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T. G. LINDSTROM

2,403,934

BUILDING CONSTRUCTION

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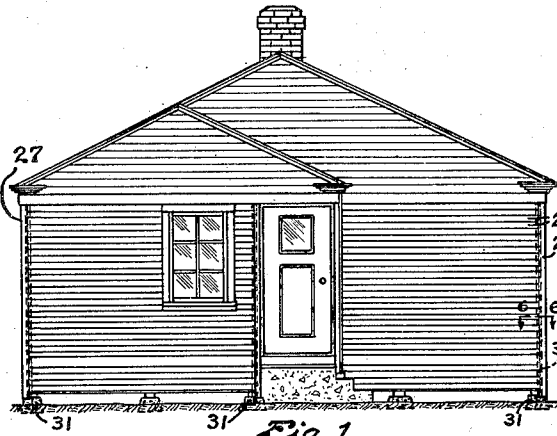


Fig. 1

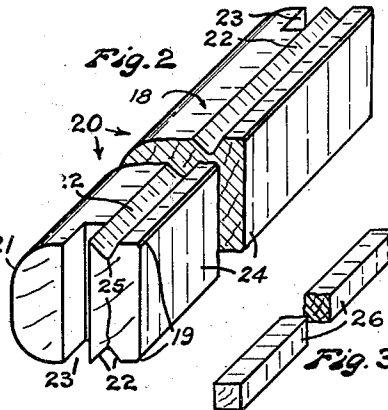


Fig. 2

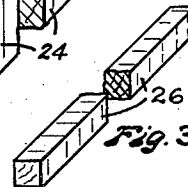


Fig. 3

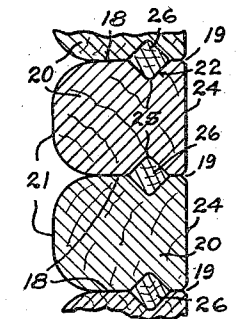


Fig. 4

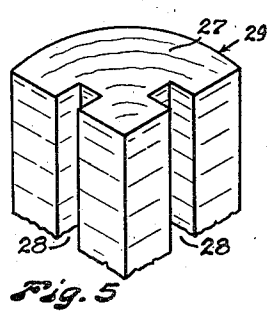


Fig. 5

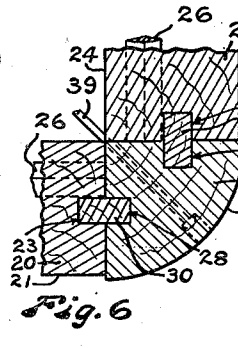


Fig. 6

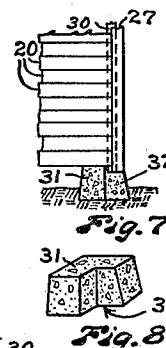


Fig. 7

Fig. 8

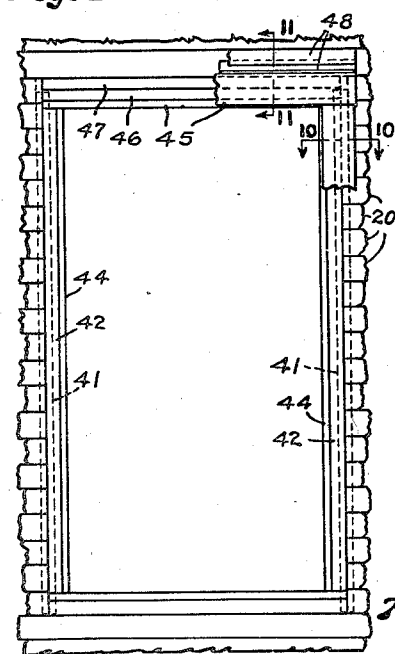


Fig. 9

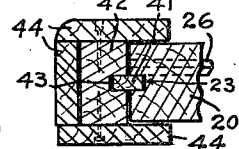


Fig. 10

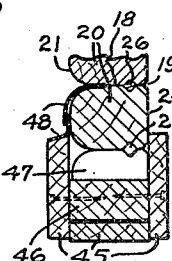


Fig. 11

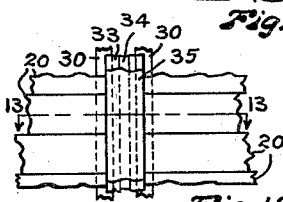


Fig. 12

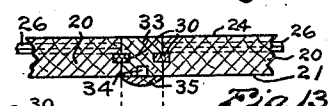


Fig. 13

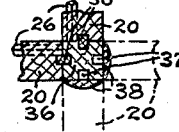


Fig. 14

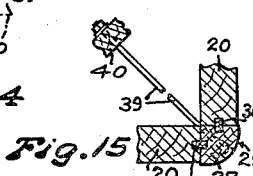


Fig. 15

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BUILDING CONSTRUCTION

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2 Claims. (Cl. 20—4)

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This invention relates to a house construction where relatively large timbers are employed in forming the walls thereof. More particularly, and by way of illustration and not as a limitation on this invention, the same relates to a cabin construction where large timbers, as logs, are employed in forming the walls of the cabin.

There are many second growth timbers in the United States which are not of a size to be merchantable as logs for forming lumber and also, for reason of defects as contour, shape, or partial blemishes, the same are not as merchantable for piling or telephone poles. There is therefore a supply of materials available which may be used in constructing dwellings, and it is an object of my invention to devise a construction which will permit the use of timber of this character in constructing dwellings.

In order to most expeditiously log and accumulate logs which may be used in constructing the dwelling of my invention, they are often logged with other timber—such as with logging of piling or telephone poles—and thus the logs are accumulated when they are green and high in moisture content. It is therefore an object of my invention to provide a construction which will permit the use of green and high moisture containing timber, and thus eliminate defects in the house which would follow from drying and shrinking of the timber. Often in the drying of green and very moist logs, the shrinkage transversely of the logs may be up to approximately one-half inch to the foot. Of course, the logs or damp timber have little shrinkage lengthwise of the timber and the shrinkage is transverse of the timber or in a plane at right angles to the length or grain thereof. Thus, in an eight foot wall where the timbers are running at right angles to the height of the wall, the shrinkage may be as great as four inches. It is an object of my invention to provide a construction which will take care of the maximum shrinkage which may be present due to the green and high moisture containing content character of the timbers which may be employed.

It is another object of my invention to provide a keyed construction between the logs to reduce the otherwise necessary nails and metal content of buildings.

It is another object of my invention to provide a construction wherein the amount of weatherproofing material necessary may be reduced to a minimum and yet with a maximum tightness of construction.

It is another object of my invention to provide a construction whereby the exterior appearance

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of the cabin or dwelling may be enhanced by the natural exterior of the logs (with or without the bark) and at the same time to permit the interior of the cabin or dwelling to be formed directly from the logs forming the exterior walls and thus lessen the cost of the finished interior and, at the same time, to obtain maximum utility from the logs employed.

It is a further object of the invention to provide grooves in the log having round corners therein and to provide relatively dry square keyed members which will fit into adjacent grooves in two logs, thus permitting compression of the key member and a weatherproof joint between two logs.

The above mentioned general objects of my invention, together with others inherent in the same, are attained by the mechanism illustrated in the following drawing, the same being a preferred exemplary form of embodiment of my invention, throughout which drawing like reference numerals indicate like parts:

Figure 1 is a view in elevation showing a dwelling embodying this invention;

Fig. 2 is a view in perspective of a timber used in this invention, which timber has been broken intermediate its length;

Fig. 3 is a view similar to Fig. 2 showing a key member employed between the timbers shown in Fig. 2;

Fig. 4 is a fragmentary sectional view showing the timbers of Fig. 2 in superposed relation, and with key members of Fig. 3 positioned therebetween;

Fig. 5 is a perspective view with parts broken away of a corner member used in this invention;

Fig. 6 is a sectional view taken substantially on broken line 6—6 of Fig. 1;

Fig. 7 is a fragmentary elevation showing particularly the corner construction;

Fig. 8 is a perspective view of the corner supporting member shown in Fig. 7;

Fig. 9 is a fragmentary view with parts broken away showing in elevation of a door or a window opening construction employed in this invention;

Fig. 10 is a sectional view taken substantially on broken line 10—10 of Fig. 9;

Fig. 11 is a sectional view taken substantially on broken line 11—11 of Fig. 9;

Fig. 12 is a fragmentary view in elevation of a modified form of this invention and particularly as respects an upright supporting member;

Fig. 13 is a sectional view taken substantially on broken line 13—13 of Fig. 12;

Fig. 14 is a view similar to Fig. 13 showing

a still further modified form of this invention; and

Fig. 15 is a fragmentary sectional view, with parts shown in elevation, showing an anchor means which may be employed in this invention to support the upright corner members.

Referring to Figure 1, a design of house which is well adapted to employ this invention is illustrated. It is to be expressly understood that this invention is not limited to any such specific form and that the same is only set forth by way of illustration of an appropriate and applicable design. As many of the parts shown in Fig. 1 relate to standard construction and their utility is apparent from their appearance in Figure 1, such parts are not numbered and not described.

The timbers 20 of Fig. 1, which are in superposed relation and extend in a horizontal plane, are shown in perspective in Fig. 2. Such timbers 20 have surfaces 24 which form the interior of the dwelling. These may be planed and decorated so that no other interior surface decorating material is necessary. If desired, the corners may be chamfered as illustrated at 19 for sake of appearance. These timbers 20 are provided with surfaces 18, each of which will abut with an adjacent surface 18 of another timber 20. In sawing the surfaces 18 these may be rough sawn and the torn fiber obtained from rough sawing will provide a compressible area and thus enhance the weatherproof characteristics of a joint between two timbers 20. The external rounded surface 21 may have the bark of the tree left thereon, or the bark may be peeled to provide the desired external effect. Grooves 22 are provided longitudinally of the timbers 20. These grooves 22 are preferably provided with a rounded portion as at 25. The key members 26, shown in perspective in Fig. 3, are provided with square corners and fit in the grooves 22. Thus, as a number of timbers 22 are placed in superposed relation, the square corners on the top and bottom of the keys 26 will be compressed and further enhance the weatherproof characteristics of the joint between two timbers 20. Preferably the key members 26 are provided of kiln dried material and the timbers 20 may be of any moisture content, and I eliminate the necessity of kiln drying the timbers 20. Vertical grooves 23 are provided in the respective end portions of the timbers 20 for the reception of keys 30 as will be hereinafter explained.

In the event that the logs are of a small size very little waste will obtain if one log is cut to form one timber 20 as shown in Fig. 2. However, if the logs are of a larger size, it will be more advantageous to cut a plurality of timbers 20 from each piece of log, as for example, two.

The plurality of walls of the house will be formed of timbers 20. To join together registering end portions of timbers 20, which are at right angles to each other, I employ corner members 27 shown in perspective in Fig. 5. These corner members 27, as shown in Fig. 5, have two surfaces at right angles to each other and the remaining surface 29 is preferably arcuate shape for appearance. Two grooves 28 are provided extending longitudinally of the corner member shown in Fig. 5. One groove 28 is in registration with the registering grooves 23 of one set of superposed timbers, and a key member 30 joins a plurality of superposed timbers 20 with a key member 27. Preferably, in building the house a number of timbers 20 are laid in superposed relation with the grooves 23 at the re-

spective end portions in registration, and then a key member 30 is inserted in the aligned grooves 23. Then the timbers 20 forming the wall at right angles to the first mentioned wall are inserted in place with the surfaces 21 at the exterior and with the grooves 23 slidably engaging the key members 30. This may be continued around forming three walls of the house. As the fourth wall is formed the timbers 20 may be moved downwardly from the top or the construction left loose enough so that upon tightening, the corner members 27, timbers 20, and the keys 30 will all be properly positioned.

Referring to Fig. 7 the corner block 31 is provided with a recess 32. This recess 32 is in registration with an upright corner post 27 to permit limited longitudinal movement of the upright corner post 27 and without the same contacting the corner block 31. By thus providing for movement between the timbers 20 and the corner post 27, the height of the wall obtaining formed of the superposed timbers 20 will not be governed by the height of the corner post 27, so that as expansion or contraction takes place no space will obtain between timbers 20.

While the keys 30 will tend to retain the upright corner post 27 in place, preferably I employ an anchor rod 39 (see Figs. 6 and 15) which is secured to a fixed portion at the base of the house, as 40.

As an alternative for the corner post 27 shown in Figs. 1, 5, 6, and 7, there is shown in Figs. 12 and 13 a modified form thereof. Here the upright 33 replaces the upright 27 of the previous figures and is provided with three grooves 34 instead of the two grooves 28. If such an upright 33 is employed, the same may be used intermediate the length of the wall of a house so that walls forming a T may be installed in the original construction, or provision is made for its later construction. To illustrate, the third wall is shown by dotted lines in Fig. 13 formed of timbers 20. In the event that provision is initially being made for the later construction of such third wall and upright 33 is employed, then a cover or trim 35 may be employed in the original construction for appearance sake.

As another modification of the upright corner post 27, I have shown in Fig. 14 a corner post 36 provided with four grooves 37, each of which may receive therein a vertical key 30. The covers of trim 33 of Fig. 14 are similar to the cover 35 of Fig. 13 and the additional walls which are initially installed or provision is made for their later installation are shown by dotted lines and numbered 20.

Referring particularly to the construction around the doors and windows (see Figs. 9 to 11) the vertical keys 41 are received in aligned grooves 23 in timbers 20. This permits the timbers 20 to move by reason of expansion or contraction and this movement will not be reflected in the position of the key 41. A vertical frame member 42 (see Fig. 10) is secured to the key 41 which is received in said slot 23. This may be accomplished by providing in the vertical frame members 42 a slot 43 of suitable size and then nailing, gluing, or otherwise securing the key 41 to a frame member 42. On each side of the opening, the vertical trim numbered 44 in Fig. 10, the vertical upright 42 and the key 41 are secured together, and are slidable (by reason of keys 41) as respects the timbers 20. A horizontal header 46 is supported by the vertical frame members 42 on each side of the door or window opening

and is positioned in spaced relation to the timber 20 thereabove providing the space 47 shown in Fig. 11. The extent of the space 47 will depend upon the maximum contraction possible of the timbers 20 and such space permits movement of the timbers 20 thereabove without changing the position of the header 46. Horizontal trim 45 is secured to the header 46 and thus a door opening, provided by the trims 44 and 45, may maintain its position despite expansion and contraction in the timbers 20. Preferably, the moisture content of the members 41, 42, 45 and 46 is that which is best suited for the purpose. Also, preferably, such parts are treated with resin sealers obtainable on the market to waterproof and control the dimensions of such parts. In other words, it is an object to provide a door frame or window frame opening construction wherein the trim portions supporting the door or window will be formed of finished materials and treated so they will be waterproof and properly maintain their size to provide proper fit of the doors and windows and at the same time to provide sliding connections between such trim members supporting the doors and windows and the timber members 20 forming the walls of the dwelling of this invention. While I have shown a type of window in Figure 1, which is commonly referred to as a "French window," it is well within the knowledge of those skilled in the building art to employ any type of window and modify the opening in accordance therewith.

As a space 47 is provided between the header 46 and the timber 20 thereabove, means should be employed to seal the space thus provided. This may be accomplished by having the inside piece of trim 45 slidably fit against the inner surface 24 of the timber 20 above the space 47. On the outside a flashing 43 provides a suitable weatherproof connection between the exterior trim 45 and the said timber 20.

The relative positions of the grooves 22 and 23 in the timber 20 will be determined by question of weatherproofness and also strength. The closer the position of the grooves 22 to the surface 21, the greater will be the weatherproofness of the construction, and, at the same time, the more centrally the grooves 23 are positioned, the greater will be the strength of the corner construction.

Thus, in general, in this invention there is provided a plurality of timbers 20 which may be positioned in superposed relation to form the walls of the dwelling. By the use of the desired upright as shown in the drawing any number of walls may be erected to provide a suitable design of dwelling. Also, openings may be provided for windows, doors, and the like. The weatherproofing between the timbers 20 is provided by the rough sawing of the surfaces 18 and also by the groove 22 (having a rounded corner) and the interfitting compressible square cornered key members 26. The timbers 20 are provided with a sliding fit with the vertical sup-

porting members at the corners and around the doors and windows so that relative movement between the timbers 20 and the trim or corner posts, brought about by reason of expansion or contraction of the timbers 20, will not effect the position of the corner supports as 27, 33, 36. Likewise, the relative position of the timbers 20 will not effect the position of the members 41, 42, 44, 45, and 46 which form the window frame and door frame construction openings.

Obviously, changes may be made in the forms, dimensions and arrangement of the parts of this invention, without departing from the principle thereof, the above setting forth only preferred forms of embodiment.

I claim:

1. In a device of the class described, a wall formed of relatively moist timbers, each provided with a longitudinal V shaped groove, having a base which coincides with the base of the timber and which is rounded at the apex of the groove, disposed in superposed relation and with juxtaposed grooves paired to form in section a rectangular opening with upper and lower rounded corners; and a compressed rectangular and relatively dry key member disposed in said opening characterized in that corners of said key member have been compressed and conform to the configuration of said opening.

2. In a device of the class described, a plurality of superposed timbers forming one wall of a building the height of which varies with expansion and contraction, each timber being provided with a vertical groove in an end portion thereof, said grooves in said timbers being disposed in registering relation to form a continuous vertical groove; a second tier of superposed timbers forming another wall of said building the height of which varies with expansion and contraction, each of said last mentioned timbers being provided with a vertical groove in an end portion thereof, said grooves in said last mentioned timbers being disposed in registering relation to form a second continuous vertical groove; an upright support mounted for relative vertical movement as respects both of said walls and being provided with a plurality of vertical grooves, one of which registers with the groove in the first mentioned superposed timbers, and another of which registers with the groove in said second tier of superposed timbers; floatingly mounted key members slidably joining the groove in said superposed timbers with a groove in said upright support and slidably joining said groove in said second tier of superposed timbers with another groove in said upright support, whereby expansion or contraction of said timbers of each wall causing change in the height of the wall is unrestricted and said walls are supported against horizontal movement; and a stay supporting member secured to said upright support and preventing displacement of said support away from said superposed timbers and said second tier of superposed timbers.

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