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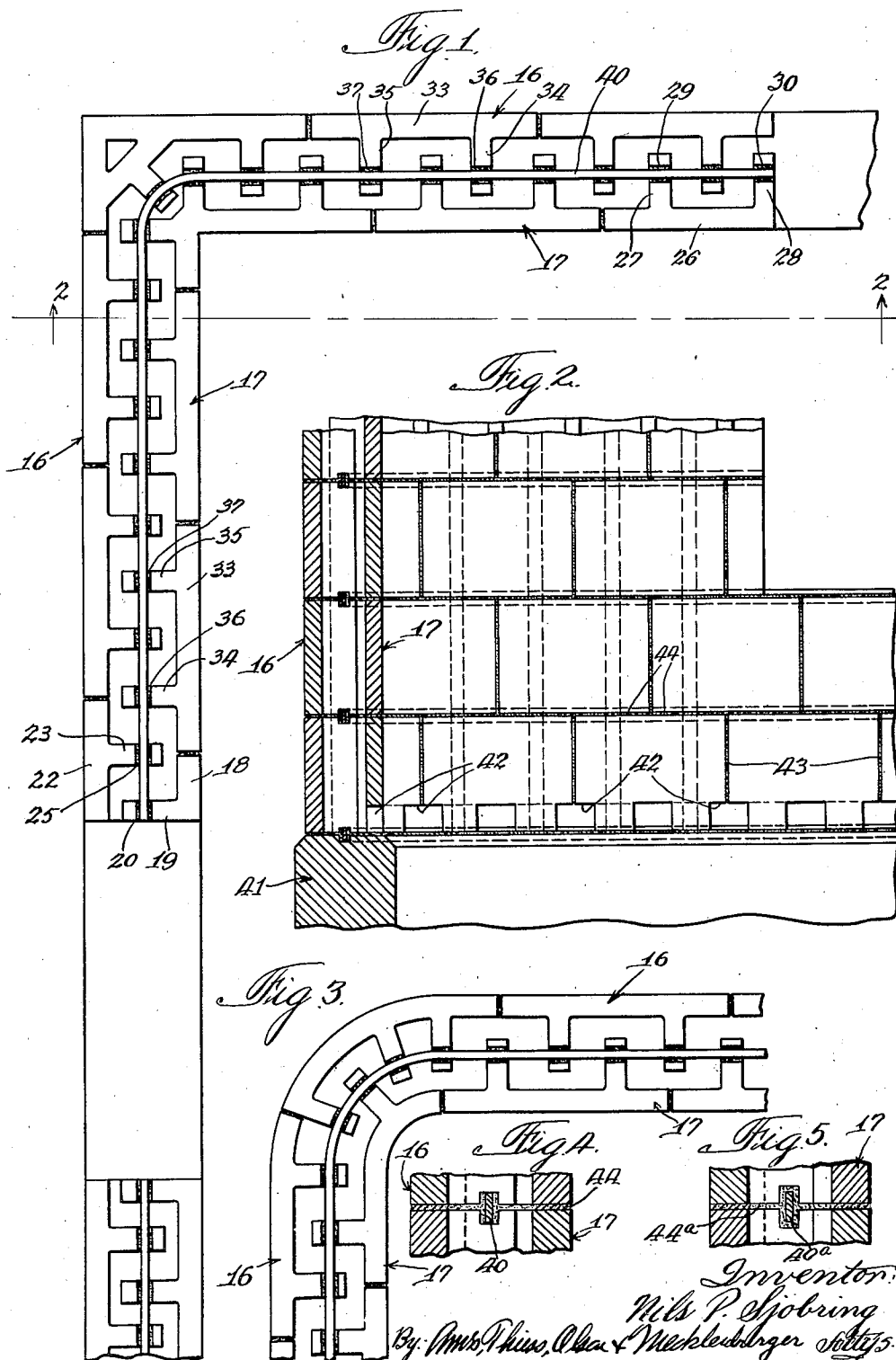
N. P. SJOBRING

2,294,051

WALL CONSTRUCTION

Filed June 24, 1939

2 Sheets-Sheet 1



Aug. 25, 1942.

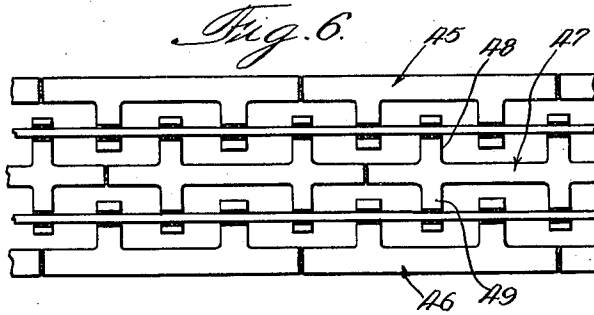
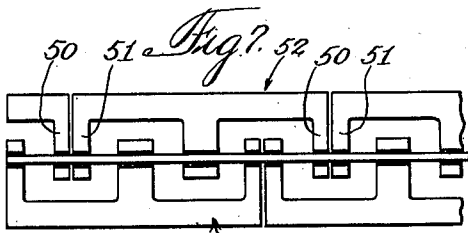
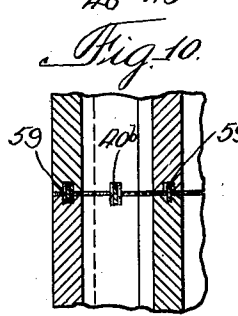
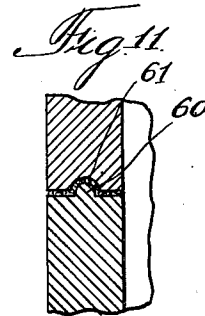
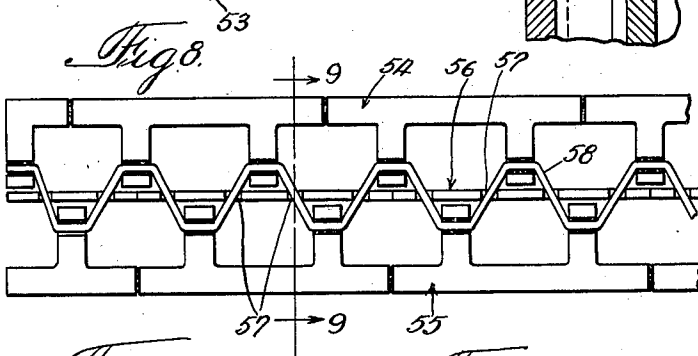
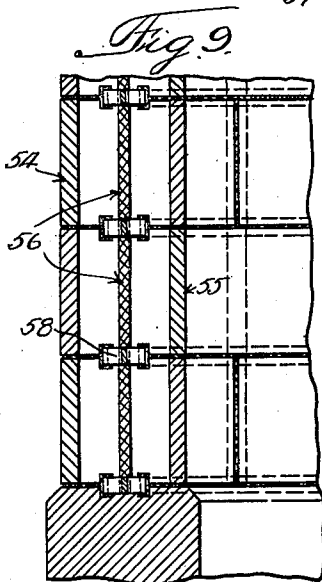
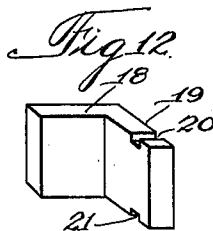
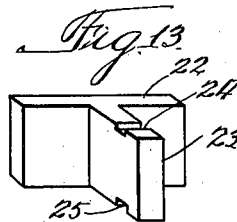
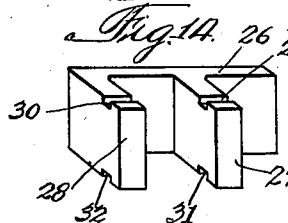
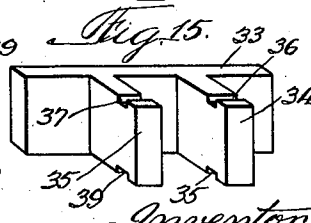
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WALL CONSTRUCTION

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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WALL CONSTRUCTION

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Application June 24, 1939, Serial No. 280,951

1 Claim. (Cl. 72—39)

This invention relates to a wall construction and to blocks therefor and has special reference to a wall construction formed of blocks of cement, tile, terra cotta, or the like, arranged in spaced tiers providing a continuous air passage therebetween for purposes of insulation.

More particularly, this invention relates to a wall construction comprising spaced tiers of superposed blocks each having at least one tongue extending therefrom in the direction of and terminating in a spaced relation from an adjacent tier, each tongue having a notch in both its top and its bottom edge aligning with a corresponding notch in the facing edge of an adjacent block to receive a tie rod for locking adjacent superposed blocks. The tie rod may preferably be of substantial length to engage aligning notches of a plurality of tongues of different tiers for locking the rows of tiers together.

The most usual type of building block used for wall constructions in present day homes comprises front and rear slabs spaced from each other and connected at one or more portions by laterally extending connections all of which slabs and connections are cast in an integral whole. Sections of these blocks vary widely although when they are formed with air spaces between front and rear portions thereof, connections between the front and rear portions being integral therewith, conduct cold and heat so as to give a poor insulating value to the wall. The present invention contemplates the provision of spaced tiers of superposed blocks in which no portion of blocks of adjacent tiers meet thus providing a continuous air space throughout the entire wall. The only connection between blocks of adjacent tiers is in a tie rod of relatively small cross section which passes through an air space as it extends from one portion of the block of one tier to another portion of the block of an adjacent tier. Thus a very minimum of heat or cold transmission is had through actual contact.

In employing blocks of the above type in a wall construction it is possible to form the blocks of different materials in which one tier of blocks may be of a more expensive material than the other tier or tiers of blocks. It is desirable to form the outer tier of blocks of concrete, tile, terra cotta, or the like, and the inner tier of blocks of cinders. The cinder blocks permit ordinary nailing of wall board, trim, studding or the like, directly thereto, whereas it would be necessary to embed tie rods or drill and countersink wooden plugs or the like into the blocks for holding studding, trim, or the like, in position, were

tile, terra cotta or the like employed on the inner tier of blocks.

One of the objects of this invention is to provide a block of the character indicated above for constructing walls, which blocks are of simple construction, are easy and comparatively inexpensive to manufacture and install, and which form a strong and durable wall construction.

It is a further object of this invention to provide a wall construction having a plurality of tiers of superposed blocks of the type hereinabove noted, the tiers of blocks being spaced in a locked relation and not contacting directly with each other so as to provide a continuous air space for purposes of insulation.

Other objects and advantages of this invention will hereinafter be more particularly pointed out and, for a more complete understanding of the characteristic features of this invention, reference may now be had to the following description when taken together with the accompanying drawings, in which latter:

Figure 1 is a plan elevational view of a corner portion of a wall construction embodying the features of this invention;

Fig. 2 is a reduced fragmentary sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a view similar to Fig. 1 showing a modified corner construction and embodying the features of this invention;

Fig. 4 is an enlarged fragmentary sectional view of the wall construction of Fig. 2 showing the tie rod connection thereof between spaced tiers of superposed blocks;

Fig. 5 is a view similar to Fig. 4 in which the tie rod is wholly embedded in the cement of the connection;

Fig. 6 is a plan elevational view of a fragmentary portion of a modified wall construction embodying the features of this invention;

Fig. 7 is a view similar to Fig. 6 of a further modified form of wall construction embodying the features of this invention;

Fig. 8 is a view similar to Fig. 7 showing a still further modified form of wall construction embodying the features of this invention;

Fig. 9 is a fragmentary vertical sectional view taken on the line 9—9 of Fig. 8;

Fig. 10 is a view similar to Fig. 5, incorporating a sealing member between facing edges of the slabs of superposed blocks;

Fig. 11 is a fragmentary sectional view showing a modified form of sealing means between facing edges of the slabs of superposed blocks; and

Figs. 12, 13, 14, and 15 are perspective views of several forms of blocks incorporating the features of this invention.

Referring now to the drawings and more particularly to Figs. 1 to 4, inclusive thereof, the wall construction incorporating the features of this invention comprises spaced tiers of superposed blocks, there being in the preferred embodiment shown therein an outer tier of blocks 16 and an inner tier of blocks 17. In order to form a wall construction it is desirable that the individual blocks thereof, in order to fit properly and present openings for windows, doors and the like, be of different lengths in order that the blocks need not be fastened by cutting, shaping or the like at the place of installation. Further, in order to effect corner constructions of the walls it is desirable to provide specific blocks for presenting either square or rounded corners.

The types of blocks required for the most part in the wall constructions shown in Figs. 1 to 5, inclusive, are more clearly shown in Figs. 12 to 15, inclusive, to which reference is now directed. Referring first to Fig. 12, the block shown therein comprises a slab 18 having a tongue 19 extending angularly from the rear face at one end of the tongue, the front face forming a portion of the outer or inner surface of the building. The tongue 19 is preferably the same height as the height of the slab 18 and has a notch 20 in the top edge thereof and a notch 21 in the bottom edge thereof. The tongue preferably extends at right angles to the plane of the slab 18.

Referring now to Fig. 13 of the drawings, the slab 22 has a tongue 23 extending angularly from the rear face of the slab, there being a notch 24 in the top edge of the tongue and a notch 25 in the bottom edge thereof. The tongue in this instance extends substantially centrally of the length of the slab 22. In Fig. 14, two tongues are shown as extending from the slab 25, one tongue 27 having the same relative position as the tongue 23 with respect to the slab 22 and the tongue 23 extending from the end of the slab 26 as in Fig. 12. The top edges of the tongues 27 and 28 having notches 29 and 30, respectively, and the bottom edges of the tongues 27 and 28 having notches 31 and 32, respectively. In Fig. 15, the slab 33 is provided with tongues 34 and 35, the tongues being in the same relative positions as the tongues 27 and 28 of Fig. 14, the slab, however, extending in one direction beyond the tongue 35 the same distance as it extends in the other direction beyond the tongue 34. The top edges of the tongues 34 and 35 are provided with notches 36 and 37, respectively, and the bottom edges of the tongues 34 and 35 are provided with notches 38 and 39, respectively.

The wall construction of Fig. 1 with the exception of the corner is provided with the blocks of Figs. 12 to 15, inclusive. The blocks of tier 16 have the tongues thereof extending therefrom in the direction of and terminating in a spaced relation from the blocks of tier 17, the tongues of tier 17 extending therefrom in the direction of and terminating in a spaced relation from tier 16. Referring to Fig. 2, the tiers comprise horizontally extending rows of superposed blocks and the notches in both the top and bottom edges of the tongues of one block align with a corresponding notch in the facing edge of an adjacent block. A tie rod 40 is received in the aligning notches of a plurality of tongues of the blocks of tiers 16 and 17 and lock adjacent superposed blocks and tiers. The tie rod 40 may,

as shown in Fig. 1, extend from one opening for a window, or the like, through the notches of facing edges of both tiers to the next opening and, in the particular instance shown, passing around a corner of the wall construction. It is, of course, to be understood that the tie rod may be of any desirable length and that a plurality of tie rods may be employed between openings if desired rather than the single tie rod.

In setting the blocks to complete a wall construction a horizontal row is laid first on a foundation 41, as shown more particularly in Fig. 2, the first row of blocks having clean-out openings 42 in the bottom thereof extending through the slabs forming the interior wall. Vertical edges of the slabs are provided with cement 43 in order to unite the blocks in a horizontal row and the upper edges of the slabs and tongues are likewise provided with a cement 44 for supporting a horizontally extending row of superposed blocks, the cement uniting the two horizontally extending superposed rows.

Referring now more particularly to Figs. 4 and 5, the tie rod 40 preferably comprising a metal strip of rectangular cross section, may act as a spacer for the superposed blocks, the height of the tie rod being greater than the combined depths of the notches, the difference being the desired thickness of the cement between the blocks. Thus, the spacing of the blocks or the amount of cement disposed therebetween will be uniform. The tie rods are held in the notches by reason of the cement filling the space in the notches not used by the tie rod. The tie rod 40a, shown in Fig. 5, is wholly embedded in the cement in the notches of the facing edges of the tongues, the tie rod being moved into the notches and displacing the cement as the blocks are brought into a superposed relation.

The tongues of the blocks of one tier are spaced horizontally relative to each other and preferably are equi-distantly spaced. A tongue from one tier is disposed in the space between adjacent tongues of an adjacent tier and preferably in a horizontally overlapping relation so that the notches of a plurality of tongues of different tiers are aligned. In Figs. 1 and 3, the tongues from tier 16 extend in a direction toward the other tier 17 in the space between adjacent tongues of the tier 17 and preferably midway thereof. Likewise the tongues from the tier 17 extend in the spaces between adjacent tongues of the tier 16 and the adjacent tongues from different tiers have the notches thereof aligning in a horizontal direction so that the tie rod may be a straight bar.

Referring now more particularly to Fig. 6, three tiers of blocks are employed, the outermost tiers 45 and 46 being formed of the blocks illustrated in Figs. 12 to 15, inclusive, and the intermediate tier 47 being formed of blocks in which the tongues 48 and 49 extend on both sides of the slab thereof. Tongues from each tier are spaced horizontally relative to each other and a tongue from one tier is disposed in the space between adjacent tongues of an adjacent tier in a horizontally overlapping relation. By reason of their overlapping in a horizontal relation, the aligned notches on the top and bottom edges of the tongues of different tiers may be disposed in horizontal alignment to accommodate a straight tie rod.

The blocks shown in Fig. 7 are substantially the same as the blocks shown in Figs. 12 to 15, inclusive, with the exception that the tongues

50 and 51 extending angularly from the slab at the end thereof, when set side by side, are approximately the same dimension in their combined thicknesses as the thickness of the intermediate tongue. Tongues from each tier 52 and 53 are spaced horizontally relative to each other and a tongue from one tier is disposed in the space between adjacent tongues of the other tier in a horizontally overlapping relation so that the notches formed in the top and bottom edges thereof may be aligned.

Referring now more particularly to Figs. 8 and 9 of the drawings, the wall construction shown therein is formed of two tiers of blocks 54 and 55, the blocks being the same as those illustrated in Figs. 12 to 15, inclusive. In this instance, however, the tongues are not disposed in a horizontally overlapping relation except that tongues from one tier are disposed substantially midway between tongues of adjacent tiers. In this instance the tongues extend from each block of each tier in the direction of and terminate adjacent a wall board 56 disposed between the two tiers. The wall board 56 comprises a plurality of boards of the same length and width as the blocks and of the usual thickness of wall boards. The top and bottom edges of the individual wall boards are provided with notches 57 in a staggered relation with the tongues so that a tie rod 58 or a plurality of tie rods of substantially corrugated cross section may be received therein while extending through the notches in the top and bottom edges of the tongues of the adjacent tiers of blocks.

While in the previously described figures, the individual blocks have been superposed upon each other and held together by a layer of cement, it may be desirable to provide a further sealing medium between the superposed blocks in the form of a strip of metal 59 or the like, shown more particularly in Fig. 10. This strip may be embedded in the top edge of each slab at the time of formation of the slab to be received in a preformed groove filled with cement in the bottom edge of the slab next above. The tie rod 40b is disposed in aligning notches of the tongues and the other strip 59 may be embedded in the cement between preformed opposed grooves in the facing top and bottom edges of the slabs.

Instead of having a metal strip for effecting a sealing engagement between the superposed slabs, it may be desirable to provide a tongue 60 and groove 61 in the top and bottom edges

of the slabs, as shown more particularly in Fig. 11, the tongues being sealed in grooves by the layer of cement applied therebetween. Also, a similar tongue and groove may be disposed in the respective side edges of the slabs for sealing purposes.

In each of the embodiments shown above it is preferable that each block of one horizontally extending row meet centrally of the adjacent block of the row therebelow so that the tongues thereof may be vertically aligned. This construction is shown more particularly in Fig. 2 of the drawings. In this manner the tongues resting upon each other form, in effect, a studding with the ends of the blocks of one row meeting midway of the block therebelow so as to form a support of maximum strength.

Any excess cement used in cementing the blocks together may fall directly downwardly through the space between the walls to be cleaned out in the openings 42 adjacent the foundation. Thus, a continuous passage is formed for air between the adjacent tiers of blocks for cooling the wall construction in hot weather and warming the wall in cold weather. This may be done by forced circulation although, of course, this is not necessary since the spaced tiers may form a dead air space.

While several embodiments of this invention are herein shown and described, it is to be understood that various modifications thereof may be apparent to those skilled in the art without departing from the spirit and scope of this invention and, therefore, the same is only to be limited by the scope of the prior art and the appended claim.

I claim:

A wall construction comprising spaced tiers of superposed blocks, a plurality of superposed sheets of insulating material disposed in the space between said tiers, at least one tongue extending from each block of each tier in the direction of and terminating adjacent said sheets of insulating material, tongues of blocks of adjacent rows on each tier being vertically aligned and each tongue having a notch in both its top edge and its bottom edge aligning with a corresponding notch in the facing edge of an adjacent block, said sheets having apertures in the horizontal planes of said aligning notches, and a tie rod received in said aligning notches and said apertures for locking adjacent superposed blocks and sheets.

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