May 21, 1929. F. LICHTENBERG ET AL 1,714,174

WALL CONSTRUCTION

Filed June 13, 1923 2 Sheets-Sheet 1

Fig. 1.

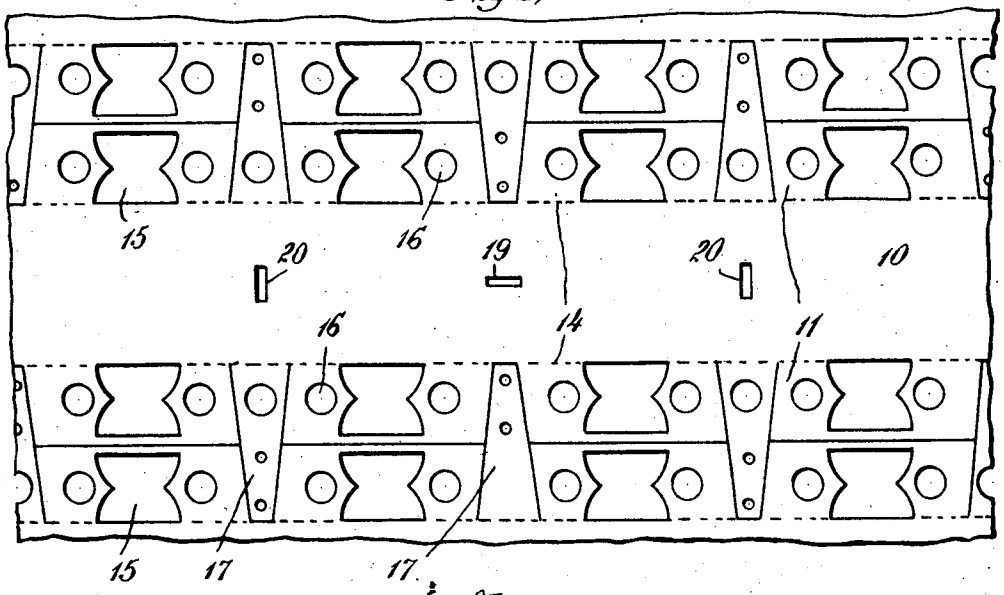


Fig. 2.

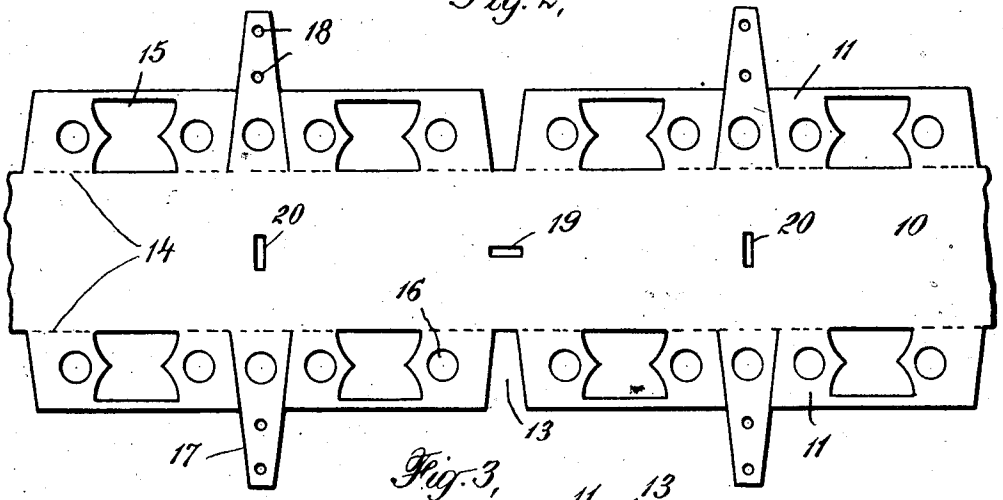
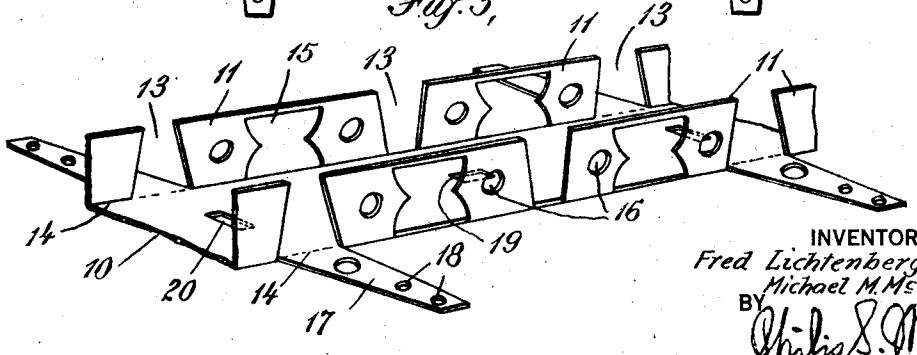


Fig. 3.



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Fig. 4,

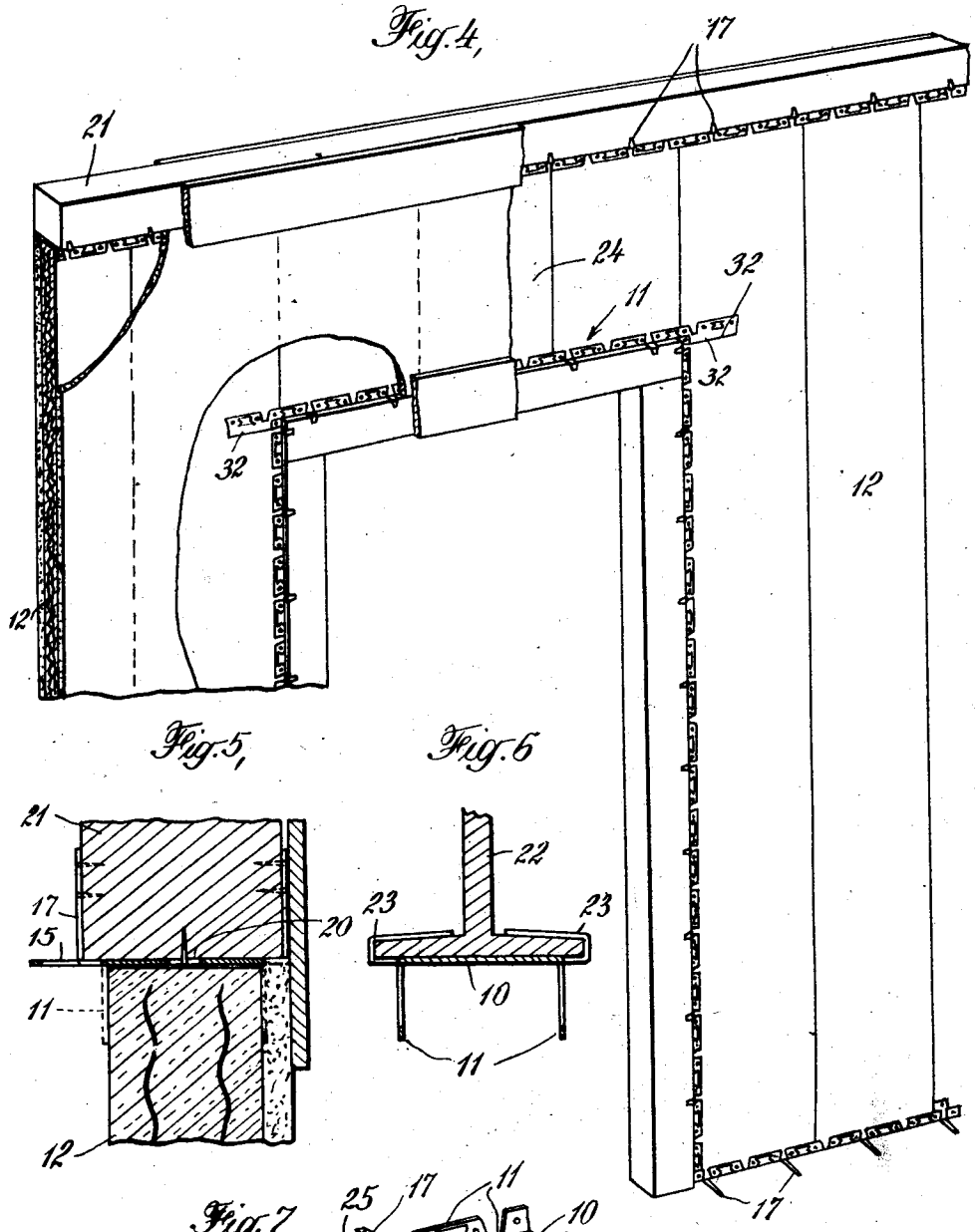


Fig. 5,

Fig. 6

Fig. 7

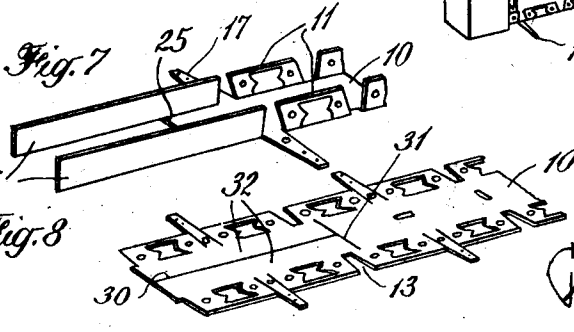


Fig. 8

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UNITED STATES PATENT OFFICE.

FRED LICHTENBERG AND MICHAEL M. McCARTHY, OF YONKERS, NEW YORK.

WALL CONSTRUCTION.

Application filed June 13, 1923. Serial No. 645,209.

The present invention relates to the construction of walls and partitions, particularly with building slabs of the character disclosed in our Patents #1,406,989 and #1,410,932.

Some of the more important objects of the invention are to facilitate the setting up of the slabs and insure their proper alinement in the wall, and to provide a secure anchorage for the ends of the slabs, which can be used to meet various building requirements.

In the accomplishment of the foregoing and other objects we have devised a channel construction for holding the ends of the slabs, embodying certain novel features and combinations of parts, as will be clear from the following specification.

In the drawings accompanying and forming part of this specification there are illustrated certain preferred embodiments of the invention, whereof

Figure 1 is a broken plan view, illustrating a method of blanking out the channels from sheet metal plates or strips.

Figure 2 is a broken plan showing a section of one of the channels blanked out and detached from the contiguous channel blanks.

Figure 3 is a broken perspective view of the formed up channel.

Figure 4 is a part sectional broken view of a wall constructed of the patented slabs and having incorporated therein, features of the present invention.

Figures 5 and 6 are broken sectional views illustrating the application of the channel to a wooden beam and to a structural I-beam respectively.

Figure 7 is a broken detail of a channel such as used over the top of a door or window frame, and Figure 8 is a further detail of a channel of this type.

The channel structure comprises a back 10 having angularly extending side flanges 11 which, as shown in Figures 3, 4 and 5, are spaced to receive between them the edges of the reinforced building slabs 12. These flanges are discontinuous or interrupted by cuts 13 so that they may be bent into position, one or more sections at a time, and the lines on which the flanges are bent may be defined by rows of perforations or by scoring or creasing as indicated at 14.

The side flanges of the channels are perforated for the passage of cement or bonding material and for the passage of suitable fastenings which may be employed when required. Some of these perforations 15 are shown as enlarged toward their opposite ends to form bonding keys and other perforations 16 are indicated as of circular shape.

To provide the interruptions in the flanges and at the same time furnish means for fastening the channels in place, the material of the flanges may be cut to form tongues 17 which may be left outstanding at the sides of the channel, as in Figures 3, 4 and 7 or be bent backward into engagement with a supporting structure as in Figures 5 and 6. These attaching tongues usually are perforated as indicated at 18 to receive nails or other suitable fastenings.

The channels may be constructed of a fairly heavy gage sheet metal and in Figure 2 I have shown how they may be cut from a single sheet without waste of metal, this view indicating how the extending tongues of one channel strip may be cut from the flange portions of the adjoining channel strips, this providing at once the interruptions in the flanges and the projecting tongues for the anchorage of the channels, which tongues have their length increased to the extent of the width of the flanges.

Preferably the backs of the channel strips are slotted at spaced intervals on longitudinal and transverse lines, as indicated at 19 and 20, so that where possible securing fastenings may be driven directly through the back into a supporting beam, floor or other structure, said slots allowing for a certain amount of adjustment where that may be necessary or desirable.

In constructing a wall from slabs like those shown in the patents referred to, the preferred practice is to secure one of the channels on the floor and another channel in line therewith on the ceiling or overhead structure. The centrally disposed perforations or slots in the back of the channels materially aid in placing the channels because with these it is simply necessary to draw a line where the center of the partition is to be and then place the channel so that this line will appear through the slots, whereupon suitable fastenings may be driven to hold the channel firmly in place. If conditions permit the channels may be secured with the anchorage tongues or straps in outstanding flat relation, as with the floor channel at

the right in Figure 4. Under other circumstances the supporting straps may be bent backward and nailed directly to a wooden supporting beam 21, as in Figure 5, or be bent over the flanges of an I-beam 22 after the manner of attaching clips as shown at 23 in Figure 6.

As shown in Figure 4, the channels may be employed for securing the slabs in position about a door or window frame and for like purposes. Where a channel is used over a door or window frame for holding in position the lower ends of the short length slabs 24, the back of the channel may be cut to a length equal to the top of the door frame, as indicated at 25, and the side flanges be extended beyond this point as at 26, so as to embrace the opposite faces of the adjoining full length slabs. This, it will be seen, braces both the short slabs and the frame and serves to bind these parts together.

To facilitate the building up of the slabs into a wall structure the channels may be secured in place with the flanges at one side only bent up into position, as at the right in Figure 5. These angularly turned flanges then serve as stops for the slabs and the opposite open sides of the channels enable the slabs to be readily slipped into position back against such stops, after which the flanges at the open side can be bent over, section by section, to secure the slabs in position. The bending in of these flanges also operates to force the slabs into alinement and to hold them locked firmly in place. The openings in the side flanges enable the formation of bonding keys between the slabs, the channels and the structural units with which the slabs are associated.

It will be seen from the foregoing that this invention makes it possible to construct a wall of slabs or other building units practically as fast as the units can be put together. Furthermore, the wall thus constructed is securely anchored and braced. The structural channels which make possible the attainment of these results can be produced inexpensively from stock grades of sheet metal and can be readily bent and cut to meet particular requirements.

As an alternative to the slightly modified form of channel shown in Figure 7 for use over the door and window frames, a piece of the channel may be cut as in Figure 8 to answer the same purpose. As shown in the latter view referred to, a longitudinal cut 30 is made in the back extending inward to a transverse cut 31 and the two sections 32 of the back thus partially severed from the back are then bent out into the plane of the side flanges so as to constitute, with the side flanges, extensions which will pass to opposite sides of the adjoining slab and thus binding the slabs and frame together in the same manner as with the construction in Figure 7.

What we claim is:

1. A structural channel comprising a back and side flanges, the back having centrally arranged slots therein and the side flanges having bonding perforations and attaching tongues cut from the material of the side flanges and projecting from the back at an angle to said flanges.

2. In a wall structure, the combination with wall slabs of different lengths, of a channel having a back engaged over the ends of the shorter slabs and side flanges extending over the end edges of the shorter slabs and projecting beyond the same over the opposite faces of the adjoining longer slabs.

3. In building construction, wall slabs standing in adjoining edge to edge relation, a positioning and supporting channel for said slabs having a back with an angularly extending side flange at one edge providing a stop for the slabs and separately bendable flange sections at the opposite edge for securing the slabs positioned against said stop and attaching clips for the channel partially severed from the material of the side flanges and bendable into different securing positions.

4. A combination as in claim 3 in which the side flanges have bonding perforations and in which the removed supporting clips from the side flanges provide bonding openings for the entry of bonding material into the channel and between the adjoining edges of the slabs.

5. In a wall structure, the combination with wall slabs of different lengths, of a channel having a back engaged over the ends of the shorter slabs and a side flange extending over the end edge of a shorter slab and projecting beyond the same over the face of an adjoining longer slab.

In witness whereof, we have hereunto set our hands this 11th day of June, 1923.

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MICHAEL M. McCARTHY.