Aug. 4, 1942. W. H. HATTON 2,291,712

BUILDING BLOCK

Filed June 20, 1940 2 Sheets-Sheet 1

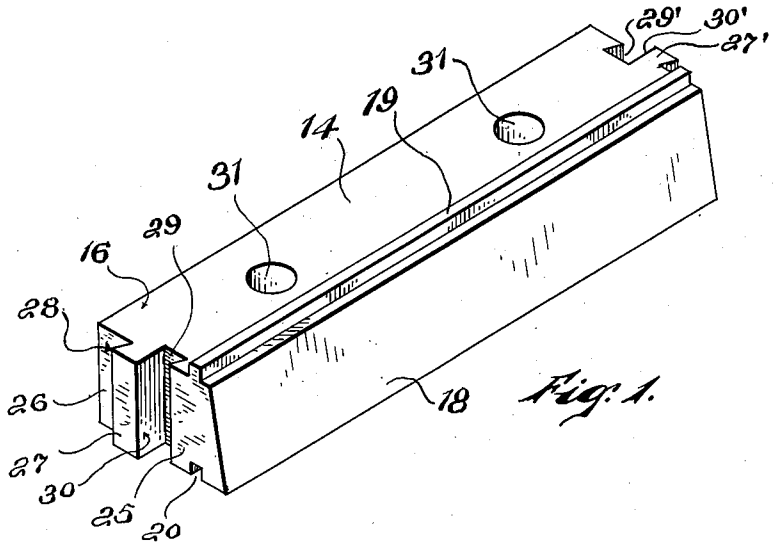

Fig. 1.

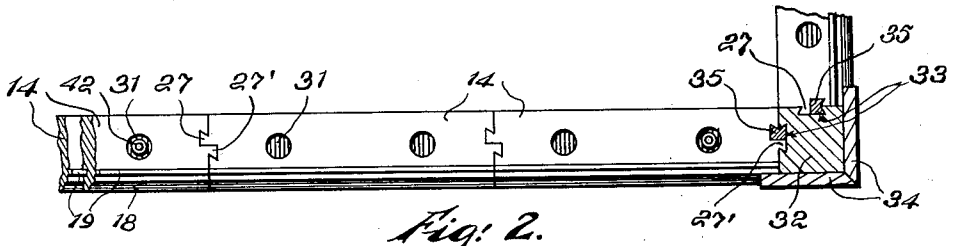

Fig. 2.

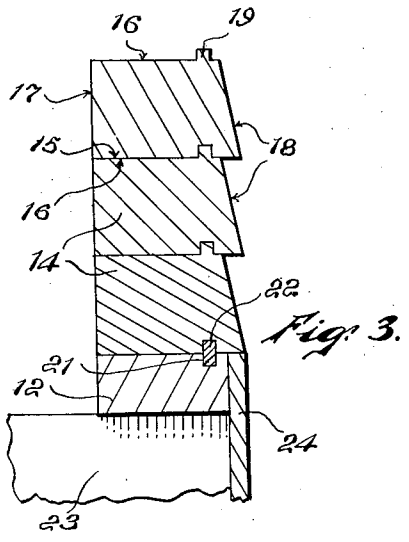

Fig. 3.

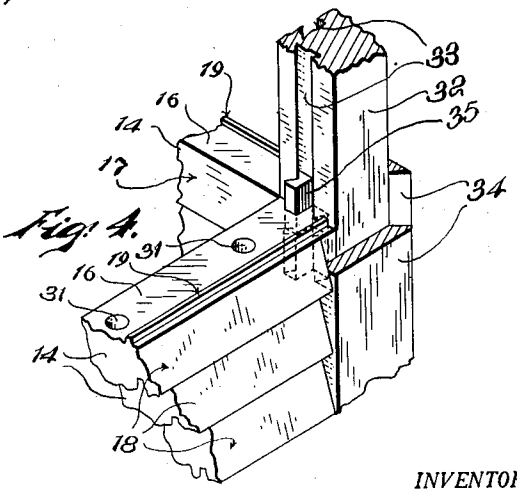

Fig. 4.

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Filed June 20, 1940 2 Sheets-Sheet 2

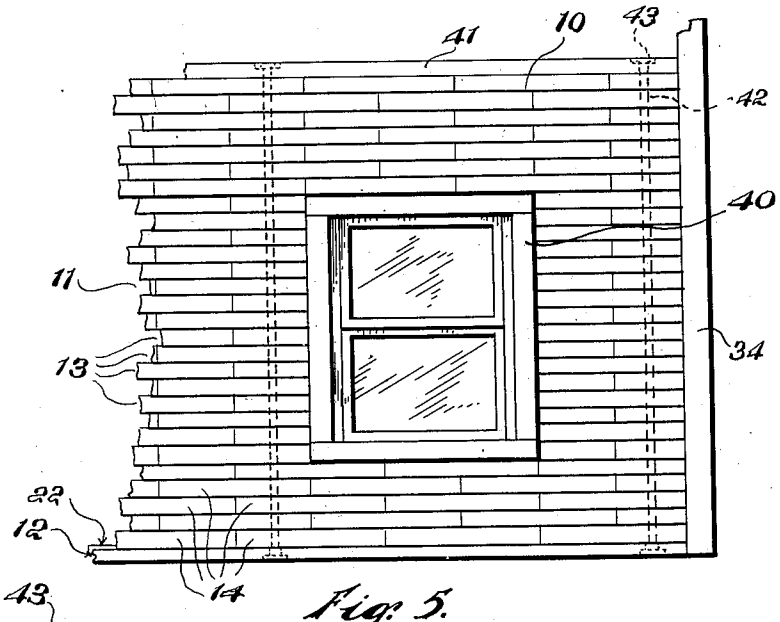

Fig. 5.

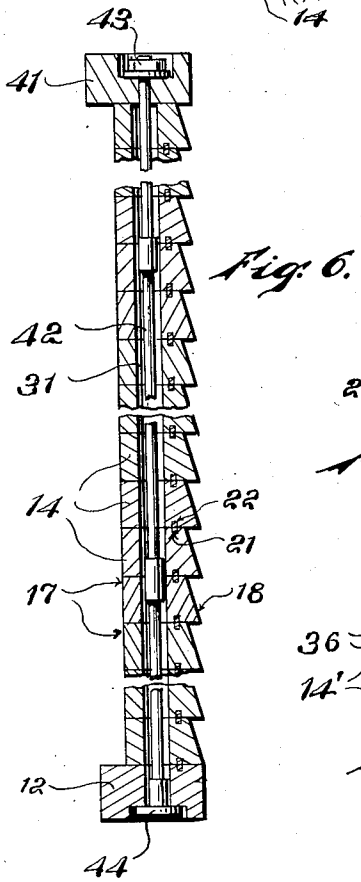

Fig. 6.

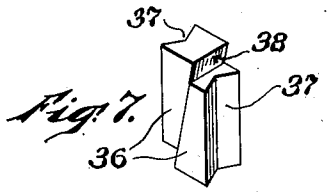

Fig. 7.

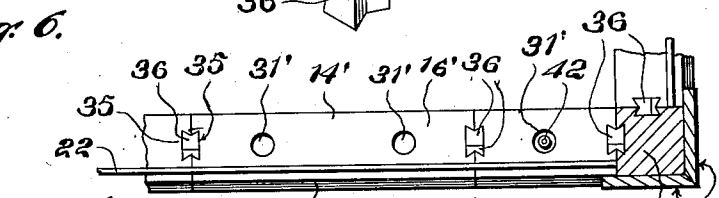

Fig. 8.

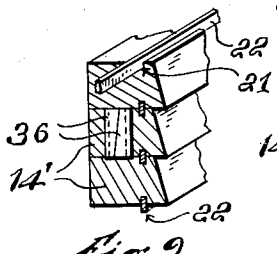

Fig. 9.

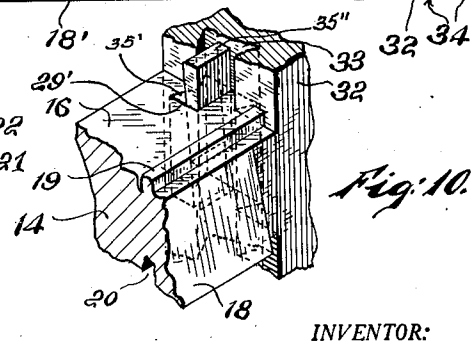

Fig. 10.

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UNITED STATES PATENT OFFICE

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BUILDING BLOCK

William Henry Hatton, Gardner, Mass.

Application June 20, 1940, Serial No. 341,561

2 Claims. (Cl. 20—4)

This invention relates to building blocks and lumber, and has for an object to provide a novel construction in building blocks, to the end that a building wall may be readily erected with my blocks, in such manner that it will be a unitary structure, with the various parts united, yet without requiring the use of cement, although novel also with cement.

It is a further aim to present a block which is adapted to be produced in plastics, or to be produced from wood lumber. It is an important aim of the invention to present a block adapted to be constructed in such form that short ends of timbers or other timber or lumber not adapted to use in producing long lengths of board or other timbers may be utilized in the production of my blocks. Owing to the high insulating quality of wood, it is an important aim of my invention to enable the construction of a building wall of wood blocks interlocked so as to form continuous interlocked members, both horizontally and vertically. To these ends, it is an especially important aim of the invention to present a novel means for connecting blocks to each other, and more particularly to connect horizontal courses of blocks to vertically continuous corner pieces, so as to permit the formation of walls with corners of good appearance in which the courses extending in two directions from the corners are securely connected together to provide a rugged structure and one of good appearance.

It is a further aim to coordinate with the interlocking elements of my blocks weather-tight joint means of an effective kind. Another important aim of the invention is to present a novel form of wedge connection between abutting elements, one of which may be one of my blocks as constructed for use in wall courses.

Another important aim of the invention is to present a novel means and method for insuring uniformity of elevation and alinement in various parts of walls constructed with a similar number of courses, notwithstanding the fact that different pieces of lumber will tend to expand more or less in damp weather than others, or be subject to variable response to other conditions. My invention in a similar respect is also adapted to overcome the fault which might be due to slight warping of timbers, differences in surface finish, or other variations from standard proportions and qualities.

Additional objects, advantages and features of invention reside in the construction, arrangement and combination of parts involved in the embodiment of the invention, as may be more readily understood from the following description and accompanying drawings, wherein

Figure 1 is a perspective view of one of the block units.

Figure 2 is a top plan view of a section of wall.

Figure 3 is a fragmentary cross sectional view of a wall constructed with my invention.

Figure 4 is a fragmentary perspective view of a portion of a corner of a building in course of construction with my invention.

Figure 5 is a fragmentary elevation of a wall and corner structure embodying my invention.

Figure 6 is a vertical cross section of a wall at one of the vertical tie members.

Figure 7 is a detail perspective of a form of wedge adapted for use with my invention.

Figure 8 is a horizontal section of a wall and corner structure in which the last named wedge device is shown in place.

Figure 9 is a fragmentary cross section of a wall showing a modification of the water weather-stop.

Figure 10 is a modification of the corner wedge structure.

There is illustrated a portion of a building structure **10**, such as might be used for a dwelling, although the invention is adapted to use for the erection of various heights of buildings. The portion shown includes a part of a wall **11**, adjacent a corner of the building, and this wall may be erected upon any usual fill, of concrete, masonry or otherwise. In the present instance, a sill plate **12** is illustrated, which may be laid upon or set in the brick-work or concrete footing, and upon this, courses **13** of blocks **14** are laid, arranged to break joints, so that the appearance of a finished wall will correspond somewhat to that of a brick wall as to the relation of the pieces, excepting that no mortar is required in my wall construction, and the blocks may be made of lumber as well as cast in concrete or other materials.

For the most economical use of lumber including stump ends of logs, stumps, etc., I have heretofore embodied the invention in blocks approximately one foot long, a vertical dimension of approximately three inches, and a horizontal transverse dimension of approximately four inches. The tiles may be varied in multiples of these measurements, if desired, or otherwise, according to the practices adopted. The blocks may be also made in half multiples of the length named, regardless of the other dimensions, and also be made in full multiples of the length without varying the transverse dimensions in either respect.

The block shown in Figure 1 has a lower planiform face **15** and a top face **16** parallel thereto, a vertical back face **17**, and a front face **18**, which is slightly inclined, so that it projects toward its lower part, the extent of this projection beyond the extent of the upper face having been one-half inch in practice, but may be less or more, if desired. On the top face of the block, there is formed an integral weather-stop rib **19**, parallel

to the front face of the block, but spaced inwardly from the junction of the front face 18 and top face 16 a distance. In the bottom of the block a corresponding groove 20 is formed, parallel to the front face of the block and opening through the ends of the block, as may be understood. This groove is so spaced from the rear face of the block that when two blocks are superposed in horizontal position with their rear faces 17 in alinement, the rib of the lower block will fit the groove of the upper one. If desired, however, both blocks may be formed with grooves, in a position corresponding to the position of the groove 20, as indicated at 21 in the lower part of Figure 3, and in Figure 6, where the top of the sill member and the top of each block are formed with one of the grooves 21, and in the alined grooves there is snugly fitted a stop strip 22. In Figure 3, the plate 12 is illustrated as set upon joists 23, and a facia board is shown covering the ends of the joists and the face of the sill plate 12, although other modifications may be made for the spacing and boxing of a structure, and as will be readily understood by builders.

Each block 14 is formed with front and rear end faces 25 and 26, in a common plane, at right angles to the longitudinal dimension of the block at each end of the block. A dove-tail tongue projection 27 is shown as formed integrally upon each end of each block, these tongues being in plan in the form of half a dove-tail, with the overhang 28 at the rear side, the tongue extending vertically from bottom to top of the block. Formed immediately beside the forward face of the tongue, there is a corresponding dove-tail groove 29, also in the form of half a dove-tail, of approximately the same dimensions as that part of the tongue 27 which extends beyond the end face of the block, the forward face 30 of the tongue adjacent the groove being continued longitudinally into the block to form the inner side of the groove 29 at one end, and the outer side of the corresponding groove at the other end, as will be subsequently explained. This face 30 of the tongue and groove is in a vertical longitudinal plane of the block and in the present instance is located midway between the front and rear boundaries of the top face 16 of the block, so that it is in the medial plane of the bearing portion of blocks superposed in a wall or the like constructed therewith. At one end of the block, the tongue 27 is located toward the rear of the medial plane mentioned, while at the opposite end the tongue 27' is located forwardly of that plane; but otherwise the tongue 27' is the same as the one 27, and the groove 29' formed adjacent the tongue 27' is also of the same form, size, and relation to the tongue 27' as in the case of the groove 29 with respect to the tongue 27.

Each block, in the present instance, is shown as formed with vertical bores 31 extending therethrough, their axes being located in the medial vertical and longitudinal plane of the block, which is the plane of the face 30 of the tongue 27 and the corresponding face 30' of the tongue 27'. These bores are also located with their axes spaced from the end faces 25 and 26 a distance equal to one-quarter of that between the faces 25 and 26 at opposite ends of the block, so that when one block is superposed upon another, with its end face located in the medial transverse plane of the inferior block, the bore 31 in the upper block will aline with the corresponding bore in the adjacent end of the inferior block.

For the connection of two horizontal courses of blocks in the erection of a building, the ends of the courses of a wall or the like may be connected and finished by a post, or jamb in which groove elements are provided to receive the tongues to permit the securing of the tongues therein, substantially as the tongues of one block are secured in the groove of another. In the present instance, I have illustrated a corner post 32, in Figure 2, which in the present instance is rectangular in cross section and erected in a suitable manner upon the base framing or footing of the building, and in two inner sides it is formed with complete dovetail grooves 33, extending vertically throughout the dimensions of the post, and so located that when the tongues 27 are engaged in respective grooves 33, the extreme front edges of the top face 16 of the block will aline with the adjacent outer faces of the post 32. The post is shown as covered with facia boards 34 which project beyond the post 32, lapping the block 14 a distance, and to accommodate these lapping edges, the face portions 18 of the block may be rabetted suitably to receive the facia boards, as shown in Figures 2 and 4. To secure the blocks to the corner posts in the present instance, locking plugs 35 are provided. The grooves 33 being full dovetail grooves, and of twice the transverse dimensions of the grooves 29 and 29', when the tongues 27 and 27' are engaged therein, and pressed against one side of the groove where the overhang of the tongue and the groove will interlock, the opposite side of the groove 33 will aline with the respective groove 29 or 29' as the case may be, and the locking plug 35 is formed with one groove side adapted to receive the sides of both grooves simultaneously, and with a flat side to engage against the flat side 30—30' of the tongue, so that the tongues are pressed into operative position and at the same time the groove of the plug will also lock the opposite sides of the grooves of the post and block together, as may be understood by observing Figures 2 and 4. If desired, the plug 35 may be formed in two parts, 35' and 35'', slightly wedge-shaped, so that they may be wedged between the tongues of the blocks and the sides of the registered grooves, to make a more snug fit, and tight connection, as shown in Figure 10.

If desired, also, the blocks may be formed without tongues integrally on their ends, and instead may be formed with a complete dovetail groove 35 extending vertically thereon, so that when two blocks are butted end to end in a course, the groove at the end of one block will aline with the groove of the other, as shown in Figure 8, where the blocks 14' are so formed, the other parts of the blocks in this view corresponding to those first described, and being indicated by the same reference characters with the addition of the prime mark.

For the erection of a building wall, a corner post 32 or jamb element formed as first described, and as shown in Figures 2 and 4, may be used. For joining the blocks end to end, as well as to connect them to the corner post, locking wedges 36 are provided, each of which is formed with a vertical groove face 37, adapted to fit simultaneously the mutually adjacent alined sides of the grooves 35 in two butted blocks, the wedges being of a thickness equal to the combined depth of the two grooves longitudinally of the block, and having a length equal to the vertical dimension of the block. If desired, however, one of

the wedge elements may be slightly longer than the other, to be cut off after being driven to its place. In order to secure the blocks together, one of the wedges **36** is put in place at one side of the opening formed by two opposed grooves **35**, with the grooved side **37** receiving the overhang portions of the two grooves, and the narrow part of the wedge disposed upwardly. The other wedge is then inserted and driven to place, until it is fitted as tightly as desired. If one still projects above the connected blocks, it may be sawed off. The sliding faces **38** of the wedges **36** may be flat or otherwise shaped, as desired. The blocks butted against the corner post may be connected to the corner post in the same manner, the wedges **36** being inserted in the opposed grooves **33** and **35** as each course is put in place, and driven into proper wedging engagement as required. In such case it is desirable to have the wedge members each not longer than the vertical dimension of the block, although one may be slightly shorter, to be put in place last, so that it is insured that it will lie below the top face of the secured block.

The blocks may be cut and fitted to a window frame, substantially as shown at **40** in Figure 5, at the discretion of the user. Upon completion of a section of wall from top to bottom, or a section of wall between two floors, for instance, a top plate piece **41** may be put in position over the top course of the selected section, and a tie bolt or tension member **42** secured between the sill plate **12** and the top plate **41** by the use of nut members **43** or the like, as will be readily understood. The lower nut member **44** may be put in place when the sill is laid, and the tie members **42** made up in suitable lengths and engaged therewith after completion of the section of wall to be compressed. The tie members may be made up in short coupled sections as shown in Figure 6 if desired. If desired, also, the compression members consisting of the nuts **43** and **44**, may be set in the blocks of the uppermost and lowermost courses of the selected section. By properly tightening the nuts **43** after construction of a wall section, where the material of the blocks has been such that one part of the upper courses is much higher than another, the wood of the blocks therebelow may be sufficiently compressed to draw the top courses down to a uniform level with other parts, as will be recognized.

By the use of this means, and placing the compression and tension members in proper adjustment throughout the length of a wall, in the case of dampening of a wall, it will not expand appreciably, but will be held snugly to its place and size, so that racking of a building frame or cracking of plaster or other finishes is minimized or obviated. Also by placing the material of the walls under proper compression initially, the settlings and cracking of plaster due to curing of lumber in such a structure will be minimized if not prevented.

While a specific embodiment of the invention has been described and illustrated with great particularity, it will be understood that this is purely exemplary, and that changes in construction, arrangement, form of parts and substitution of equivalents may be made without departing from the spirit of the invention as more particularly set forth in the appended claims.

I claim:

1. In a building construction of the character described, a multiplicity of block elements constructed with tongue and groove elements on the ends extending in a vertical direction, the tongues and grooves having lateral extensions whereby the tongue of one block will interlock in the groove of the other against longitudinal separation, and against lateral movement of the two blocks relatively, and a corner member extending vertically to receive a multiplicity of courses of blocks butted thereagainst, and having a face formed with a longitudinal extended dove-tailed groove, spaced to receive the tongue of a block therein with the lateral projection of the tongue fitting under the overhang of the groove at one side, said groove being of a width substantially greater than that of the tongue engaged therein, so that a substantial clearance is provided, and the opposite side of the groove being adapted to aline with the adjacent outer side of the groove of a butted block, and a block element constructed to be inserted in the groove of the vertical column element of said groove of the block, and having lateral projections at both sides, adapted to be engaged in the corresponding parts of the respective groove, and adapted to fit snugly against a tongue inserted in said groove, for the purposes described.

2. In a building construction of the character described, a multiplicity of block elements constructed with tongue and groove elements on the ends extending in a vertical direction, the tongue and grooves having lateral extensions whereby the tongue of one block will interlock in the groove of another against longitudinal separation, and against lateral movement of the two blocks relatively, and a corner column member extending vertically to receive a multiplicity of courses of blocks butted thereagainst, and having a face formed with a longitudinally extended dove-tailed groove, spaced to receive the tongue of a block therein with the lateral projection of the block fitting under the overhang of the groove at one side, said groove being of a width substantially greater than that of the tongue engaged therein, so that a substantial clearance is provided, and the opposite side of the groove being adapted to aline with the adjacent outer side of the groove of a butted block, and a block element constructed to be inserted in the groove of the vertical column element and said groove of the block, and having lateral projections at both sides, adapted to be engaged in the corresponding parts of the respective grooves, and adapted to fit snugly against a tongue inserted in said groove, for the purposes described, said block insert having a flat side adapted to fit snugly against the said flat side of the tongue of the butted block, and being longitudinally wedged-shaped, whereby the parts of the inserted block may be wedged between one side of the groove in the column element and the front side of the tongue of a block inserted in the groove of the column element, whereby the two mutually adjacent groove edges are locked to each other against longitudinal separation movement, and the tongue of the block secured against lateral movement in the groove of said column element, for the purposes described.

WILLIAM HENRY HATTON.