

[54] **DOUBLE WALL INTERLOCKING  
PANEL CONSTRUCTION**

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[58] Field of Search ..... **52/471, 617, 619-621,**  
52/588, 300, 749, 595

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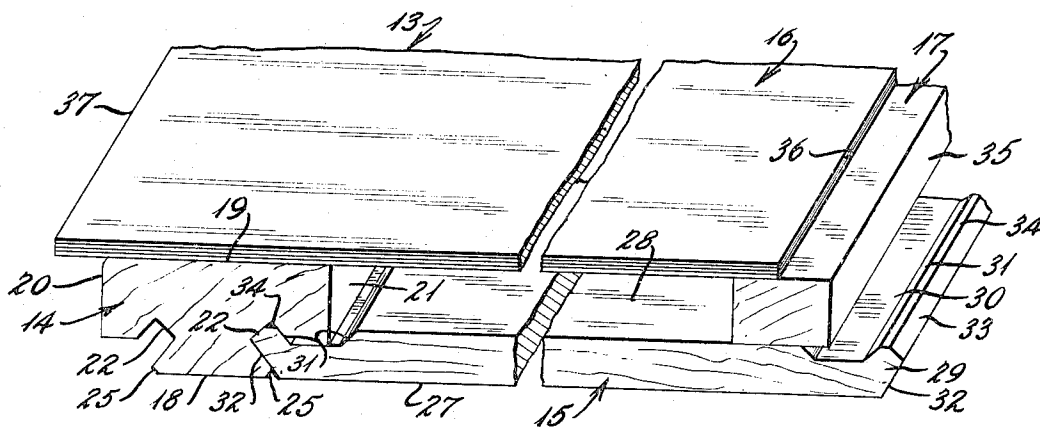
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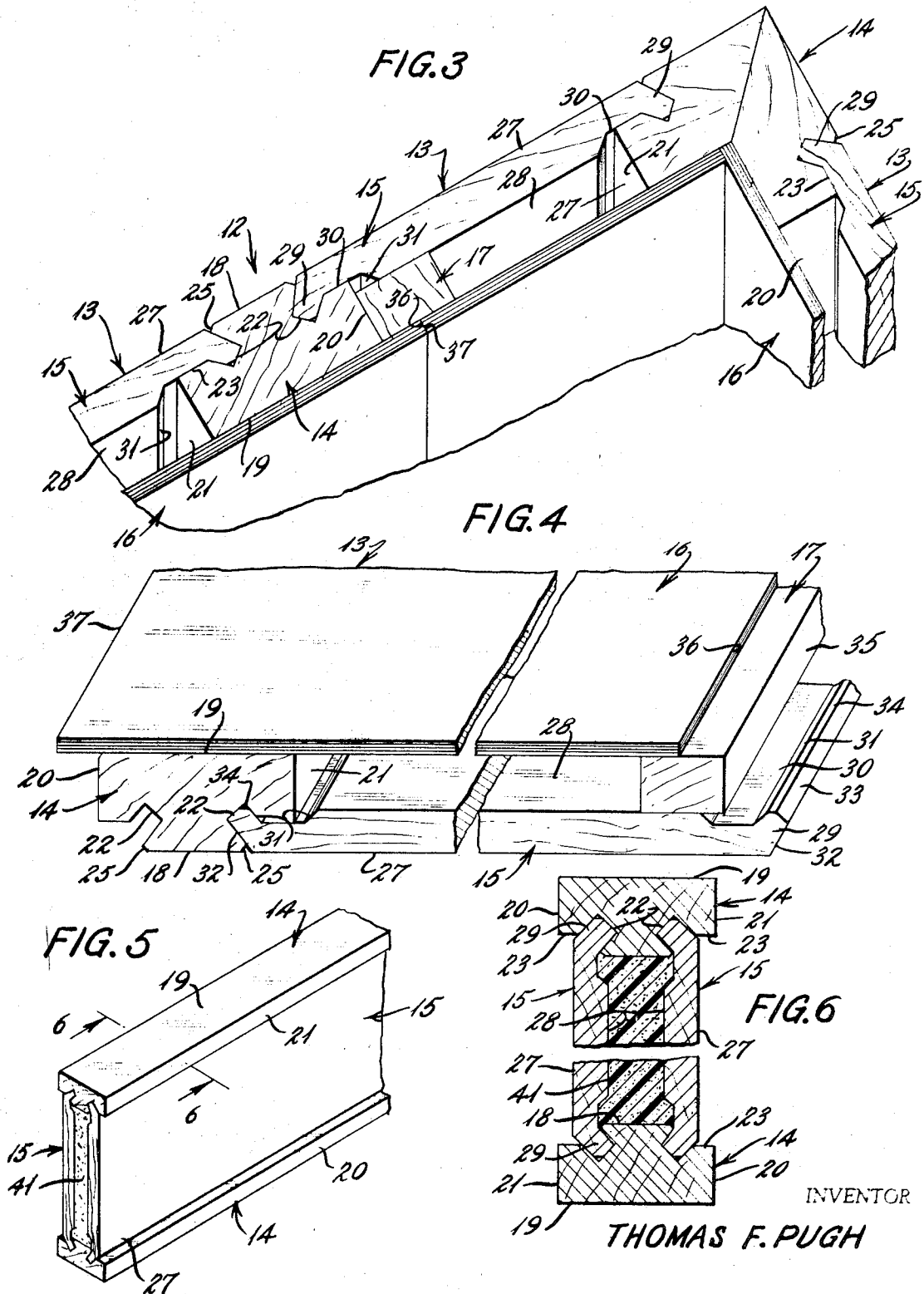
**ABSTRACT**

Apparatus for constructing a double wall panel of interlocking parts and providing means for connecting one panel to an adjacent panel in interlocking relationship, the double wall panel providing both inner and outer walls for a building with an insulating space therebetween.

**3 Claims, 6 Drawing Figures**







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## DOUBLE WALL INTERLOCKING PANEL CONSTRUCTION

### CROSS-REFERENCE TO RELATED APPLICATION

This invention is an improvement over U.S. Pat. No. 3,407,555 for an interlocking component system of construction.

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

This invention relates generally to buildings of various kinds and relates particularly to a preformed panel constructed of multiple interlocking parts providing inner and outer walls and means for interlocking each panel with adjacent panels.

#### 2. Description of the Prior Art

Heretofore many prefabricated or precut buildings or portions of buildings have been provided with components which joined or fitted together, such as tongue and groove joints, overlapping battens, and the like. Most of these prior art devices require nails or other fasteners to hold the same in assembled relation, have been expensive to produce and maintain and for other reasons have been unsatisfactory. In the above referred to patent an interlocking component system of construction was provided and whereas this structure served the purpose for which it was intended, it was necessary to erect the individual components at the job site, and after being erected only a single wall or roof was provided.

### SUMMARY OF THE INVENTION

The present invention is a double wall interlocking panel with each panel including a cap and board component connected together by tongues and grooves disposed at an angle to the plane of the panel and forming one wall thereof, a second wall connected to the cap components of the first wall and spaced from the board components. The second wall is offset laterally from the first wall with one portion of the second wall being connected to the first wall by a spacer and another portion of the second wall adapted to overlie an adjacent panel.

It is an object of the invention to provide a double wall interlocking panel in which one wall is constructed of interlocking parts connected together in assembled relation and with the second wall being offset laterally and forming a double wall panel with insulating space between the same and with each panel adapted to interlockingly engage adjacent panels to provide mutual support.

Another object of the invention is to provide a double wall panel construction having interlocking components designed to support the structural load of the building and provided with means for preventing the entrance of moisture through the same or through the connecting joints.

### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective illustrating one application of the invention.

FIG. 2 is an enlarged section on the line 2—2 of FIG. 1.

FIG. 3 is an enlarged perspective viewed from the interior of the structure.

FIG. 4 is a fragmentary enlarged perspective illustrating one of the panel units.

FIG. 5 is a perspective of a modified form of the invention.

FIG. 6 is an enlarged fragmentary section on the line 6—6 of FIG. 5.

### DESCRIPTION OF THE PREFERRED EMBODIMENT

With continued reference to the drawings, a structure 10 which may include a sidewall, partition, roof, fence, and the like is provided having a base or lower plate 11 with a groove 11' on which the structure is to be erected. In the construction of one or more walls 12, or the like, it is desirable to erect such walls as rapidly as possible and to use unskilled labor to reduce the overall cost of the structure as much as possible.

In order to do this, the walls 12 may be constructed of a plurality of interlocking double wall panels indicated generally by the numeral 13 each of which includes a cap component 14, an outer board component 15, an inner wall member 16, and a spacer 17 connected together in assembled relation. The cap component 14 has a front 18, back 19, and sides 20 and 21. A groove 22 extends inwardly and upwardly from each of the corners between the front 18 and the sides 20 and 21 and such groove may be at any desired angle, although an angle of 45° has been found satisfactory. If desired the sides of the grooves 22 may be generally parallel with each other or may converge inwardly to define tapered grooves. A portion of each of the sides 20 and 21 is removed to provide flat portions 23 generally parallel with the front 18 and connecting the sides 20 and 21 with the grooves 22 for a purpose which will be described later. If desired a relatively sharp corner between the grooves 22 and the front 18 may be trimmed off to form a relieved edge 25.

The board component 15 may be of any desired size and includes a front 27 and a back 28. Each of the side edges of the board is provided with a tongue 29 of a size and configuration complementary to the grooves 22 of the cap component 14. In order to form the tongues 29, a recess 30 is provided in the back 28 along each edge thereof, and such recess is relatively wide and has angularly disposed sides 31 disposed generally at an angle of 45° to the back 28. The front corners of the board are removed to provide an angular surface 32 generally parallel with or complementary to the side 31 of the recess 30 and the rear corners of the board are removed to provide an angular surface 33 substantially normal to the axis of the tongue 29. The outer side 31 of the recess 30 is spaced from the angular surface 33 of the board to provide a land portion 34 for a purpose which will be described later. As illustrated in FIGS. 3 and 4, one of the flat portions 23 of the cap component is received within the recess 30.

One of the tongues 29 of the board is received within a cooperating groove 22 of the cap component, as illustrated in FIG. 4, while the other tongue is exposed. The spacer 17 is adapted to be mounted on the back 28 in spaced relation to the exposed tongue and is adapted to be connected to the board component 15 in any desired manner, as by an adhesive, nail, screw, or the like. The spacer 17 has one surface 35 spaced from and generally parallel with the exposed tongue 29 of the board and such surface is adapted to engage the side 20 of the cap component of an adjacent panel and function as a stop. The spacer 17 extends outwardly from the back 28 of the board component 15 to a position substantially planar with the back 19 of the cap component 14.

The inner wall member 16 is mounted on the back 19 of the cap component and the spacer 17 in a position generally parallel with and spaced from the board component 15. As illustrated in FIG. 4, one edge 36 of the wall member 16 is located along the longitudinal axis of the spacer 17 and the other edge 37 is adapted to overlie and extend beyond the cap component so that the board component 15 and the cap component 14 are laterally offset relative to the wall member 16. The area between the back of the board component 15 and the wall member 16 and between the cap component 14 and the spacer 17 defines a dead air space which can be left open or if desired could be filled with insulating material, not shown.

In the operation of the device a plurality of panels 13 are assembled in a factory or other desired location by inserting one of the tongues 29 of a board component 15 onto one of the grooves 22 of a cap component 14 and thereafter connecting the spacer 17 adjacent to the opposite side of the board component and then mounting the wall member 16 on the back of the cap component and partially on the spacer 17 as illustrated in FIG. 4. In this position one of the tongues 29 of the board component is exposed along one edge of the structure and the wall member 16 extends outwardly beyond the outer edge of the cap component. When the panels are to be erected on the base 11, a corner panel, in which the cap component

has been modified to provide a mitered surface 38, is placed within the groove 11' of the lower plate 11 and thereafter a second panel is moved into position so that the exposed tongue of the board component of the corner panel is received within the groove of the cap component of the second panel and the wall member 16 of the second panel overlies a portion of the spacer 17 of the first panel with the edge 37 substantially in abutting relation with the edge 36 of the wall member of the first panel. Additional panels are erected in the same manner until the entire wall has been completed. The cap components serve as studs for the wall to support the weight of the roof and replace the studs of a conventional wall structure which normally are erected separately from the interior and exterior wall surfaces. After the panels have been erected, an upper plate 39 having a groove 40 is mounted on top of the panels and such panels can be connected to the lower plate 11 and upper plate 39 in any desired manner, as by nails or other fasteners.

In this type of construction the tongues 29 engage opposite sides of the groove 22 and are adapted to apply pressure thereto when either the board component or the cap component is urged either in an in-and-out or sideways direction. When the tongues 29 are received within the grooves, the land portions 34 of the tongues are out of engagement with the grooves 22 and form capillary stops so that water cannot penetrate to the interior of the structure by capillary action, but instead any water which penetrates as far as the land portion will run down by gravity to the bottom of the panel where it can be discharged to the exterior in any desired manner.

With reference to FIGS. 5 and 6, a modified form of the invention is illustrated in which pairs of cap components 14 and board components 15 are connected together to form a roof beam or floor joist 42. In this construction the board components 15 are reversed relative to the cap components so that the tongues 29 of the board components engage the grooves 22 of the cap components with the cap and board located at right angles to each other. As illustrated in FIG. 6, a pair of spaced generally parallel cap components 14 are connected by a pair of spaced generally parallel board components 15 and define a central space which can be filled with a core of

material 41, such as but not limited to high-density plastic foam, which will impart additional rigidity and strength to the beam 42.

What is claimed is:

1. A unitary double wall panel for cooperative interlocking engagement with like panels to form a wall structure, said panel comprising a narrow cap component having a front, back and two sides and forming one edge of said panel, said cap component having a groove extending angularly inwardly from each corner between the sides and the front, a wide board component having front and back surfaces and an angularly disposed tongue along at least two opposed sides, each of said tongues being complementary to the grooves of said cap component, one of said tongues being cooperatively received within one of the grooves of said cap component with the front of said cap component being substantially coplanar with the front surface of said board component, the other tongue of said board component being located in a position remote from said cap component and forming a portion of the other edge of said panel, a spacer mounted on said board component adjacent to said other tongue and in spaced generally parallel relationship with said cap component, a wall member mounted on the back of said cap component and a portion of said spacer, said wall member having a portion extending outwardly from said cap component and adapted to overlie a portion of the spacer of an adjacent panel in abutting relationship with the wall member of the adjacent panel, whereby multiple preassembled panels can be erected in complementary interlocking engagement with each other so that forward, backward and edgewise movement of one panel will be resisted by adjacent panels.

2. The structure of claim 1 including upper and lower plate members, each of said plate members having a groove along its entire length in which said panels are received.

3. The structure of claim 1 in which each of said tongues has a land portion extending the full length thereof which cooperates with the groove of said cap component to define longitudinal spaces which act as capillary stops so that water will not penetrate to the interior of the structure.

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