

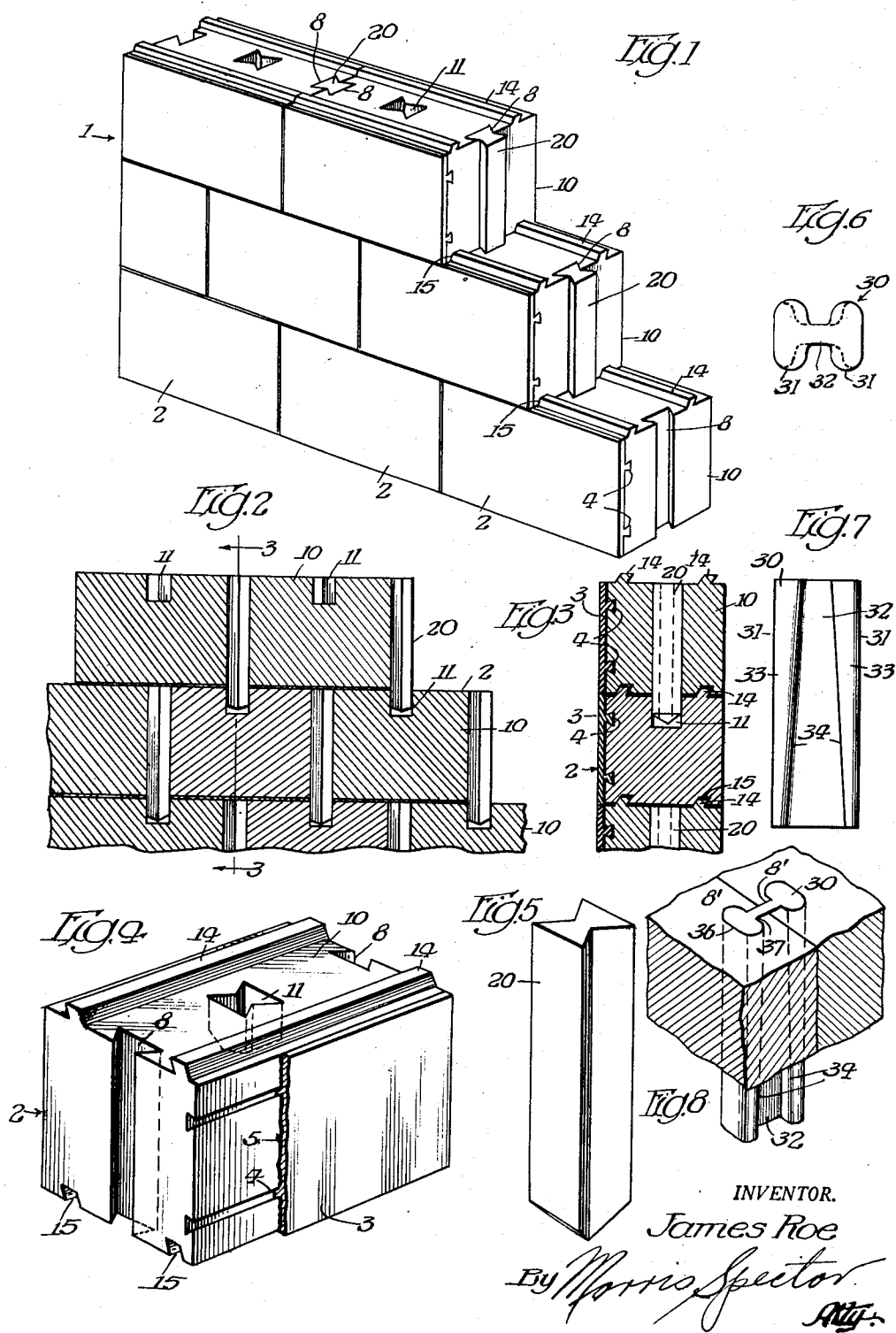
Jan. 8, 1946.

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2,392,551

INTERLOCKING BUILDING BLOCK

Filed May 10, 1943



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2,392,551

INTERLOCKING BUILDING BLOCK

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Application May 10, 1943, Serial No. 486,355

7 Claims. (Cl. 72—38)

This invention relates to interlocking building blocks and to building walls constructed therefrom.

It is one of the objects of the present invention to provide a building wall built of blocks laid in courses and so arranged that each block is interlocked with the adjacent blocks of its course and with the blocks of the adjacent courses whereby a sturdy construction is obtained. It is a further object of the present invention to provide a wall whereby interlocking means also serves as a wind break to prevent the movement of air through the wall at the joints between blocks.

It is a still further object of the present invention to provide a wall formed of building blocks so interlocked that a sagging of a small part of the wall base will not result in the development of cracks between blocks of a course or between the respective courses.

It is a still further object of the present invention to provide a building block which can be made quickly, easily and cheaply, and which is provided with keys and keyways for interlocking it with adjacent blocks. Another feature of the invention lies in the provision of a building block with interlocking means to assure proper positioning of the block in the wall and a facing of non-hygroscopic plastic so secured thereto that there can be relative expansion and contraction between the block and its facing without injuring the facing.

The attainment of the above and further objects of the present invention will be apparent from the following specification taken in conjunction with the accompanying drawing forming a part thereof.

In the drawing:

Figure 1 is a perspective view of a portion of a wall constructed by blocks of the present invention;

Figure 2 is a central longitudinal sectional view through the wall of Figure 1;

Figure 3 is a sectional view taken along the line 3—3 of Figure 2;

Figure 4 is an enlarged perspective view of the block of the present invention, with parts thereof broken away;

Figure 5 is a perspective view of a key used in the wall of Figure 1;

Figure 6 is a top view of a modified key construction;

Figure 7 is an end view of the key of Figure 6; and

Figure 8 is a fragmentary perspective view of

the edge of a modified block employing the key of Figures 6 and 7.

Referring now more particularly to Figure 1, a portion of a wall is indicated at 1, said wall being made up of courses of blocks 2 embodying the present invention. The blocks are arranged to be interlocked both as to successive blocks of a course and as to successive courses. Each block is of a generally rectangular shape and may be made of any desired material, such as concrete or the like. The face of the block is covered by a facing plate 3 which may be of any non-hygroscopic plastic that has the desired physical appearance and which will not deteriorate when subjected to weather conditions to which a building block of the present type is subjected. The facing plate 3 may be a thermo-plastic or a thermo-setting material or of various ones of the synthetic resins. It is comparatively thin and has longitudinally extending projections 4—4 on the back thereof, which projections are wedge-shaped and integral with the facing plate. A layer 5 of asphalt or asphalt impregnated paper or the like is interposed between the facing plate 3 and the block 2 to allow a limited amount of relative expansion and contraction between the facing plate and the block.

In the manufacture of the block 2 the facing plate 3 is prefabricated and placed in the bottom of the mold, with the back surface thereof covered with the asphalt 5. Thereafter the rest of the block 2 is cast or molded so that the projections 4 form and extend into similar wedge-shaped grooves in the face of the block 2 thus forming a dovetail joint. The asphalt layer 5 extends around the wedge-shaped projections 4.

The block 2 has dovetail-shaped keyways 8—8 at opposite side faces thereof. In addition, the top surface 10 of the block has a keyway opening 11 formed therein which opening is of a double dovetail shape, namely, the shape of two of the keyways 8—8. The opening 11 extends into the block only a short distance, as is apparent from Figure 3. The top surface 10 of the block has one or more longitudinally extending identical inclined tongues or keys 14 projecting upwardly therefrom. These keys extend the full length of the block and are at a substantial angle to the vertical, as may be seen from Figure 3. The bottom of the block has identical grooves or keyways 15—15 which are of the same shape as the keys 14 and extend the full length of the block.

Keys 20, which are separate from the blocks, are provided for interlocking adjacent blocks of a course and for interlocking adjacent courses.

These keys 20 are in the shape of a double dovetail and fit into the keyways 8 of two adjacent blocks of the same course, as may be seen from Figure 1. In the case of the lowermost course the key 20 is made of a length equal to the height of the block. In the case of all succeeding courses, the key 20 used is of a length in excess of the height of the block. The key 20 extends through the dovetail keyways 8-8 of adjacent blocks, and the lower end of the key 20 extends into the key opening 11 of the next lower block in the top of which opening the key fits snugly. The bottom of the key 20 is tapered to facilitate entry of the key into the opening 11, and acts as a wedge to align the blocks of adjacent courses. The key 20 not only locks adjacent blocks of the same course together but also locks each course to the subjacent course and holds the courses or the blocks of the courses against relative horizontal shifting.

In the laying of the blocks each block is positioned on its subjacent block by a movement which is downward and forward so that the keyways 15 of the block that is being lowered slide on the keys 14 of the subjacent course. When the block that is being positioned reaches its proper position upon the next lower course the front surfaces of the two blocks are in alignment.

The bottom of the key 20 is tapered so that at its very bottom the key 20 is of a cross sectional shape and area substantially less than the area of the opening 11. This facilitates positioning of the key for if the keyways 8-8 through which the key is being driven are slightly displaced from the opening 11 in the subjacent block when the key is being driven downwardly, the tapered lower edge of the key 20 will nevertheless enter the opening 11. Upon further forcing of the key 20 into the keyways the key will cause a relative shifting of the courses to bring the keyways 8-8 directly in vertical alignment with the corresponding opening 11 in the subjacent block.

When the wall has been erected each of the blocks is held against horizontal movement and against vertical movement. Thus if there should be a slight sagging of the foundation at one point in the length of the wall, or a sagging of a doorway or window support, the block 2 over the part that sags will not drop. It will, instead, remain suspended from its keys 14 that are in the keyways 15 of the blocks above. It will remain suspended in this manner because in order to drop, the block would have to shift forwardly, and such shifting is prevented by the interlocking keys 20.

In Figures 6, 7 and 8 I have illustrated a somewhat different shape of key, corresponding to the key 20, and different shaped slots corresponding to the keyway slots 8 and 11. In other respects the blocks of Figure 8 are the same as the blocks of Figure 4. The key illustrated in Figures 6 and 7 is indicated by the reference numeral 30. The key consists of two similar knobs 31-31 joined by a bridge or web portion 32 that extends the full length of the key. The surfaces 33-33 of the knobs 31 are parallel to one another, being truly vertical. The inner surfaces of the knobs, indicated at 34-34, are slightly tapered vertically so that each knob is substantially thicker at its top than at its bottom or, stated otherwise, the distance between the knobs and the width of the bridge or web 32, progressively increases from

the top to the bottom of the key. The slots 8' in the side wall of each block are of a shape corresponding to the shape of the key 30, that is, each slot has a vertical wall 36 and has an inclined wall 37. When the key 30 is first placed into the keyways in the blocks the lower end of the key fits very loosely in the top of the keyway so that even if the blocks are not sufficiently close together the key will nevertheless fit into the keyway slots. As the key is being driven home the inclined surfaces 34 of the key bear against the surfaces 37 of the keyway slots in the blocks and draw the blocks together. The bottom of the key enters into a correspondingly shaped opening the center of the subjacent block located as is the opening 11 of the block of Figure 4, to interlock the courses together.

In compliance with the requirements of the patent statutes I have here shown and described a preferred embodiment of my invention. It is, however, to be understood that the invention is not limited to the precise construction here shown, the same being merely illustrative of the principles of the invention.

What I consider new and desire to secure by Letters Patent is:

1. A wall structure comprising a series of superposed courses of building blocks, matching keyways in certain adjacent blocks in a course, keys in said keyways locking said adjacent blocks together, each of said keys extending from one course into and fitting snugly within an opening in a block of an adjacent course, thereby also locking adjacent courses together against horizontal shifting, and tongue and groove connections inclined to the longitudinal axes of the keys and interlocking blocks of adjacent courses whereby said first named keys and said tongue and groove connections lock the courses against vertical as well as horizontal shifting, the tongues of the tongue and groove connections being each integral with a block.

2. A wall structure comprising a series of superposed courses of building blocks, matching keyways extending through the height of certain adjacent blocks in a course, keys in said keyways locking said adjacent blocks together, each of said keys extending from one course into and fitting snugly within an opening in a block of an adjacent course, thereby also locking adjacent courses together against horizontal shifting, and means inclined to the longitudinal axes of the keys and interlocking the blocks of adjacent courses whereby said named keys and said last means lock the courses against vertical as well as horizontal shifting.

3. A wall structure comprising a series of superposed courses of building blocks, matching keyways extending through the height of certain adjacent blocks in a course, keys in said keyways locking said adjacent blocks together, each of said keys extending from one course into and fitting snugly within an opening in a block of an adjacent course, thereby also locking adjacent courses together against horizontal shifting, said keys extending the full height of a block and thus constituting wind breaks between adjacent blocks of a course, and means interlocking blocks of adjacent courses, said means being inclined to the longitudinal axes of said keys whereby said keys and said last named means lock the courses against vertical as well as against horizontal shifting, said last named means extending the full lengths of the blocks and thus constituting wind breaks between courses.

4. A wall structure comprising a series of superposed courses of building blocks, matching keyways extending vertically through certain adjacent blocks in a course, keys separate from said blocks and located each in a set of matching keyways for locking said adjacent blocks together, and tongues and grooves inclined to the vertical and interlocking blocks of adjacent courses whereby said first named keys and said tongues and grooves lock the courses against vertical as well as horizontal shifting, the inclination of the tongues and grooves with respect to the vertically extending keyways preventing placing of a block in interlocking relationship to a subjacent block by a vertical lowering movement and requiring a movement at an angle to the vertical to bring a block into and out of position with respect to similar blocks in adjacent courses.

5. A building block of a generally rectangular shape having parallel keyways in the sides thereof for facilitating interlocking of the block with adjacent blocks in the same course, and having a key receiving opening in the top surface thereof, said block having matching longitudinally extending tongues and tongue-receiving grooves across the opposite horizontal surfaces thereof and inclined to the longitudinal axis of the parallel keyways, said block being adapted to be laid with similar blocks in courses to form a wall structure with the tongue of one block entering the inclined groove of a superposed block, the inclination of the tongue and groove with respect to the parallel keyways preventing the placing of the block in interlocking relationship with another similar block by a lowering movement parallel to the longitudinal axes of said parallel keyways and requiring a movement at an angle to the longitudinal axes of said parallel keyways to bring said block into and out of position with respect to similar blocks in adjacent courses.

6. A building block of a generally rectangular shape, a longitudinally extending inclined tongue across the top of the block and projecting upwardly therefrom at a substantial angle to the vertical, said block having along the bottom surface thereof an inclined groove which as to shape

and location is a counterpart of the tongue on the top surface, and a keyway extending vertically completely through the block for facilitating locking the block against horizontal shifting with respect to adjacent blocks, said block being adapted to be laid with similar blocks in courses to form a wall structure with the tongue of the block entering the inclined groove of a superposed block, the inclination of the tongue and groove with respect to the vertically extending keyway preventing the placing of the block in interlocking relationship to a subjacent block by a lowering movement parallel to the longitudinal axis of said keyway and requiring a movement at an angle to the longitudinal axis of the vertical keyway to bring said block into and out of position with respect to similar blocks in adjacent courses.

7. A building block adapted to be laid with similar blocks in courses to form a wall structure, the opposite transverse ends of the block having keyways extending from the top to the bottom thereof with the keyways at the two transverse ends parallel to one another and identically spaced from the front of the block so that when the end of the block is placed in abutment with the opposite end of a similar block in the laying of a course the keyways of the two blocks will match one another to receive a single interlocking key, the top and the bottom surfaces of the block having means extending longitudinally of the block for facilitating interlocking said block with similar blocks above and below the same, said means including a groove on at least one of said surfaces for receiving an interlocking key, said groove being at a substantial inclination to the longitudinal axes of said keyways whereby the last named means prevents the separation of a block in interlocking relationship from superposed block by a lowering movement parallel to the longitudinal axes of the keyways and requires a movement at an angle to the longitudinal axis of the keyways to bring said block into and out of position with respect to similar blocks in adjacent courses.

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