July 8, 1924. 1,500,808

J. FUHRMANN

BUILDING BLOCK

Filed Nov. 10, 1922

Fig. 1.

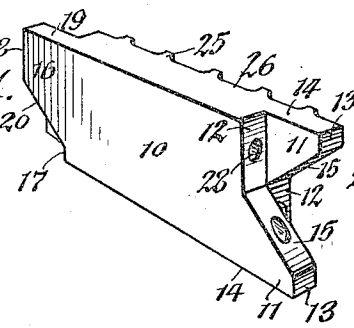


Fig. 2.

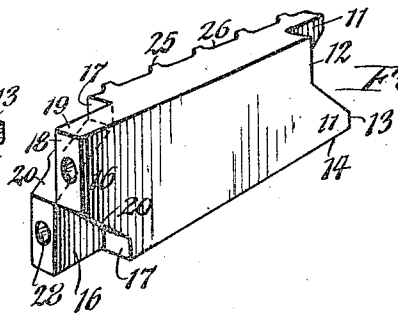


Fig. 3.

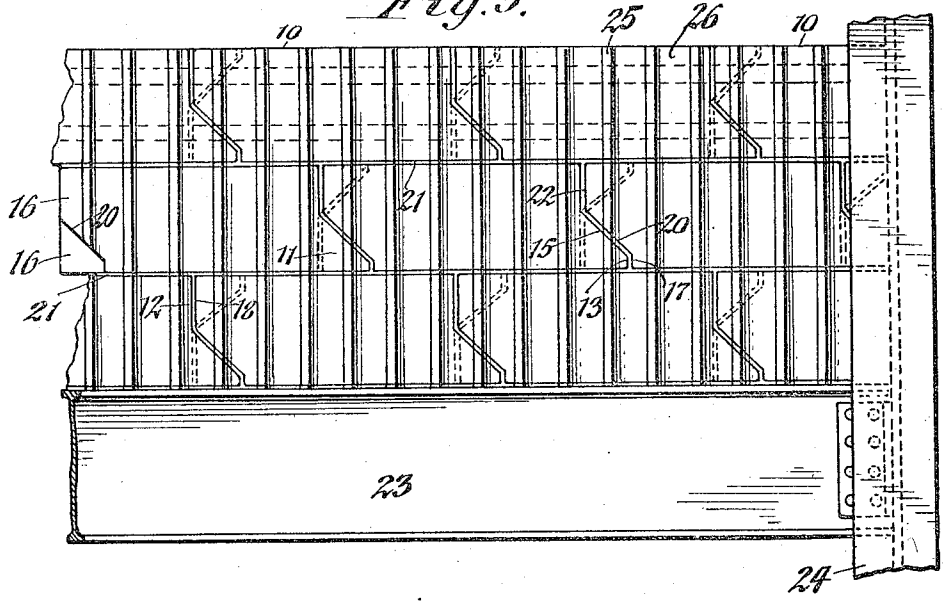


Fig. 4.

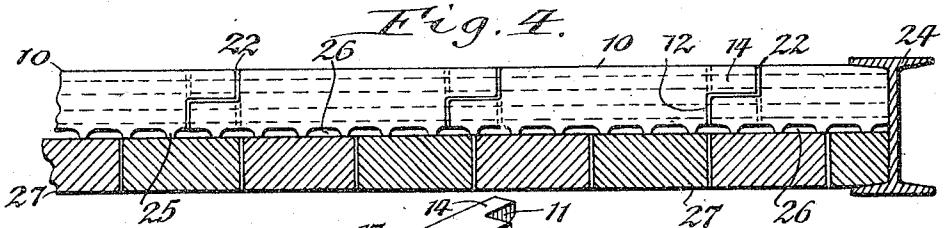
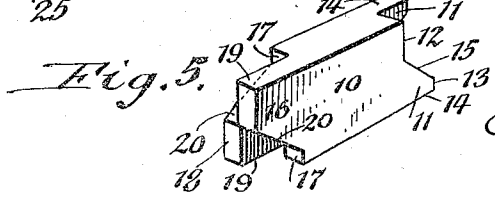


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN FUHRMANN, OF BUFFALO, NEW YORK.

BUILDING BLOCK.

Application filed November 10, 1922. Serial No. 600,062.

To all whom it may concern:

Be it known that I, JOHN FUHRMANN, a citizen of the United States, residing in Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Building Blocks, of which the following is a specification.

This invention relates to a building block and more particularly to a building block of that character in which the ends of adjacent blocks of the horizontal course in the wall are interlocked with each other.

It is the object of this invention to produce a building block of this character, the ends of which are so constructed that each block may be interlocked and connected with the end of an adjacent block by a mortar joint in such manner that a much stronger wall is produced and in which the wall is self-supporting and permits of resting the wall at its opposite ends on columns or other supports without liability of the intermediate part of the wall sagging or becoming displaced.

A further object of this invention is to so construct the ends of the building block of this character that the same presents no sharp corners which are liable to be easily broken off while handling the same during the operation of erecting a wall and which permits of "buttering" the opposite ends of the block completely and thoroughly with a minimum number of strokes of the trowel and thus expedite the work of erecting the wall and reduce the cost of the same accordingly.

In the accompanying drawings:

Figures 1 and 2 are perspective views of two building blocks embodying one form of my invention and showing the construction of the opposite ends of the same which are adapted to be interlocked with each other. Figure 3 is a fragmentary elevation of a building equipped with part of a wall constructed of building blocks embodying my improvements. Figure 4 is a horizontal section of the same taken between two horizontal courses of building blocks. Figure 5 is a perspective view of a modified form of building block which is constructed in accordance with my invention.

Similar characters of reference refer to like parts throughout the several views.

Although my improved building block may be constructed of any suitable material, it is preferable to construct the same of the composition in which the chief elements are cement and sand, similar to the concrete blocks now in general use, so as to render the same strong and durable.

In its general organization, this block comprises a body 10 which is rectangular and oblong in cross section and adapted to be arranged with its wide side vertical and its narrow side horizontal. At one end this block is provided on one pair of diagonally opposite corners with longitudinally arranged narrow tenons 11, 11 and on the pair of diagonally opposite corners with long rear faces 12, each of said narrow tenons having a short vertical front face 13, a longitudinal outer face 14 which is flush with the adjacent horizontal face of the body, an inclined inner face 15 which extends from the inner end of said short face 13 to the inner end of the adjacent long rear face 12, each of the narrow tenons 11 being vertically in line or in the same vertical plane as the rear vertical face 12 on the corresponding side of the block. Each of the long rear faces 12 and the face of each of the tenons 11 are equal in height to one-half of the height of the body. The opposite end of the body is provided on one pair of diagonally opposite corners with comparatively wide tenons 16 and on the other pair of diagonally opposite corners with short rear vertical faces 17.

Each of said wide tenons has a comparatively high front face 18, a longitudinal outer face 19 which is flush with the adjacent horizontal face of the body, and an inclined inner face 20, which extends from the inner end of the respective high front face 18 to the inner end of the corresponding short rear face 17. Each of the outer long faces 18 of the wide tenons is equal in height to one half of the height of the body, as shown in Figs. 2 and 3. The inclined face 15 of each narrow tenon 11 on one building block is adapted to co-operate with the inclined face 20 of a wide tenon 16 on an adjacent block, the wide rear face 12 of each block is adapted to co-operate with the long front face 18 of the wide tenon on another block and a short front face 13 of each narrow tenon 11 is adapted to co-operate with a short rear face 17 on another block.

In laying up a wall with building blocks of this character, the several horizontal rows or courses of bricks have their opposing horizontal faces separated from each other but se-

curely united by horizontal bed courses 21 of mortar or cement, and the end joints between the blocks in each course are arranged out of line with the end joints with the blocks of an adjacent course, similar to the manner in which this is done in laying ordinary brick walls. The opposing surfaces at the ends of adjacent blocks in a course co-operate with each other in the manner above described and are securely connected with each other by layers of cement 22 which are applied to the end surfaces of the blocks preparatory to assembling or laying the same in the wall. This operation of applying cement or mortar to the ends of the blocks so as to cause adjacent blocks to adhere to each other is commonly known as "buttering".

Such buttering of the ends of the blocks can be effected in this improved building block with a minimum number of strokes of the trowel, it being only necessary to wipe the mortar covered trowel once across opposite edges of each end of the building block which will serve to apply sufficient quantity of mortar or cement to the end surfaces of the blocks which are adapted to co-operate with each other; so that when assembled with their ends in the proper interlocking position, all of the opposing end surfaces of adjacent blocks will be thoroughly coated or buttered with cement or mortar so that the same will firmly and rigidly unite with each other, so that when the wall made up of building blocks of this character is completed, the same will be strong and durable and sustain a much greater load than would otherwise be possible.

It will be noted that this particular construction of the ends of the building block presents no sharp or delicate corners which are liable to be broken off, thereby insuring not only a smooth and even wall surface from blocks made in accordance with this invention, but also insuring a full contact between the opposing ends of two adjacent blocks throughout the height of the same, so that all the mortar interposed between the same will operate effectively to strengthen the wall which would not be the case if the ends of the building block had been broken away.

It will be noted that in a wall erected of building blocks of this character, the opposing ends of adjacent blocks in a course engage with each other not only along vertical end surfaces and inclined surfaces, but also sidewise along surfaces which are arranged in vertical planes arranged lengthwise of the wall which enables the mortar or cement between adjacent blocks to not only firmly connect these blocks, but adjacent blocks are also interlocked relatively to each other in a direction horizontally, as well as vertically. This operates to produce a very strong wall which has uniform strength throughout and causes the weight or load of the wall on any part thereof to be transmitted over the entire wall.

It is therefore possible by the use of these building blocks to form a wall which is practically self-supporting and will remain in position even though the same is only resting at its opposite ends. A wall made up of building blocks of this character is therefore particularly desirable for use over doorways, windows, or other openings in a building, inasmuch as the wall practically forms a truss which will prevent the same from sagging over these open spaces in the wall. Such a wall is also not liable to collapse in the event that the support immediately below the center of the same should give way, as for instance in the case of a fire in a building, which might destroy the floor immediately below the center of the wall, in which case the wall would still remain suspended with its ends resting on its adjacent end supports.

Although this wall may be mounted in a building in any suitable manner, the same is shown in Fig. 3 as resting with its lower end or edge on a steel girder 23 which latter is supported at its opposite ends in any suitable manner. As an example of such an end support for the girder 23 an I-shaped column 24 is shown in Figs. 3 and 4, which column has one of the vertical edges of the wall built against one side of the same.

In Figs. 1, 2, 3 and 4, each of the building blocks is provided upon one side with a plurality of vertical ribs 25 which are so disposed that upon assembling a plurality of blocks of this character end to end in a row and in superposed rows, the ribs of the several blocks will register with each other and form continuous ribs on the wall formed by these blocks and upright air channels or grooves 26 between these ribs. In practice, a wall 27 of ordinary bricks is adapted to be erected along side of the ribbed surface of the building block wall, so that this brick wall extends over the channels 26 and forms upright air conduits or spaces between the building block wall and the brick wall, as shown in Fig. 4. This brick wall may rest upon the same girder 23 which supports the building block wall or partition and its vertical edges may be built against the same columns which carry the girder. When the ribbed building blocks and the brick wall are thus assembled, the latter operates as a veneer for the building blocks and as such, may serve as the outer surface of a building. In such an organization, the air spaces between the building block wall and the brick wall serve as a heat, temperature and moisture insulation, which will prevent the passage of moisture from the exterior of the building

to the interior of the same and thus render the interior of the building dry. The presence of the air spaces between these two wall sections also retards the passage of heat, thus rendering the building cool in summer time and warm in winter time.

In order to still further render the building blocks less liable to transmit moisture, each of the blocks is provided with one or more longitudinal passages 28, two of such passages being shown, for example, in the drawings, which longitudinal passages are so arranged that when the blocks of a row are assembled, the passages in each block will register with those of adjacent blocks and thus form continuous air spaces or passages through the blocks from one end of the course to the other, which insures greater ventilation of a wall and prevents moisture passing through the same as well as effecting heat insulation thereof.

If desired, the ribs and longitudinal air passages on the block may be omitted, in which case the block is more particularly adapted for use in interior walls or partitions which are not exposed to moisture or thermal changes. Such a block having no air passages and ribs is illustrated in Fig. 5.

Aside from the advantages in this building block, as above enumerated, the same is capable of being produced at comparatively low cost by machinery, such as now commonly used for making ordinary building blocks, thus enabling walls containing the advantages above enumerated to be constructed without any additional cost.

I claim as my invention:

1. A building block comprising a body which is rectangular in cross section and which has one of its ends provided on one pair of diagonally opposite corners with longitudinally extending narrow tenons and on the other pair of diagonally opposite corners with long vertical rear faces, each of said narrow tenons having a short vertical front face, a longitudinal outer face which is flush with the adjacent horizontal face of the body and an inclined inner face which extends from the inner end of said short face to the inner end of the adjacent long rear face which is arranged in the same vertical plane, and the opposite end of said body being provided on one pair of diagonally opposite corners with comparatively wide tenons, and on the other pair of diagonally opposite corners with short rear vertical faces, each of said wide tenons having a comparatively high front face, a longitudinal outer face which is flush with the adjacent horizontal face of the body, and an inclined inner face which extends from the inner end of said high front face to the inner end of said short rear face.

2. A building block comprising a body which is rectangular in cross section and which has one of its ends provided on one pair of diagonally opposite corners with longitudinally extending narrow tenons and on the other pair of diagonally opposite corners with long vertical rear faces, each of said narrow tenons having a short vertical front face, a longitudinal outer face which is flush with the adjacent horizontal face of the body and an inclined inner face which extends from the inner end of said short face to the inner end of the adjacent long rear face which is arranged in the same vertical plane, each of said long rear faces and the base of each of said tenons being equal in height to one half of the height of the body, and the opposite end of said body being provided on one pair of diagonally opposite corners with comparatively wide tenons, and on the other pair of diagonally opposite corners with short rear vertical faces, each of said wide tenons having a comparatively high front face, a longitudinal outer face which is flush with the adjacent horizontal face of the body, an inclined inner face which extends from the inner end of said high front face to the inner end of said short rear face, each of the outer long faces of the wide tenons being equal in height to one half of the height of the body.

3. A building block comprising a body which is rectangular in cross section and which has one of its ends provided on one pair of diagonally opposite corners with longitudinally extending narrow tenons and on the other pair of diagonally opposite corners with long vertical rear faces, each of said narrow tenons having a short vertical front face, a longitudinal outer face which is flush with the adjacent horizontal face of the body and an inclined inner face which extends from the inner end of said short face to the inner end of the adjacent long rear face which is arranged in the same vertical plane, and the opposite end of said body being provided on one pair of diagonally opposite corners with comparatively wide tenons, and on the other pair of diagonally opposite corners with short rear vertical faces, each of said wide tenons having a comparatively high front face, a longitudinal outer face which is flush with the adjacent horizontal face of the body, and an inclined inner face which extends from the inner end of said high front face to the inner end of said short rear face, the inclined face of each narrow tenon on one building block being adapted to co-operate with the inclined face of a wide tenon on an adjacent block, the wide rear face of each block being adapted to co-operate with the long front face of a wide tenon on another block, and the short front face of each narrow tenon on each block being adapted to co-operate with a short rear face on another block.

4. A building block comprising a body which is rectangular in cross section and which has one of its ends provided on one pair of diagonally opposite corners with longitudinally extending narrow tenons and on the other pair of diagonally opposite corners with long vertical rear faces, each of said narrow tenons having a short vertical front face, a longitudinal outer face which is flush with the adjacent horizontal face of the body and an inclined inner face which extends from the inner end of said short face to the inner end of the adjacent long rear face which is arranged in the same vertical plane, and the opposite end of said body being provided on one pair of diagonally opposite corners with comparatively wide tenons, and on the other pair of diagonally opposite corners with short rear vertical faces, each of said wide tenons having a comparatively high front face, a longitudinal outer face which is flush with the adjacent horizontal face of the body, and an inclined inner face which extends from the inner end of said high front face to the inner end of said short rear face, and said block being provided with longitudinal passages.

5. A building block comprising a body which is rectangular in cross section and which has one of its ends provided on one pair of diagonally opposite corners with longitudinally extending narrow tenons and on the other pair of diagonally opposite corners with long vertical rear faces, each of said narrow tenons having a short vertical front face, a longitudinal outer face which is flush with the adjacent horizontal face of the body and an inclined inner face which extends from the inner end of said short face to the inner end of the adjacent long rear face which is arranged in the same vertical plane, and the opposite end of said body being provided on one pair of diagonally opposite corners with comparatively wide tenons, and on the other pair of diagonally opposite corners with short rear vertical faces, each of said wide tenons having a comparatively high front face, a longitudinal outer face which is flush with the adjacent horizontal face of the body, and an inclined inner face which extends from the inner end of said high front face to the inner end of said short rear face, and said block being provided on one side with vertical ribs.

JOHN FUHRMANN.