Jan. 21, 1930. E. M. LANE 1,744,171

BUILDING BLOCK AND METHOD OF LAYING SAME

Filed Nov. 19, 1924

Fig. 1.

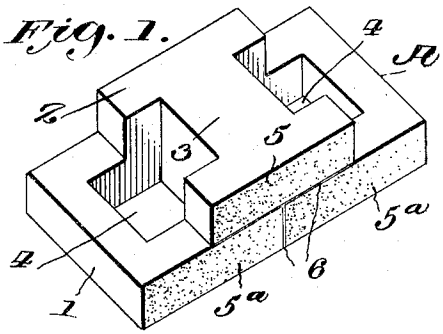


Fig. 2.

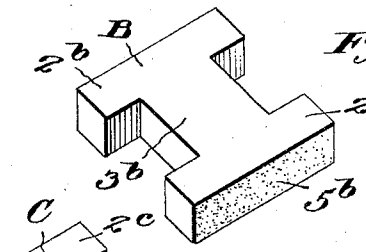


Fig. 3.

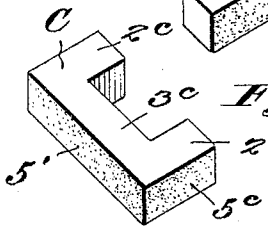


Fig. 4.



Fig. 5.

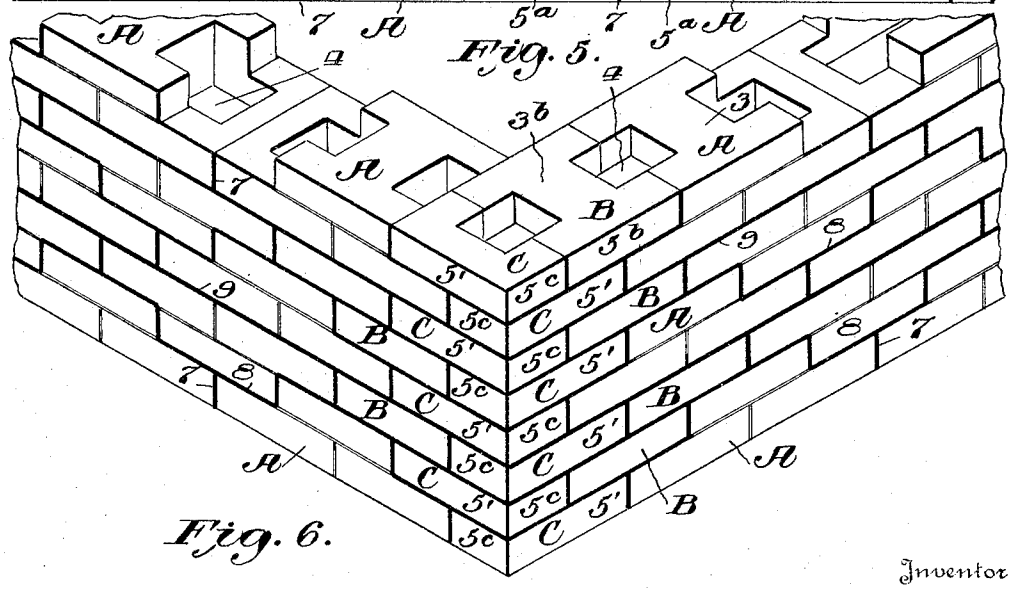
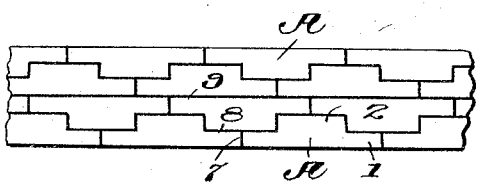


Fig. 6.



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BUILDING BLOCK AND METHOD OF LAYING SAME

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This invention relates to masonry structures, and more particularly to a set of improved concrete building blocks and method of laying the same.

Many attempts have heretofore been made to produce a building block, made of concrete or the like, and having faces to simulate brickwork. Blocks of this character have heretofore been proposed having faces designed to represent several courses of brickwork laid with regular broken joints, so that when the blocks are laid, the finished wall will have the appearance of ordinary brickwork.

Prior blocks of this character have, however, been objectionable and impractical for several reasons. One of these reasons is that many of the proposed blocks have been so large as to be unwieldy, and so heavy that the mason was unable to lift them with one hand. Another reason is that with many of the blocks heretofore proposed it was necessary, in laying them in a wall, to fit one block underneath a projecting or overhanging portion of an adjacent block. This practice, which is known as "toothing", is highly objectionable, and is not permitted by most architects, because of the difficulty of getting sufficient mortar under the overhanging portion to properly support the same.

The present invention has for its object to overcome these difficulties, and it seeks to provide an improved brick-face building block of such size and shape that it can be readily lifted and positioned by the mason with one hand, and further to provide a block of this character which can be so laid that it will never be necessary to place mortar under any overhanging part.

To this end the invention contemplates a block having a face made to simulate three bricks or units, two of these bricks being arranged end to end, and the third brick being superposed upon the other two so as to bridge the joint between them. This gives rise to a symmetrical block of convenient size, which, as will hereinafter appear, can be laid rapidly and efficiently, and in a manner to conform with building specifications. The improved block is preferably of hollow construction, and is formed with a transversely extending web or partition of such size and shape as to be readily grasped by the mason with one hand, whereby the block may be readily and conveniently handled.

The invention further contemplates the provision of auxiliary blocks to be used in connection with the main block to serve as fillers in the construction of corners or square faced openings in a wall, as for doors and windows. These auxiliary or filler blocks are closely related in shape and size to the main blocks as will hereinafter more fully appear.

In order that the invention may be readily understood, reference is had to the accompanying drawings forming part of this specification, and in which:

Figure 1 is a perspective view of my improved building block;

Figs. 2 and 3 are similar perspective views showing two auxiliary blocks which I employ as fillers;

Fig. 4 is a front elevation of a wall constructed of the blocks shown in Fig. 1 and illustrating the use of the filler blocks shown in Figs. 2 and 3 for forming a square-faced opening;

Fig. 5 is a perspective view of a corner of a wall formed of my improved blocks and illustrating how the filler blocks are employed; and

Fig. 6 is an elevation similar to Fig. 4, on a smaller scale showing the appearance of a wall constructed of blocks of a shape similar to that illustrated in Fig. 1, but without the brick faces.

Referring to the drawings in detail, and first more particularly to Figs. 1 to 3 thereof, my improved main block is shown in Fig. 1 as designated in its entirety by the reference character A. It comprises an elongated flat base portion 1, and an upper portion 2 of approximately half the length but the same height as the base portion and symmetrically superposed upon the latter adjacent the middle thereof. The base portion is slightly more than twice as long as the upper portion, due to the inclusion of the imitation mortar joint 6, as shown in Figure 1, such joint being com-

monly about three eighths of an inch in thickness. Where, in the claims, I refer to the upper portion of the block as being of one half the length of the base portion, this expression must be construed in the light of the above explanation. The block is hollow, having two vertical openings 4 extending therethrough, these openings being separated by a partition or web 3 which extends between and connects the two side members of the block.

Considered in another way, the base portion of my improved block consists of a rectangular framework, square in cross section, the cross section of the side members of the superposed portion being similarly square. The width or thickness, from front to back, of my improved block is preferably equal to one half the length of the base portion, or in other words is the same as the length of the upper portion. For reasons which will hereinafter appear, the web or partition 3 is preferably of a thickness equal to twice that of the side and end members.

I prefer to so construct the working face or side of the improved block as to simulate brickwork, and to this end I form on such face imitation mortar joints 6 in any suitable way. These imitation mortar joints divide the face of the block into three bricks, two of these bricks 5^a constituting the base portion of the block, being arranged end to end, and the third brick 5 being disposed symmetrically above the other two and arranged to bridge the joint between them.

In order to give a definite idea of the proportions of the various parts of the block to each other, I will state the dimensions when the face of the block is made to simulate three bricks of the ordinary size. Assuming the imitation brickwork to correspond to that ordinarily employed, the face of each brick such as 5 and 5^a, is approximately 2 by 8 inches, thus making the base of the block 16 inches long. The transverse dimension of the block is also preferably the same as the length of a brick, that is, usually, 8 inches. The side and end members of the base are approximately 2 inches square in cross section, and the partition or web 3 is 4 inches thick, or twice the thickness of the side members 2. These dimensions are given solely for the purpose of illustration, and of course may be varied as desired. However, it will be seen that in a block of the size described, and such as would probably be ordinarily employed, the 4 inch width of the web or partition 3 enables the mason to readily grasp the partition with one hand and lift and place the block conveniently, while he uses a trowel with his other hand. In other words this partition or web provides a convenient handhold, which, being located at the center of the block, causes the block to be balanced when lifted, and thus makes handling easier.

In Figs. 2 and 3 I have illustrated auxiliary blocks which are necessary in some cases, and which are used as fillers to square out the wall at openings or corners. By reference to Fig. 2 it will be seen that the block B is identical with the upper portion of the main block shown in Fig. 1. In other words it is as if this upper portion were detached from the base portion. This block B has side members 2^b similar to the side members 2, and a web or partition 3^b similar to the web 3. It is also provided with a working face 5^b similar to the face 5, these usually being of a size equal to that of an ordinary brick, namely 2 by 8 inches, to use the same illustration. In Fig. 3 I have shown an auxiliary block C, which in shape and size is exactly one half of the block shown in Fig. 2. That is to say, if the block B shown in Fig. 2 were divided on a median plane extending longitudinally of the web 3^b, two blocks such as C would result.

The block C therefore comprises a body portion 3^c which, to again use the above illustration, is 2 inches square in cross section, and a pair of end members 2^c, of similar cross section. To view this block in another way, it may be considered as one half of a square framework 8 by 8 inches, each side of which is 2 by 2 inches in cross section. It will also be noted that the block C is exactly similar to the end portions of the base of the block A, as shown in Fig. 1.

It will be further observed that the block C has three working faces, two of them, 5^c, at the ends of the block, being equal to one half brick in size, and the other one 5′ being equal to a whole brick in size, or in other words, similar to the faces 5 and 5^b.

It will be seen therefore that my improved set of blocks comprises a main block having a face to simulate three bricks, one auxiliary block having a face corresponding to one brick and another auxiliary block having faces of two different sizes, namely a whole brick and a half brick. The block A has vertical openings 4 extending through it, while the blocks B and C are provided in their sides with notches of corresponding dimensions as shown, so that when assembled, the resultant wall will have interconnecting hollow spaces extending through the same, as is considered desirable.

Referring further to Figs. 2 and 3, it will be observed that the block B is in the shape of the letter **H**, and the block C may be said to resemble the letter **U**.

To still further illustrate the relationship between the several blocks, it will be seen that the block B can be formed by placing two of the blocks C back to back, and the block A may be considered as comprising six of the blocks C, or as comprising four of the blocks C and one of the blocks B. Thus considering the block C as the elementary unit, the manner in which the other blocks con-

stitute multiples of this unit will be apparent.

Referring to Fig. 4, I have illustrated the manner in which a straight wall is constructed. In building this wall I first lay one course of the main blocks A end to end, with the ends of the base portions thereof abutting, as indicated at 7. I then lay a second course of blocks A, but lay them base up or inverted. The blocks in this second course are however, also laid with the ends of their base portions abutting. From an inspection of Fig. 4 it will be seen that when this second course is laid as described, the upper portions 5 thereof fit between the upper portions of the first course of blocks, giving rise to a mortar joint 8. It will be particularly observed that after the first course has been laid, mortar can be spread on top thereof and also applied to the ends of the upper portions thereof, so that when the second course is laid, each block will sit firmly against the mortar. There are no overhanging or projecting portions under which it is necessary to put mortar. Therefore the wall can be built in accordance with the same specifications which apply to ordinary brickwork.

After laying the second course as above described, the bases of this course form a perfectly level surface as indicated at 9, on which a third course can be laid, base down, in the usual manner. In other words, the courses are laid alternately base up and base down, with the result that alternate courses are also laid base to base, and top to top.

Fig. 4 shows the appearance of a wall thus constructed, where the blocks are formed with the imitation mortar joints to simulate brickwork. In some cases it may be desired to employ blocks of the form shown in Fig. 1, but without the brick face. In such cases the blocks are laid in the same way, but give the effect shown in Fig. 6. Everything that has been said in regard to Fig. 4 applies equally to the arrangement shown in Fig. 6, only the brick faces are omitted.

Referring again to Fig. 4, I have indicated at 10 a window frame or the like against which the wall must be squared. In order to fill in the gaps or notches between the ends of the courses of main blocks A so as to produce a square end, I employ the auxiliary blocks B and C as shown. In the embodiment illustrated in Fig. 4 there are four courses of main blocks, and with these four courses it is necessary to employ two auxiliary blocks C and one auxiliary block B, adjacent the window opening.

In designing blocks of this character one of the chief essentials is to provide means for neatly forming a corner, and at the same time for preserving the air spaces in the wall. This I have accomplished with my improved blocks.

Referring to Fig. 5 I have illustrated how a perfect corner may be constructed with the aid of the auxiliary blocks. It will be observed that each of the walls extending from the corner is formed of courses of main blocks A, laid alternately base up and base down, as previously described in connection with Fig. 4. The corner is formed mainly by means of the auxiliary blocks C, an occasional block B being required to fill in the space between a block C and the adjacent block A. Considering the bottom course of main blocks, it will be seen that one block C is laid flush with the base portion of the blocks A, and another block C is laid so as to bridge the joint between the first block and the adjacent block A. A block B is also required on the right-hand side of the corner to bridge the joint between the first block C and the adjacent block A.

It will be noted that in building up the corner, two faces of the block C are exposed, the long face of these blocks extending alternately on opposite sides of the corner, so as to properly interlock. The block B has but one working face, and therefore cannot be employed directly at the corner. It will be further observed that when the blocks C are laid at the corner as described, the notches in the sides thereof register with the openings in the blocks A and with the notches in the blocks B, so as to form continuous passages extending vertically through the wall, thus giving the desired air pockets. Even though, in the case of some of the blocks A adjacent the corner, the openings are partially covered by the interlocking blocks, there nevertheless always remains an opening of sufficient size to provide the necessary air space.

Where, in describing the construction shown in Figs. 4 and 5, I have specified the use of a block B as required, it will of course be understood that in place of such block B, two blocks C may be employed, if desired.

While throughout the specification and claims I have used the word "brick" to describe the faces of the blocks, it will of course be understood that by this term I mean to include any character of building units, such for example, as the various forms of stone or masonry units.

I claim:

1. A building block comprising a base portion in the form of an open rectangular framework of substantially square cross section, and of a length equal to twice its width, and an upper portion having side members of similar cross section but of one half the length symmetrically superposed upon the middle of the base.

2. A building block comprising a base portion in the form of an open rectangular framework of substantially square cross section, and of a length equal to twice its width, an upper portion having side members of similar cross section but of one half the length

symmetrically superposed upon the side members of the base, and a vertical central web member of a thickness equal to twice a side of said square extending between and uniting the side members of the block thus formed.

3. A wall formed of building blocks comprising several related types, namely, a block having a face to simulate three bricks, two laid end to end, and the other superposed upon and bridging the joint between them, whereby notches are provided at each end of the block, a second block having a face the size of one brick, and a third block having a face the size of half a brick, all of said blocks having a uniform transverse dimension equal to the thickness of the wall, and said second and third blocks fitting within the notches of one or more adjacent first blocks in the vicinity of square ends or corners of the wall.

4. A wall formed of building blocks comprising several related types, namely, a block having a face to simulate three bricks, two laid end to end, and the other superposed upon and bridging a joint between them, a second block having a face the size of one brick, and a third block having a face the size of half a brick, all of said blocks having a uniform transverse dimension equal to the thickness of the wall, and all being provided with vertical openings or notches therein whereby inter-communicating hollow spaces are formed in the wall, when said different types of blocks are assembled, the second and third blocks filling out the otherwise vacant spaces between blocks of the first type adjacent square ends and corners of the wall.

5. A wall built up of blocks, each comprising a lower or base portion, and an upper portion of one half the length of the base portion and symmetrically superposed thereon, the wall being formed of courses laid alternately base down and base up, the ends of the base portions of the blocks in each course abutting.

6. A wall built up of main and auxiliary blocks, each main block comprising a lower or base portion, and an upper portion of one-half the length of the base portion and symmetrically superposed thereon, the wall being formed of courses laid alternately base down and base up, the ends of the base portions of the blocks in each course abutting, and the auxiliary blocks having a face equal to or one-half of that of the upper portion of the main block, and filling in the spaces at square ends or corners.

7. The method of constructing a wall of blocks each of which includes a base portion and an upper portion of the same height but one half the length of the base portion and symmetrically superposed upon the middle thereof, which method comprises laying one course of such blocks, base down, and with the ends of the bases abutting, and laying a second course, base up, and with the ends of the bases abutting, so that the upper portions of the inverted blocks of the second course fit between the upper portions of the blocks of the first course, and filling in spaces between courses at square ends or corners with other blocks of a size similar to or one half of the upper portion of the main blocks.

In testimony whereof I affix my signature.

EDWARD M. LANE.