April 9, 1957 C. A. LONG 2,787,812

INTERLOCKING WALL STRUCTURE

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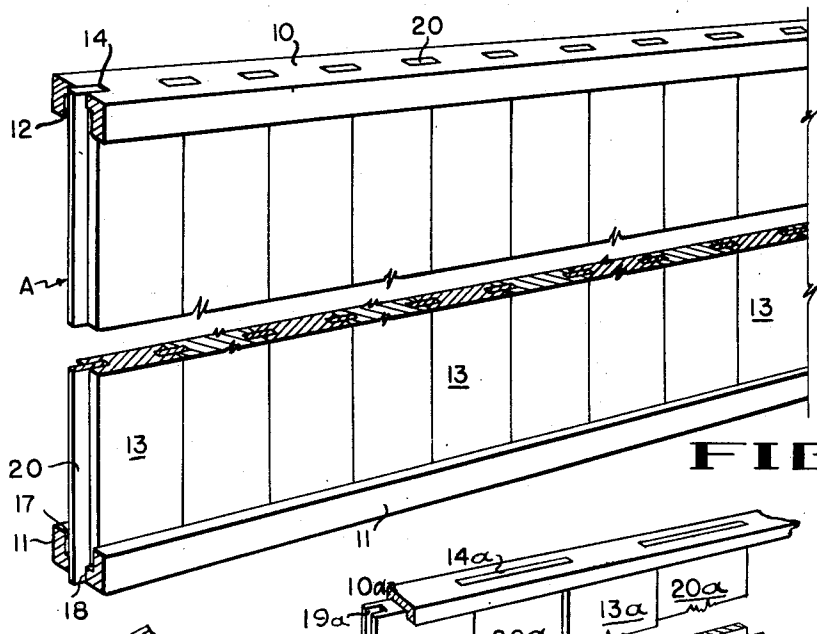


FIG_1

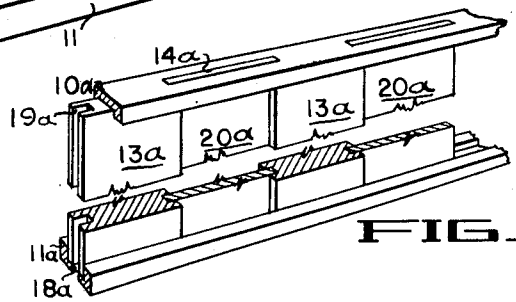


FIG_5

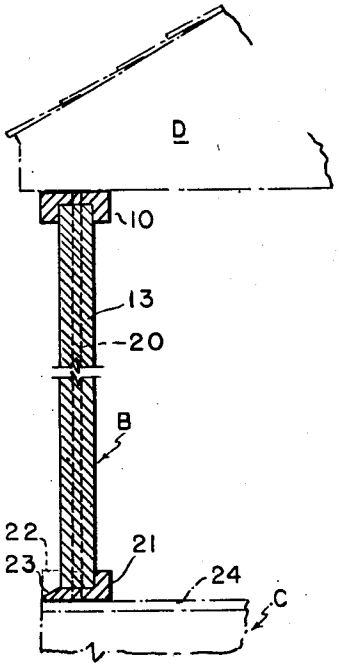


FIG_2

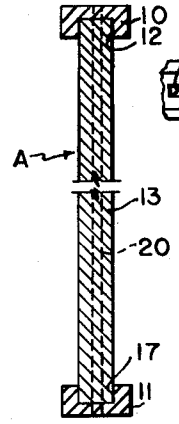


FIG_3

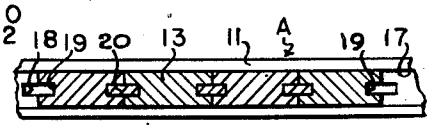


FIG_4

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INTERLOCKING WALL STRUCTURE

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2 Claims. (Cl. 20—4)

The present invention relates to walls, and pertains more particularly to a keyed, interlocked wall structure which can be assembled from prefabricated parts without the use of nails or other extraneous securing means.

The present invention contemplates the provision of a keyed, interlocking wall structure wherein longitudinal bracing elements are arranged for interlocking relation with upright elements of a wall structure. The invention also provides an improved interlocking wall structure which may be assembled easily from prefabricated elements, and which, when completed, will be strong, weathertight and of high heat insulative value.

Another object of the invention is to provide an improved simplified interlocking wall structure.

These and other objects of the invention will be apparent from the following description and the accompanying drawings, wherein

Fig. 1 is a perspective view of a wall made in accordance with the present invention, a central portion thereof being broken away for the purpose of increasing the scale of the drawing, top and bottom wall members being shown in section.

Fig. 2 is an upright transverse sectional view through a wall structure generally similar to that shown in Fig. 1, but having a modified base portion for use in making exterior walls, the top and bottom portions of a building in which the wall is incorporated being indicated in broken outlines.

Fig. 3 is a vertical transverse sectional view of a wall similar to that shown in Fig. 1.

Fig. 4 is a transverse sectional view taken along line 4—4 of Fig. 3.

Fig. 5 is a view similar to Fig. 1 but showing a modified form of wall structure.

Referring first to the interior wall structure shown in Figs. 1, 3 and 4, a wall A comprises a top horizontal member **10** and a bottom horizontal member **11**. The top member **10** is grooved on its underside at **12** to receive the upper ends of a plurality of upright wall members **13** in interfitted relation therein.

Holes **14**, which may be bored or cut with conventional mortising machinery, are provided throughout the length of the member **10**. These holes are aligned longitudinally of the upper horizontal member **10** and are spaced apart at required intervals to receive the interlocking key members to be described later herein. The lower longitudinal wall member **11** has a groove **17** on its upper side similar to the groove **12** in the member **10**. Holes **18** (Fig. 1) also are provided throughout the length of the member **11** similar to the holes **14** in the upper longitudinal member **10**.

Each of the upright wall members **13** has a groove **19** in each longitudinal edge thereof. Each groove **19** is of a size and shape to receive a vertical interlocking key member **20** therein, and is located opposite the groove **19** in an adjacent upright wall member **13** when the wall is assembled as shown in the drawings.

As shown in Figs. 1 and 4 the width of each key member **20** is twice the depth of the grooves **19**, so that when the wall A is assembled the upright members **13** will be in edge to edge abutting relation.

The tightness of fit of the interlocking key members **20** in the grooves **19** of the upright members **13** may be predetermined as required by the intended use of the wall. For example, if the wall is to be used as a part of a temporary structure, and is to be disassembled at an early date, the fit of the interlocking key members in the grooves **19** may be quite loose. If the wall is to be a part of a permanent structure, or if a maximum degree of tightness against air infiltration is required, this fit may be as tight as practicable. Excessive tightness however makes assembly more difficult and is not necessary.

In order to prevent the collection of run-off water in the groove **17** of the lower longitudinal member **11**, when a wall, such as the wall B of Fig. 2, is intended for exterior exposure, a modified lower longitudinal member **21** preferably is employed. The member **21** is similar to the lower member **11** of the wall A shown in Fig. 1, with the exception that the outer flange **22** (Fig. 2) is omitted, and the upper surface **23** of the projecting exterior side portion of member **21** is sloped outwardly and downwardly in the manner of a conventional sill to drain off any water which may flow down the exterior face of the wall B.

The interior type of wall A (Figs. 1 and 3) may be erected by first mounting a longitudinal base member **10** on any suitable support, such as the floor **24** of a conventional foundation structure C (Fig. 2). An end portion of one of the main upright wall members **13** then is fitted into the groove **17**, and is centered between an adjacent pair of holes **18**, **18** in the lower member **11** so as to bring its edge grooves **19**, **19** into register with these holes. An intermediate key member **20** then is fitted into each groove **19** in the upright wall member **13**, the lower end of each key member being inserted in the hole **18** in register therewith in the member **11**. Additional upright wall members **13** and key members **20** then are similarly mounted in alternate order as shown in Figs. 1 and 4 throughout the desired length of the wall. The upper longitudinal member **10** is mounted in groove-down position over the upper ends of the upright wall members **13** with the upper ends of the members **13** within the groove **12**, and the upper ends of the key members **20** fitted into the holes **14** in the upper member **11**.

The wall B of Fig. 2 is generally similar to, and is erected in a manner similar to the interior wall A of Figs. 1 and 3. The remaining building structure such as a roof assembly D may be erected on the walls in a conventional manner.

After the walls have been completed, usual door, window and other openings as required may be cut therein by the use of conventional tools, such as rotary hand saws, or other cutting tools in a manner which will be apparent to those skilled in the art.

In the further modified wall structure shown in Fig. 5 the upright wall members **13***a* are similar to the members **13** of Figs. 1 to 4 inclusive. The upper longitudinal member **10***a* and lower longitudinal member **11***a* also are generally similar to the corresponding members **10** and **11**, with the exception that the holes **14***a* and **18***a*, respectively, therein are longer than the holes **18** to receive wider key members **20***a*. The key members **20***a* are of a width substantially greater than twice the depth of the edge grooves **19***a* into which they are fitted so as to space the upright wall members **13** by an amount equal to this excess of width. When so built the wall has an alternate, offset appearance and allows for decorative contrast where different woods are used for the upright members **13***a* and the key members **20***a*.

The wall structure of the present invention is strong,

has a pleasing appearance, and allows but little air infiltration therethrough. For example, if two inch lumber is used for making the upright members 13 the walls will have high heat insulative properties. Both the exterior and interior surfaces of the walls A and B as shown in the drawings and described herein are of excellent appearance and lend themselves well to modern trends in decoration, as by staining, varnishing or painting. Also, either surface of either wall A or B may easily be covered with other decorative or insulative materials if desired.

For example, if it is desired to stucco the exterior side of the wall, this may be done in a conventional manner by applying usual stucco wire mesh to the exterior side of the wall and then applying the stucco thereover in a well known manner. For finishing the interior surface of the wall, it may be plastered over conventional metal or other lath applied to the wall in a well known manner, or the wall may be covered with any of the well known types of gypsum or other panel or wallboard which also are well-known to those familiar with the building art.

Although the wall of the present invention may be fabricated easily and satisfactorily from wooden lumber, it is desired to point out that any or all of the various parts thereof also may be molded or extruded from plastic or other material, in a manner which will be obvious to those skilled in the manufacture of such materials.

While I have illustrated and described a preferred embodiment of the present invention, it will be understood however, that various changes and modifications may be made in the details thereof without departing from the spirit and scope of the invention as set forth in the appended claims.

Having thus described the invention, what I claim as new and desire to protect by Letters Patent is defined in the following claims.

I claim:

1. An interlocking building wall comprising a pair of longitudinal members mounted in spaced, parallel relation, each longitudinal member having a groove formed lengthwise therein facing the opposite longitudinal member, each longitudinal member having a plurality of holes transversely therein with the central axes of the holes aligned to define a common plane extending lengthwise of the longitudinal members and spaced at predetermined intervals throughout the lengths of both longitudinal members, one hole in each longitudinal member being axially aligned with a corresponding hole in the other longitudinal member, a plurality of upright wall members extending from one of said longitudinal members to the other, the ends of said upright members being inserted in the grooves in said longitudinal members with the edges of adjacent upright members parallel to and opposite each other, and a plurality of key members inserted one in each axially aligned pair of said holes to extend from one of said longitudinal members to the other with the end portions of each key member inserted in the axially aligned pair of said holes for interlocking engagement therewith, the edges of each adjacent pair of said upright members being grooved to receive a key member therein.

2. An interlocking building wall comprising a pair of longitudinal members mounted in spaced, parallel relation, each longitudinal member having a groove formed lengthwise therein facing the opposite longitudinal member, each longitudinal member having a plurality of transversely extending holes through the portion thereof defining the bottom of the groove therein and spaced at predetermined intervals along both longitudinal members, the holes in each longitudinal member being opposite corresponding holes in the other longitudinal member, a plurality of upright wall members extending from one of said longitudinal members to the other, the ends of said upright members being inserted in the grooves in said longitudinal members, each upright member having a pair of similar grooves formed one in each edge thereof, and a plurality of key members inserted one in each opposite pair of said holes in said longitudinal members to extend from one of said longitudinal members to the other with the end portions of each key member extending into such opposite pair of holes and into the grooves in the edges of an adjacent pair of said upright members for interlocking engagement therewith.

References Cited in the file of this patent

UNITED STATES PATENTS

1,564,393	York	Dec. 8, 1925
2,183,620	Myers	Dec. 19, 1939
2,412,242	Beaud	Dec. 10, 1946
2,550,883	St. Vincent	May 1, 1951
2,619,686	Dombrowski	Dec. 2, 1952