May 12, 1970 G. MacMASTER 3,511,005

BUILDING CONSTRUCTION

Filed Jan. 22, 1968 4 Sheets-Sheet 1

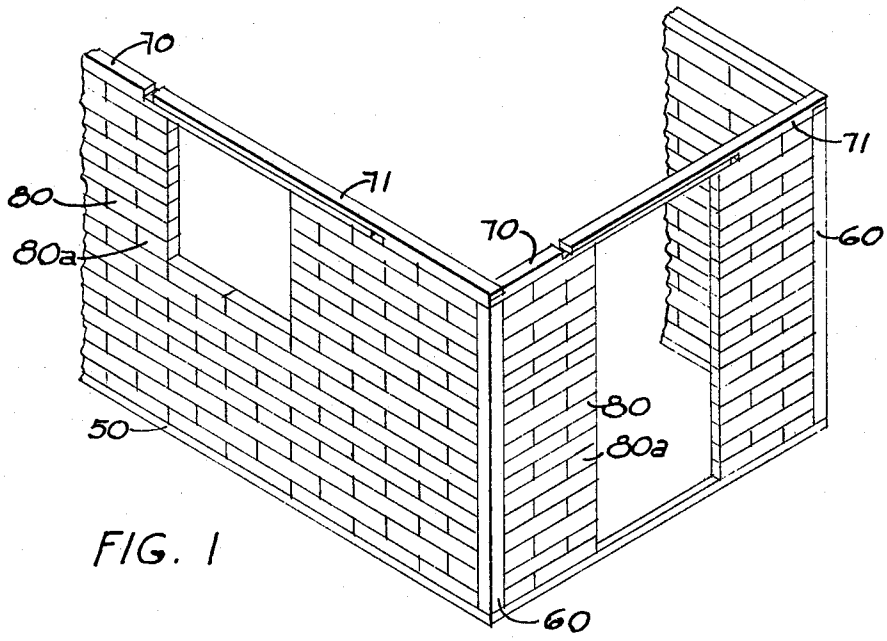


FIG. 1

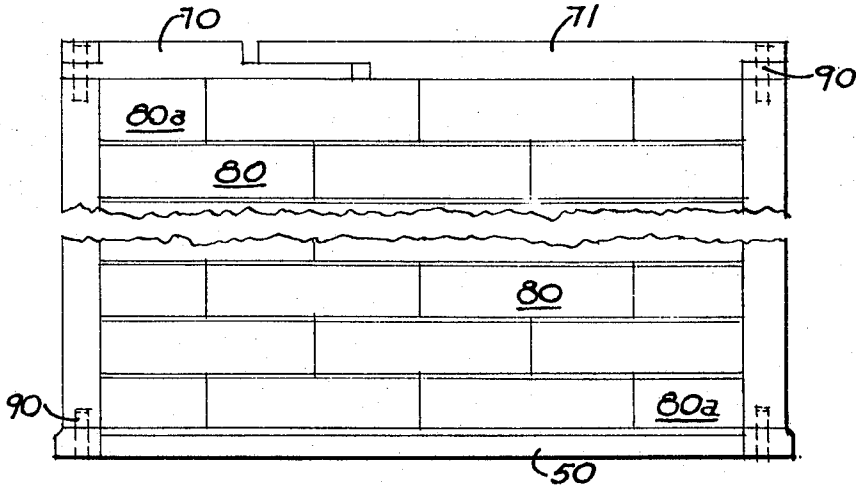


FIG. 2

INVENTOR.

Gordon MacMaster

May 12, 1970 G. MacMASTER 3,511,005

BUILDING CONSTRUCTION

Filed Jan. 22, 1968 4 Sheets-Sheet 2

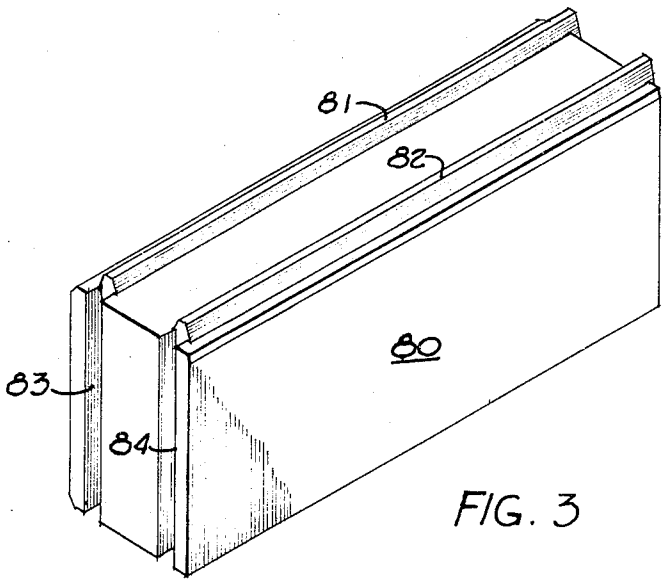


FIG. 3

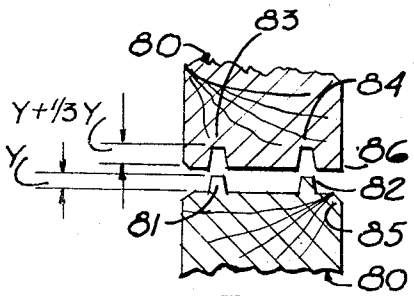


FIG. 7



FIG. 4

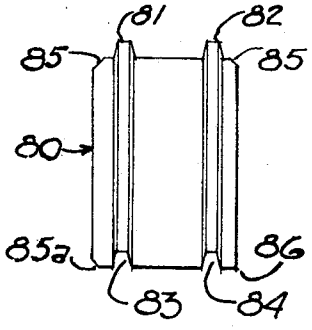


FIG. 6

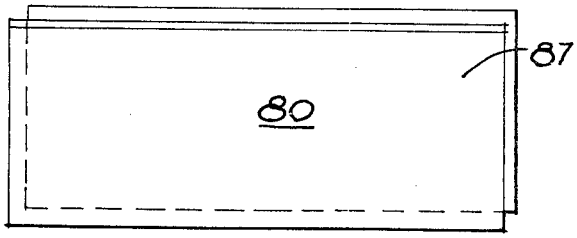


FIG. 5

INVENTOR.

Gordon MacMaster

May 12, 1970 G. MacMASTER 3,511,005

BUILDING CONSTRUCTION

Filed Jan. 22, 1968 4 Sheets-Sheet 3

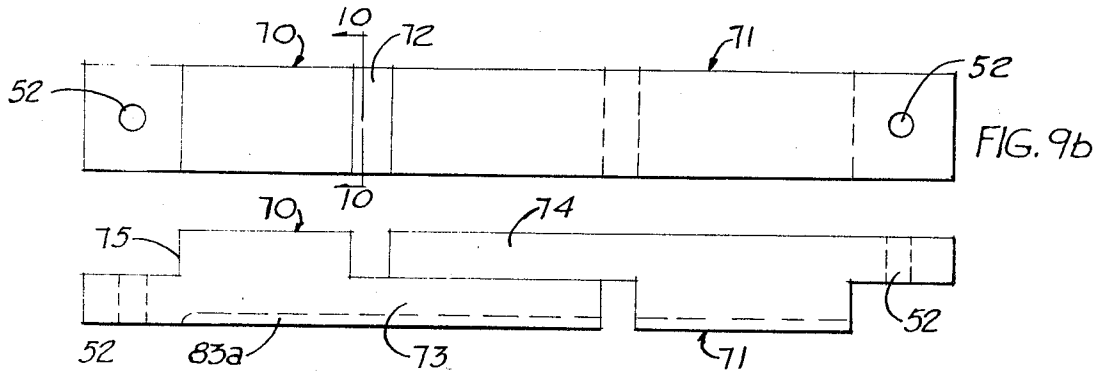


FIG. 9a

FIG. 9b

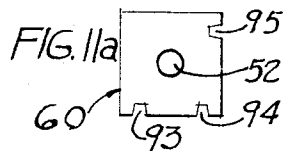


FIG. 11a

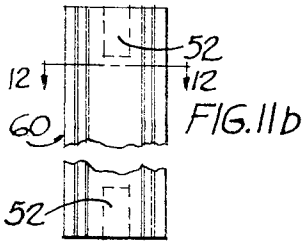


FIG. 11b

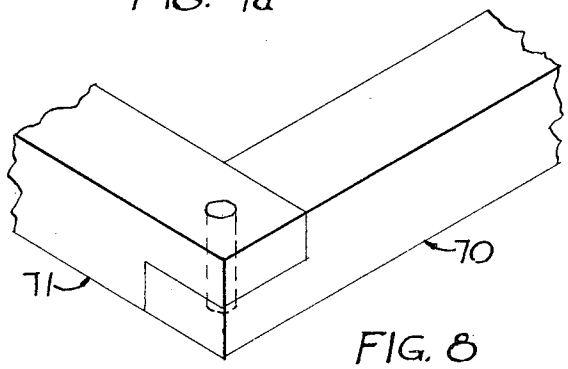


FIG. 8

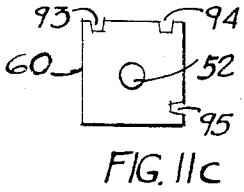


FIG. 11c

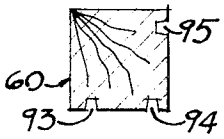


FIG. 12

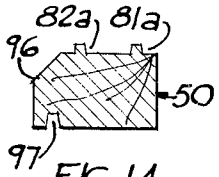


FIG. 14

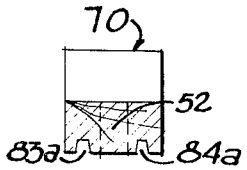


FIG. 10

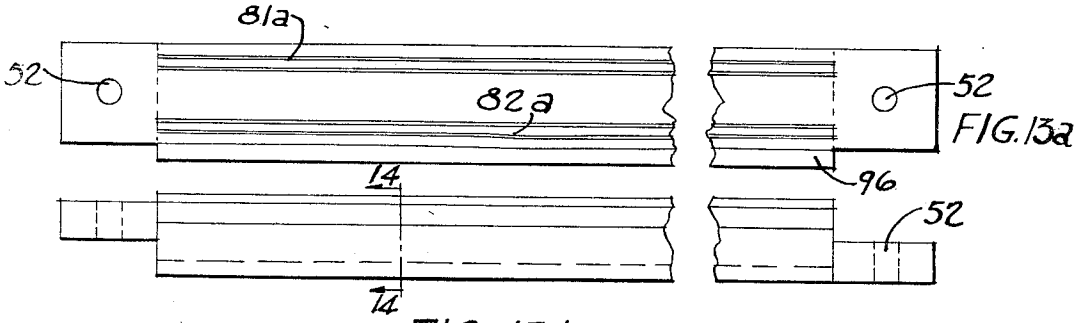


FIG. 13a

FIG. 13b

INVENTOR.

Gordon MacMaster

May 12, 1970 G. MacMASTER 3,511,005

BUILDING CONSTRUCTION

Filed Jan. 22, 1968 4 Sheets-Sheet 4

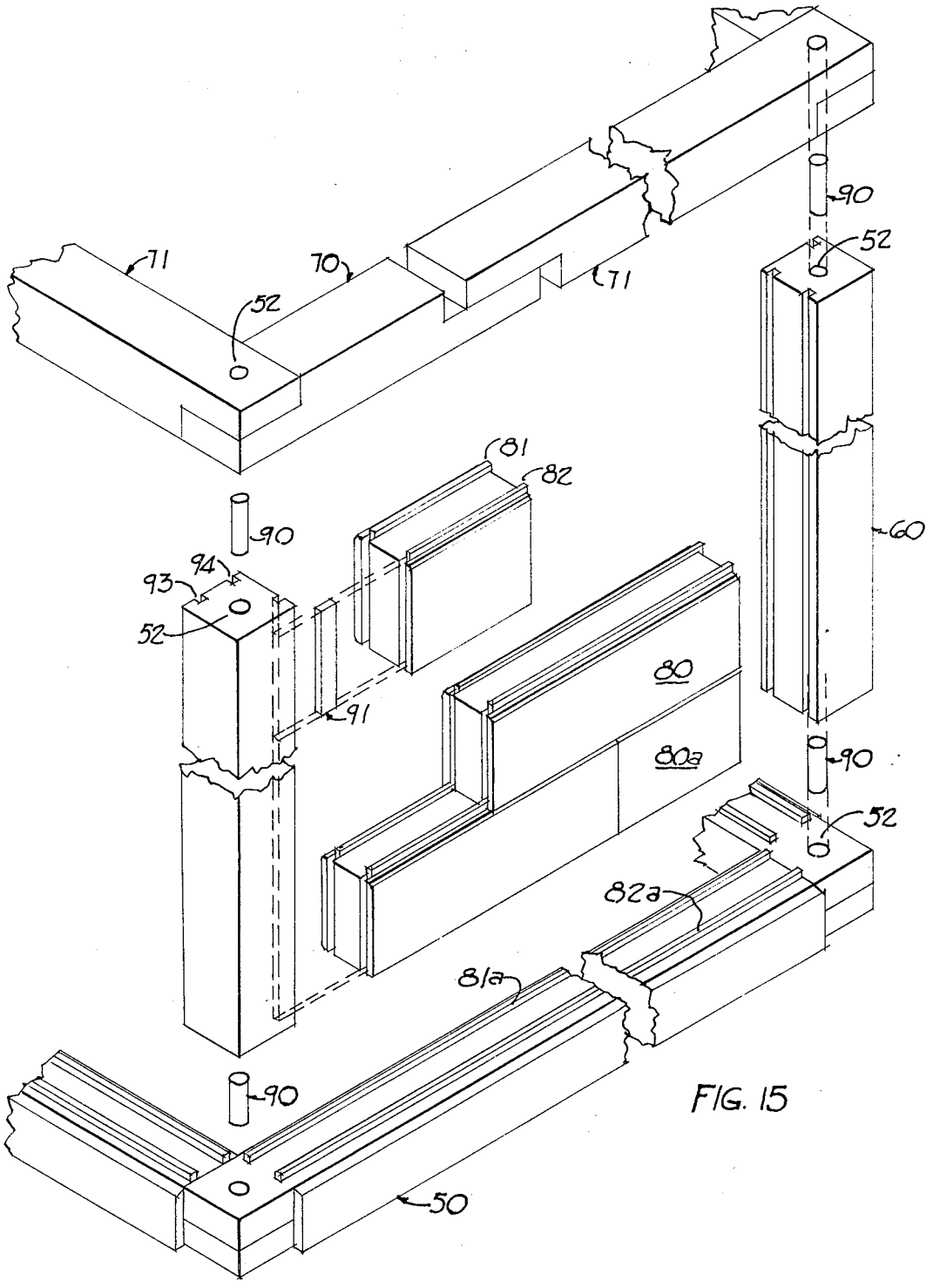


FIG. 15

INVENTOR
Gordon MacMaster

United States Patent Office 3,511,005 Patented May 12, 1970

3,511,005

BUILDING CONSTRUCTION

Gordon MacMaster, Box 6, Cambridgeport, Vt. 05141

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Int. Cl. E04b 2/80; E04c 1/10
U.S. Cl. 52—293 1 Claim

ABSTRACT OF THE DISCLOSURE

A wall construction consisting of a frame within which are arranged blocks that are secured to the frame to form complete wall panels or closures. The frame and blocks are especially designed to be made from short lengths of wood which are preformed to specifications common to all walls to be built according to this system. The basic blocks are of uniform dimensions for full and half block sizes with tongues and grooves along the sides and ends that mate with adjoining blocks and frame members. The framework consists of a sill member, vertical posts at opposite ends of the sill member and a top plate assembly. The vertical posts and one part of the top-plate assembly can be made in uniform lengths for all structures employing this system, so that only the sill members and another part of the plate assembly need to be cut to order for the required wall dimensions in any particular building plan. The frame members are pinned or doweled at each corner and are provided with tongues or grooves for interlocking with the blocks.

This invention relates to improvements in wood blocks used for walls and partitions in buildings and to a structural system in which said blocks are employed, this block type of construction being especially suited to the low cost or "second home" market.

The principal accomplishment of my invention, therefore, is a greatly simplified method of assembling such structural walls with their frames, said method or system consisting of a wood frame as the principal structural element together with wood building blocks arranged between and secured to said frame members and forming complete wall panels or closures.

Another object is to provide a structural frame which in itself has a minimum of elements thereby lending itself to an expeditious assembly; another object is to improve the ease with which the various elements can be manufactured, produced and shipped; and another object being to provide pre-engineered, manufactured units or elements of such simplicity and ease of assembly that their use is within the scope of even the amateur craftsman.

With the above and other objects in view, the invention consists in the construction, combination and arrangement of building elements and devices as hereinafter described and claimed.

In the accompanying drawings:

FIG. 1 is an isometric of a portion, to wit, one end of a building employing a frame and block panels arranged in accordance with one form of my invention;

FIG. 2 is an elevation of one complete wall of a structure showing in greater detail the elements mentioned above;

FIG. 3 is a perspective view of a basic building block unit and a half block unit required for breaking joints;

FIG. 4 is a top view of a basic block showing the double tongues and grooves used for mating purposes;

FIG. 5 is a side view of a basic block;

FIG. 6 is end view of the same block;

FIG. 7 is a sectional view through adjacent portions of two blocks about to be fitted together and showing in detail the mating arrangements, one block to the next;

FIG. 8 shows in perspective and broken away the arrangement of two horizontal plate members meeting at a corner with predrilled pin holes aligned for ease of assembly;

FIGS. 9*a* and 9*b* are side and top views respectively, of a plate assembly;

FIG. 10 is a section through one plate member taken along the line **10—10** of FIG. 9*a*.

FIGS. 11*a*, 11*b* and 11*c* are top, side and bottom views, respectively, of a vertical corner post;

FIG. 12 is a section through a corner post taken on the line **12—12** of FIG. 11*b*, and showing grooves or rabbets provided for mating purposes;

FIGS. 13*a* and 13*b* are top and side views of a horizontal sill member;

FIG. 14 is a section through the sill member taken on the line **14—14** of FIG. 13*b*; and

FIG. 15 is an exploded view of parts of a wall assembly in accordance with the invention.

Referring now to the drawings in detail:

FIGS. 3, 4, 5, 6 and 7 show the basic block **80** in detail, as it might be used in house or other building construction and as contemplated by this invention. The block **80** is generally elongated, somewhat higher than wide and is milled on the four mating sides. A similar block **80***a* (FIG. 15) half the length of block **80** is provided to allow the vertical joints in the wall panels to be broken. the top and one end of both the block and the half block have parallel tongues **80** and **82** with sides slightly beveled to facilitate installation. The bottom and other end of the basic blocks are milled with corresponding grooves, an inner groove **83** and an outer groove **84**, the grooves **83** and **84** being beveled to mate with the sides of the corresponding tongues **81**, **82** milled to a depth somewhat greater than the said tongues. For example, as shown in FIG. 7 the depth of grooves **83** and **84** equal $y+\frac{1}{32}y$ where the height of each tongue **81** and **82** is equal to y. By this method any capillary action whereby water might penetrate the wall is broken. Two sets of mating members are provided, however, for stability and to prevent such capillary action. Other features of my novel system include the beveling of the upper horizontal edges **85** and the inner lower edge **85***a* in order to minimize the effect of any misalignment. The drip edge **86** on the lower exterior edge is square, thereby cooperating with the beveled upper edge **85** of the block below diverting any water from the horizontal joint which might tend to penetrate the structure.

Referring to FIGS. 8, 9 and 10 which depict the plate arrangement called for in my invention, **70** and **71** of these drawings show how, by employing a two-member assembly for the plate on each wall or partition, material can be provided which can be shipped more easily due to its shorter length, and then, with a minimum knowledge of carpentry, assembled to the precise length of the sill of that wall thus assuring even the rank amateur of a workmanlike structure. FIGS. 9*a* and *b* particularly shows the simplicity of my invention in this regard, whereby the bottom half **73** of the horizontally cutout inner end of member **70** extends to receive the corresponding top half **74** of its opposite member **71** in a lap splice, gaps **72** remaining and varying with the amount of adjustment necessary to bring the plate to the same length as the sill. FIGS. 8, 9 and 10 also illustrate an especial feature of my invention, in which the pin holes **52** at the outer ends of both members **70**, **71** align with each other and with a like hole in a corner post **60** below, and allow for the installation of a dowel-shaped pin **90** (FIG. 15). The outer ends of both members **70** and **71** are cut away at **75** and **76**, respectively, so that the overlapping extensions at opposite ends of each member are located on opposite sides of the member. The undersides

of plate members **70** and **71** are provided with grooves **83***a* and **84***b* which extend substantially the full length of each member but stop short of the outer ends as indicated in FIG. 9*a* so that the grooves are not exposed.

No vertical members are required by my invention except the corner posts **60**. FIG. 11 details a typical corner post as used in my system of construction and shows the pin holes **52** at both top and bottom and the vertical grooves **93**, **94** and **95** to receive (a) the mating end tongues **81** and **82** of the blocks **80** from one direction and (b) the splines **91** (FIG. 15), which mate the opposing members with grooves **83** and **84** in the ends of the blocks that form the wall extending the other direction.

The horizontal sill members **50** used in my invention (FIG. 13) not only provide double tongues **81***a* and **82***a* that mate with grooves **83** and **84** in the under sides of blocks **80** to prevent capillary water action, but also include a 45-degree offset **96** to carry rain water away from the wall plus a drip groove or recess **97** as shown in the cross sectional view of FIG. 14.

Reference is now made to FIG. 15 wherein will be found an exploded view illustrating the entire basic concept of my invention, the relationship of the various elements one to another and the particular simplicity with which the whole can be assembled.

Beginning at the bottom of the view (and as in actual construction) the sill members **50** are shown in place (in an undersize building for graphic purposes) having been positioned by means of the pin holes **52**. Pins **90**, which are longer than the thickness of the sill, are driven into place in the pin holes **52** noted above, so that portions of both pins **90** remain exposed above the upper surface of the sill. The top plate is then established as to length by placing the members **70** and **71** on top of the sill **50** with the pins **90** extending into the pin holes **52** of the plate members. With the top plate assembly thus accurately measured for length the members **70** and **71** are fastened together at their inner, overlapping ends **73**, **74** by means of nails or bolts. The plate assembly is then lifted off the pins **90** in the sill member and placed aside for installation after the wall has been erected.

Corner posts **60** are then driven onto pins **90**, plumbed and temporarily held in place with diagonal supports until the plate assemblies are positioned following installation of the blocks. As can be seen from further examination of FIG. 15, the space between the corner posts or uprights **60** is filled with the basic wall blocks **80** and **80***a*. Since the sill members are precut to accommodate even running courses horizontally and the corner posts are precut to accommodate even block courses vertically, no cutting or fitting is required. Blocks are driven into blocks, secured by nailing, and in the case of female members meeting corner posts, are splined thereto with splines **91**.

A secondary set of pins **90** is then driven into pin holes **52** at the top of the corner posts, and finally, the plate assembly **70**, **71** which, as described above, was made up to exactly the same length as the sill member, is dropped onto the exposed portions of the upper set of pins **90** thus completing the wall structure.

The resultant structure as can be seen is the hallmark of simplicity.

If desired the sill members **50** can also be made up in two parts each with overlapping ends, in the same manner as the plate assembly **70**, **71**. In that event, the first step in constructing a wall in accordance with my invention will be to position the pin-holes at the outer ends of each portion of the sill at the desired points at each end of the wall with their inner ends overlapping. The two parts of the sill are then nailed or otherwise suitably fastened together at the point where they overlap and the pins **90** driven into the pin holes **52** so that the top plate assembly **70**, **71** can be made up as before to exactly right length.

In this way, all the frame members, as well as the wall blocks can be cut in short lengths in order to facilitate shipping.

What is claimed is:

1. A wall construction comprising building blocks laid end-to-end in courses, one course upon another, a sill member on which a first course is laid, vertical posts extending upward from the ends of said sill member, an elongated plate assembly extending between the upper ends of the vertical posts, and fastener means for rigidly fixing said vertical posts to said sill member and plate assembly; said blocks, sill member vertical posts and plate assembly having interengaging tongue and groove means extending longitudinally of the joints formed between them, and said plate assembly comprising a pair of elongated plate members disposed end-to-end, the adjacent ends of each of said plate members having a cutout from its end on a side opposite that of the other plate member with said cutouts overlapping to form a lap joint between them, said cutouts each being long enough longitudinally of said plate members to form gaps between the inner extremities of said plate members and the ends of said cutouts when said plate assembly is fixed at both outer extremities to said vertical posts, in which both of the upper and one only of the lower horizontal edges extending along the wall surfaces of each of said blocks is beveled, the fourth such horizontal edge being square, such that said square edge in conjunction with the upper beveled edge of the next adjacent block below helps divert water away from the joint between said blocks.

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PRICE C. FAW, JR., Primary Examiner

U.S. Cl. X.R.

52—97, 282, 300, 475, 592, 595