view of a back-up wall with metal corner channel therein; and

FIG. 9 is an enlarged fragmentary, plan sectional view showing a recessed vertical end of a block received in a metal channel, with a fiber pad between the metal of the channel and the grout in the mortar spaces.

Reference is first made to FIG. 1, in which is shown a building block of the type of my prior patents above referred to. This block is preferably of the dimensions of the conventional concrete or cinder block suitable for an exterior wall or foundation wall, being preferably 16" long, 8" high and 8" thick.

This block is indicated generally at **1** and has the flat rectangular side walls **2**, the ends of which form vertical flanges **3** extending from the upper longitudinal face **4** to the lower longitudinal face **5** of the block.

A horizontal, longitudinally disposed rib or projection, indicated generally at **6**, is formed upon the top of the block and has the flat top wall **7** and upwardly and inwardly inclined side walls **8**. The bottom of each block is recessed as at **9**, the recess being adapted to receive the rib **6** of a similar block, when laid up in a wall.

Because of the vertical flanges **3** at the ends of the side walls **2**, the vertical end walls **10** of the block are recessed. Longitudinal, substantially half-round grooves **11** and **12** are located centrally in the top rib **6** and bottom recess **9** respectively. These grooves communicate with the upper and lower ends respectively of the vertical central grooves **13** in the end walls **10**.

A substantially circular, vertical central opening **14** is located through each block communicating at its upper and lower ends with the upper and lower grooves **11** and **12** respectively. Vertical air spaces **15** are formed on each side of the longitudinal center of the block and are adapted to register with similar air spaces in courses above and below, when the blocks are laid up in a wall.

Opposed recessed end walls **10**, with vertical grooves **13** therein, form vertical mortar spaces which communicate with the central openings **14** in the blocks in courses above and below, and the longitudinal grooves **11** and **12** form therewith mortar spaces entirely surrounding each block in the wall and contained entirely within the wall and not visible from the exterior, as described in my prior patents above referred to.

In FIG. 2 is shown one of the blocks adapted for use in partition walls and back-up walls. This block is indicated generally at **16**, and is of the same length and height but only one-half the thickness of the block **1** shown in detail in FIG. 1.

This partition or back-up block has the flat rectangular side walls **17** of substantially the same size as the side

walls 2 of the block 1. A longitudinal rib 18 is formed on the longitudinal top wall 19, and a similarly shaped recess 20 is formed in the bottom longitudinal wall 21 and adapted to receive the rib of a similar block.

The rib 18 has the flat top wall 2 and upwardly and inwardly inclined side walls 23. A centrally located circular opening 24 extends vertically entirely through the block. Elongated air spaces 25 are located between the central opening 24 and the opposite ends of the block 16 and extend vertically through the block.

Vertical flanges 26 are formed at each end of the side walls 17 so as to recess the vertical end walls 27 of the block. Substantially half-round vertical grooves 28 are centrally located in the recessed end walls 27. When the blocks 16 are located in a wall, the opposed recessed ends of the blocks form mortar spaces communicating with the central openings 24 in blocks above and below, and the air spaces 25 communicate with air spaces in blocks above and below.

It should be understood that both the patented blocks and the partition or back-up blocks are made in the full length stretchers as shown, and also in half units, as is customary with this general type of building blocks.

As shown in FIG. 3, an exterior wall may be built of the patented blocks 1, and a partition wall built of the blocks 16 may be connected at right angles thereto by a metal channel member, indicated generally at 30 and shown in detail in FIG. 4.

This metal channel comprises the web 31 and flanges 32 at opposite edges thereof, and is of suitable length to extend from floor to ceiling. The channel member 30 may be anchored to the inner side of the exterior wall formed of the patented blocks 1, by pins 33 driven through the web 31 of the channel and into the blocks 1 of the exterior wall.

The recessed vertical ends 27 of the outermost partition blocks in the partition wall are received in the channel member 30 and the enclosed mortar space thus formed is filled with grout or the like as indicated at 34 in FIG. 3.

Metal door or window frames, as indicated generally at 35 in FIG. 3, may be set in the exterior wall. These frames are of generally channel shape having a web 36 with offset stop 37 formed therein, and the angular flanges 38 at each edge, terminating in the inturned flanges 39.

These channel-shape door or window frames thus surround the recessed ends 10 of the blocks 1, providing therewith an enclosed mortar space which is filled with grout or the like, as indicated at 34.

Similar channel-shape door or window frames of suitable width to fit the partition blocks may be set in the partition wall as shown in FIG. 3, the enclosed mortar space being filled with grout as indicated at 34.

In FIG. 5 is shown a partition wall having a right angle bend therein and a metal corner channel connecting the blocks together at the corners. This metal corner channel is indicated generally at 41 and is shown in detail in FIG. 6.

The corner channel 41 comprises two similar channels 42 and 43 connected together at right angles to each other and extending from floor to ceiling. Pads 44 and 45 are formed at the lower and upper ends respectively of the corner channel for anchoring the same to the floor and ceiling.

Each of the channels 42 and 43 of the corner channel receives the recessed end walls of the corner bricks in the wall, formed enclosed mortar spaces which are filled with grout, as indicated at 34.

FIG. 5 also illustrates a frame which may be be built into the partition wall for housing electric wires or pipes. This frame comprises the spaced pair of vertical channel side frame members 46 of any desired height, which receive the adjacent recessed vertical ends of the blocks 16, forming enclosed mortar spaces which are filled with grout or the like as indicated at 34.

Removable covers 47 are attached to the channel frames 46 on each side of the partition wall as by screws. Electric wires or pipes may be located within the enclosure thus formed. Switches or outlets may be mounted on the cover plates 47 as indicated at 49 for connection to the electric wires.

In FIG. 8 is shown how a back-up wall built of the blocks 16 may be provided with a metal corner channel 41' for backing up an exterior wall 50 formed of brick or the like. The metal corner channel 41' is the reverse of the corner channel 41 in FIG. 5.

The adjacent recessed ends of the blocks 16 are received in the two channels of the corner channel 41' in the manner shown and described above in connection with the corner channel 41, and the enclosed mortar spaces thus formed are filed with grout as indicated at 34.

Each of the metal channels and frames 30, 35, 40, 41, 41' and 46 has a fiber pad approximately ⅛ inch thick located between the metal and the grout for insulation and expansion purposes.

FIG. 9 is an enlarged plan sectional view of the channel 30 with the adjacent recessed end of a partition block 16 received therein and showing such a fiber pad between the metal channel and the grout 34. The fiber pad 51 is preferably formed of fiberglass and may have a backing 52 of felt or foil.

While FIG. 9 shows the channel 30 enlarged, with the fiber pad 51 therein, it should be understood that this is only by way of illustration, and that a fiber glass pad with felt or foil backing is located in each of the other channels and frames 35, 40, 41, 41', and 46 in the same manner as shown in detail in FIG. 9.

In the foregoing description certain terms have been used for brevity, clearness and understanding, but no unnecessary limitations are to be implied therefrom beyond the requirements of the prior art, because such words are used for descriptive purposes herein and are intended to be broadly construed.

Moreover, the embodiments of the improved construction illustrated and described herein are by way of example, and the scope of the present invention is not limited to the exact details of construction.

Having now described the invention or discovery, the construction, the operation and use of preferred embodiments thereof, and the advantageous new and useful results obtained thereby; the new and useful construction, and reasonable mechanical equivalents thereof obvious to those skilled in the art, are set forth in the appended claims.

I claim:

1. In combination with a masonry wall formed of building blocks having recessed vertical ends, a vertical metal channel member receiving one end of said wall and forming a vertical mortar space with the adjacent recessed ends of blocks in the wall, grout located in said vertical mortar space, and a fiberglass pad located between the web of the metal channel and the grout for insulation and expansion purposes.

2. In combination with a masonry wall formed of building blocks having recessed vertical ends, a vertical metal channel member receiving one end of said wall and forming a vertical mortar space with the adjacent recessed ends of blocks in the wall, grout located in said vertical mortar space, and a fiberglass pad with foil backing located between the web of the metal channel and the grout for insulation and expansion purposes.

3. In combination with a masonry wall formed of building blocks having recessed vertical ends, a vertical metal channel member receiving one end of said wall and forming a vertical mortar space with the adjacent recessed ends of blocks in the wall, grout located in said vertical mortar space, and a fiberglass pad with felt backing located

between the web of the metal channel and the grout for insulation and expansion purposes.

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