Feb. 15, 1955 H. L. BRIGGS 2,701,959

SECTIONAL BLOCK MASONRY

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Fig. 1.

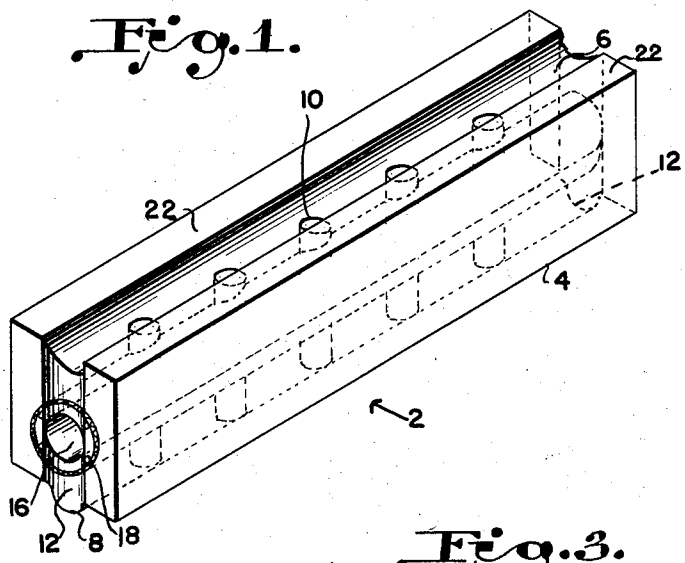


Fig. 2.

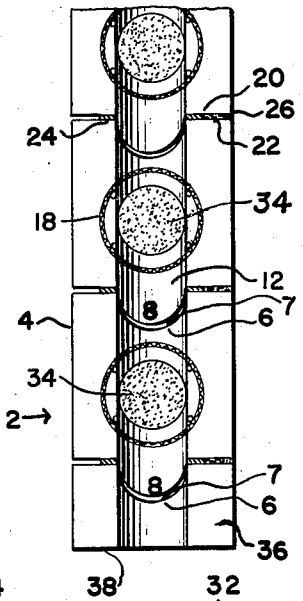


Fig. 3.

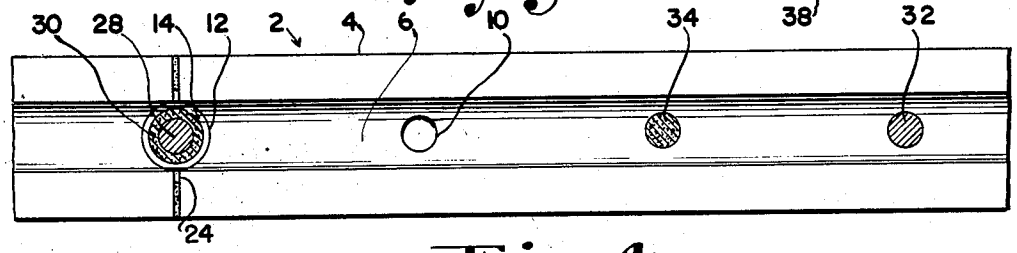
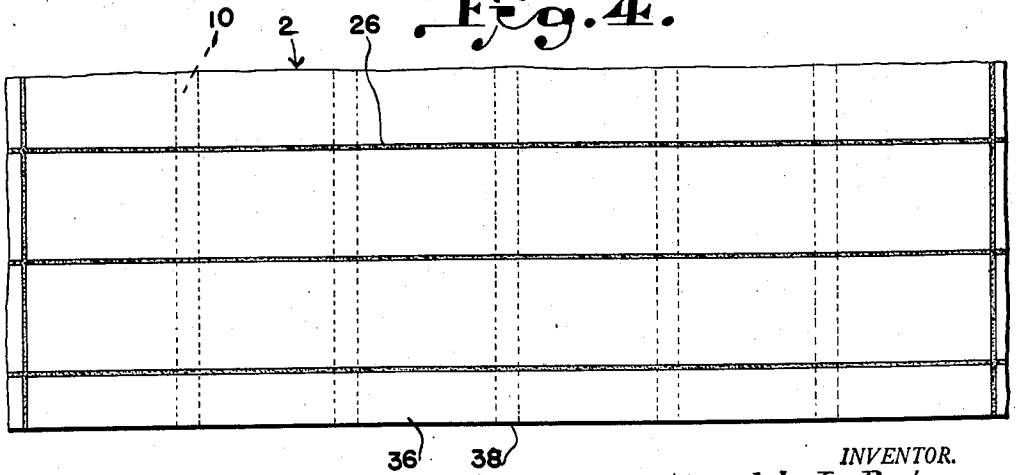


Fig. 4.



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SECTIONAL BLOCK MASONRY

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3 Claims. (Cl. 72—42)

This invention relates to masonry building structures and, more particularly to reinforced building blocks, wall, house and other structures formed thereby.

The primary object of the invention is to provide building blocks having elements, some of which facilitate the installation of co-operating vertical tie-rods, others of which provide inter-fitting between the elements themselves, and still others which accommodate insulating material, all of which co-operate with one another in the construction of a unitary building structure and in the drainage of leakage from without and condensation from within.

A more particular object is to provide, as a basic building unit, an elongated block of molded or cast concrete or similar material, the block being adapted for disposition with its length extending horizontally and having a series of relatively small vertical passages extending from edge to edge therethrough. Such a block is to be provided further with a half-round vertical concavity at each end for registering with a similar concavity on a laterally adjacent block so as to define between the laterally adjacent blocks a vertical passage somewhat larger than those spaced along the block length for receiving metallic reinforcement surrounded by a sheath of mortar. The smaller vertical passages, which register with one another as the blocks are stacked, are adapted to receive tie rods which tie the roof or other elevated members to the foundation, or which tie the roof or foundation to lintels. The vertical passages not occupied by tie rods may be packed with insulation or used for accommodating service conduits.

It is also intended that the blocks be provided with elongated longitudinal bores, somewhat larger than, but intersecting the small vertical passages, the longitudinal bores being adapted to accommodate side-to-side tie rods, service conduits, and cores of insulation.

The longitudinal joints of the block now proposed are somewhat akin to the tongue and groove system in that the blocks have, on the lower and upper longitudinal edges, respectively, substantially, arcuate tongues and grooves. It is intended, however, that the tops and bottoms of the blocks have longitudinal, flat faces at each side of the tongues and grooves; that narrow spacer strips or gauges of relatively hard composition be inserted between the opposed flat faces of each pair of blocks, on each side of the tongues and grooves; that the portions of the joints between the flat faces which are not occupied by the spacers be mortared; and that the tongues and grooves be not quite true arcs of circles. Particularizing this latter feature, it is proposed that the curve of the tongues be as a slightly flattened arc and that the curve of the grooves be as a slightly deepened arc, thus forming between them a gutter or drain for condensation or for seepage by capillary action. These drains, it may be noted, are interconnected directly with the vertical passages and indirectly with the longitudinal bores for drainage to the foundation.

The ultimate objective is to provide for the production of masonry buildings of standardized elements having the advantages afforded by having insulation within the walls, of being substantially leak-proof, by trapping of and elimination of condensation and minute leakage, by having the entire structure tied together in tension by the rods, and by the special adaptation of elements peculiar to any given structure for use as integers in the over-all system.

These and other objects will be apparent in the following specification and drawings, in which:

Fig. 1 is a perspective view showing the basic unit;

Fig. 2 is an end view of a portion of a wall embodying basic units of the type shown in Fig. 1;

Fig. 3 is a fragmentary plan view of a wall embodying basic units of the type shown in Fig. 1; and,

Fig. 4 is a fragmentary side elevation of a wall constructed as shown in Figs. 1 and 2.

Referring now to the drawing in which like reference numerals denote similar elements, the basic unit of the invention comprises an elongate block **2** molded or cast of concrete or similar material. The size is not critical, and block **2** may range from one to six feet in length and from six inches to twelve inches in width, depending on the pattern and function in the wall with which it is to be associated. Block **2** has flat sides **4** and is basically of tongue and groove configuration, having a groove **6** running along its top and a tongue **8** along the bottom. As will be apparent in Fig. 2 the tongue and groove are not true arcs of circles, the tongue being as a slightly flattened arc and the groove being as a slightly deepened arc, both being of substantially similar maximum widths.

Extending through each block from the bottom of groove **6** to the bottom of tongue **8** are a series of vertical passages **10**, and the ends of blocks **2** are semicircular cavities **12** which, when the blocks are laid end to end as shown in Fig. 3, form relatively large vertical passages **14** between the adjacent blocks. Each block **2** is further provided with a longitudinal bore **16** extending from end to end and the material surrounding the bore is reinforced by a metallic reinforcing screen **18** as shown in Figs. 1 and 2.

Block **2** is designed to form a wall, portions of which are illustrated in Figs. 2 to 4 inclusive, by arranging the blocks, one on top of another, so that their vertical passages **10** are aligned so as to form continuous vertical passages in the resultant wall. As shown in Fig. 2, gauges **24** are placed on the top edges **22** of the blocks and the bottom edges **20** of the next higher block are rested on gauges **24**, these gauges being disposed on opposite sides of the tongues and grooves. Mortar **26** is also placed in the joints in conventional manner. It will be apparent in Fig. 2 that, because of the flattened arc configuration of tongue **8** and the deepened arc configuration of groove **6**, there will result between each tongue and groove pair a gutter as indicated at **7** in Fig. 2 through which moisture resulting from condensation may drain. Since vertical passages **10** and **14** intersect gutter **7**, the moisture collecting in the gutters drain downwardly through the vertical passages to the base of the wall.

In order to tie the wall structure together, as for instance, to provide ties between a roof and a base (not shown) tie rods **28** sheathed with concrete **30** may be placed in the relatively large vertical passages **14** between the adjacent blocks, as shown in Fig. 3. In addition, tie rods **32** may be disposed in some of the vertical passages **10** running through blocks **2**, and insulation material indicated at **34** may be packed in the passages through the blocks. In order to provide a base element for a wall, a part block **36** having a flat bottom **38** may be used as indicated in Figs. 2 and 4.

I claim:

1. A structural wall comprising a plurality of elongate blocks of cementitious material disposed longitudinally along horizontal courses, said blocks being generally rectangular in cross-section and having arcuate central tongues and grooves extending longitudinally along their bottoms and tops, respectively, the tongues on the bottoms of the blocks in each course intermediate the top and bottom courses extending into and interfitting with the grooves in the tops of the blocks occupying the course immediately below, the bottoms and tops of said blocks on each side of said tongues and grooves, respectively being flat and constituting horizontal ledges slightly less in width than the greatest width of said tongues and grooves, spacing means disposed on each side of the tongues and grooves and between the horizontal ledges on the tops and bottoms, respec-

tively, of the blocks in vertically adjacent courses, the bases of the tongues engaging the free edges of the grooves, the bottoms of the tongues of the blocks in each course being spaced above the bottoms of the grooves in the blocks of the course immediately below and the space therebetween being clear of obstruction whereby said grooves constitute horizontal gutters, each of said blocks having a plurality of horizontally spaced vertical passages extending therethrough from the bottoms of said grooves through the bottoms of said tongues, the vertical passages of the blocks in each intermediate course registering with the vertical passages in the courses above and below, whereby the horizontal gutters drain into and through said vertical passages.

2. The combination claimed in claim 1, said blocks each having a longitudinal passage extending lengthwise therethrough from end to end and intersecting said vertical passages, said longitudinal passage being circular in cross-section and of a diameter substantially equal to the width of said tongues and grooves.

3. The combination claimed in claim 2, and a substantially tubular metallic re-inforcing screen in each of said blocks coaxial with and surrounding said longitudinal passage.

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