Nov. 13, 1934. C. W. BONN 1,980,660

CONSTRUCTION OF LOG CABINS

Filed May 10, 1933 5 Sheets-Sheet 1

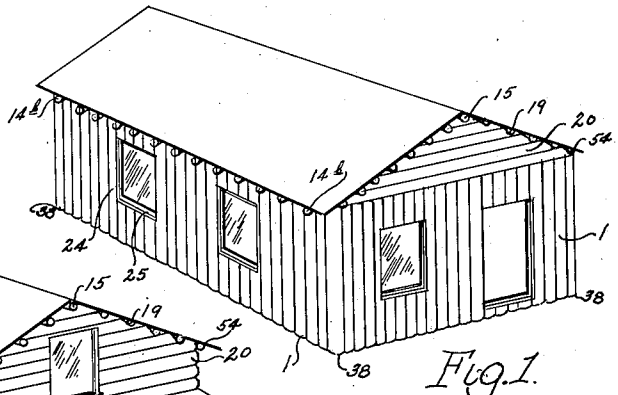


Fig. 1.

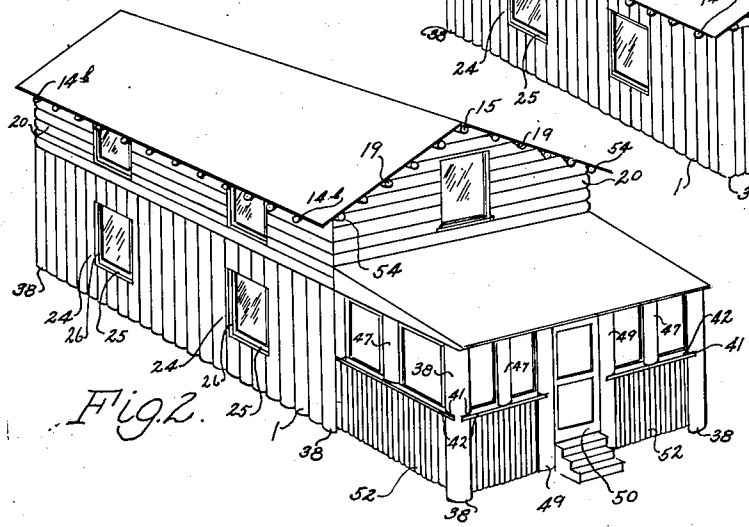


Fig. 2.

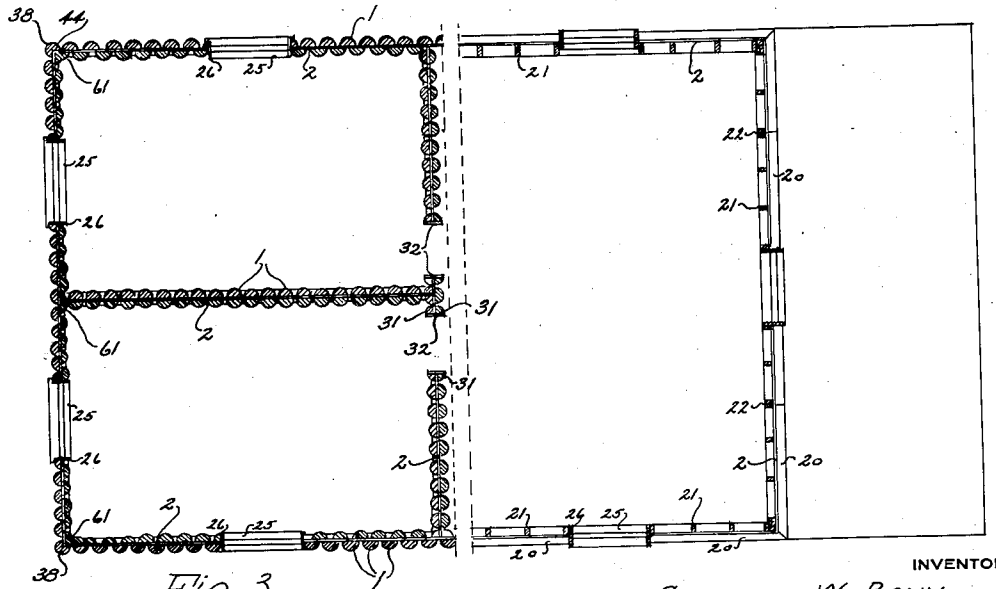


Fig. 3.

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CONSTRUCTION OF LOG CABINS

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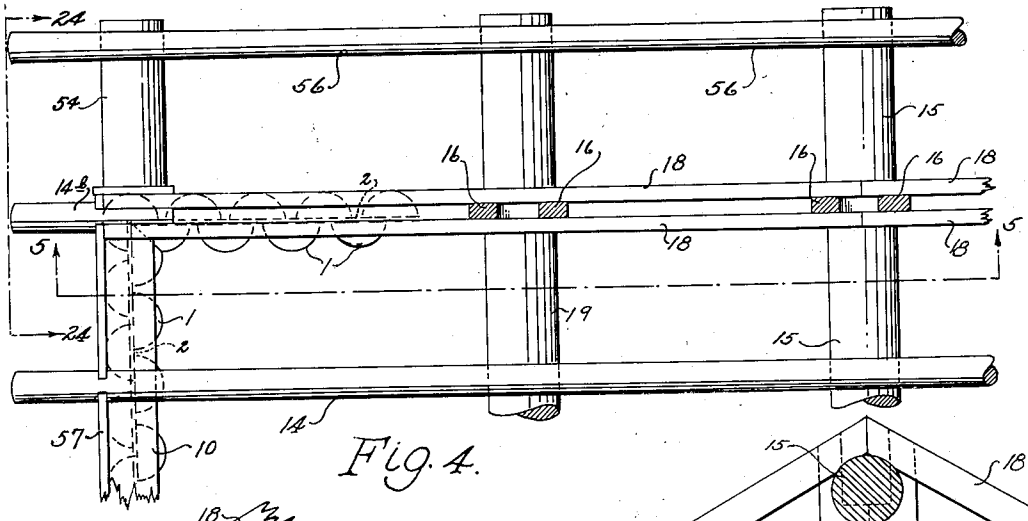


Fig. 4.

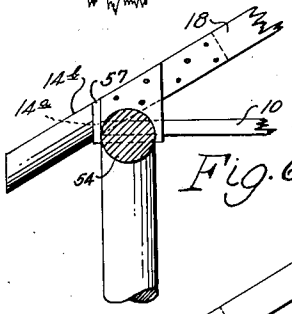


Fig. 6.

Fig. 5.

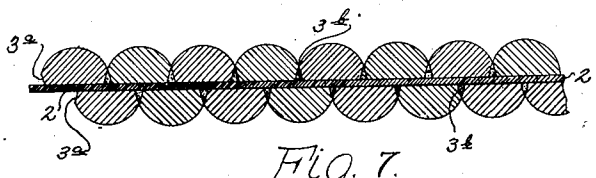
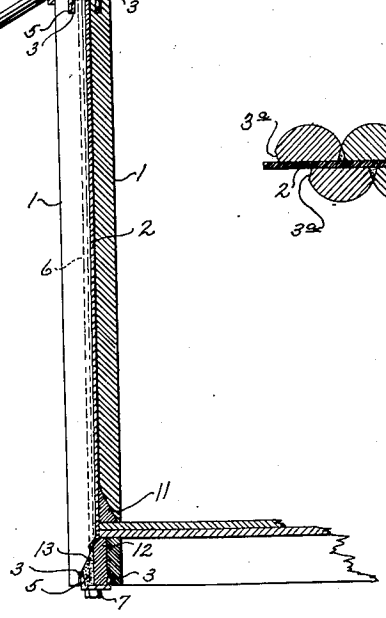


Fig. 7.



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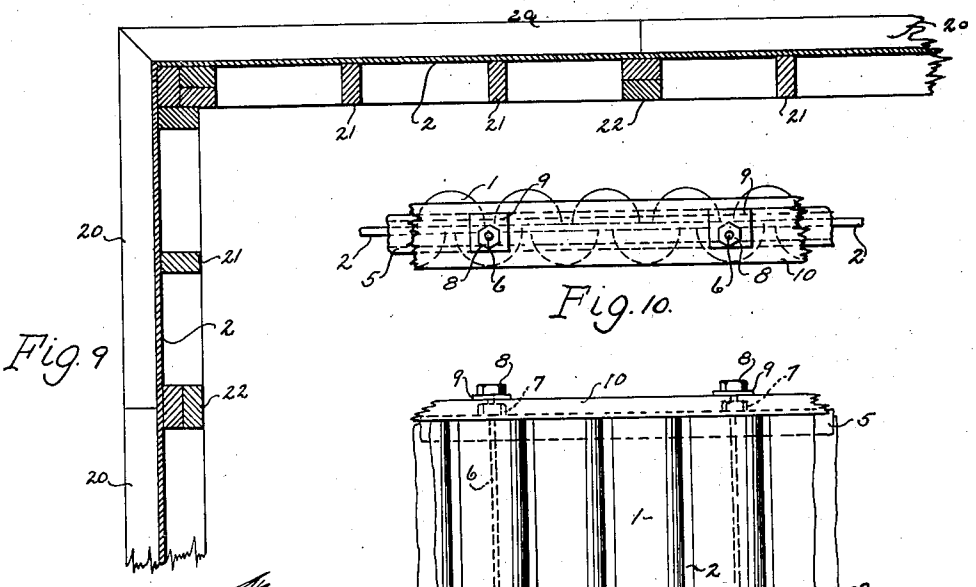


Fig. 9

Fig. 10.

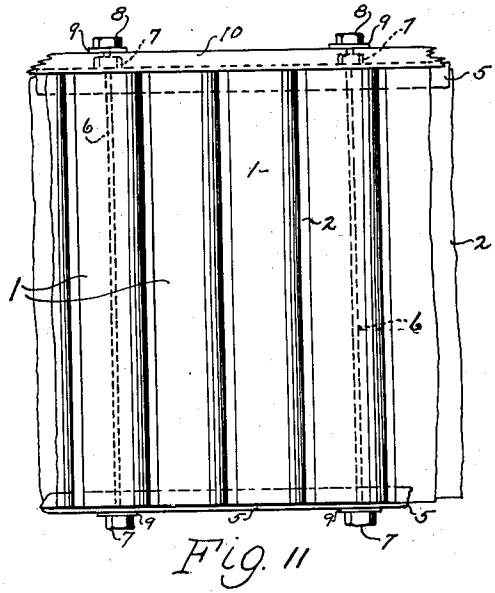


Fig. 11

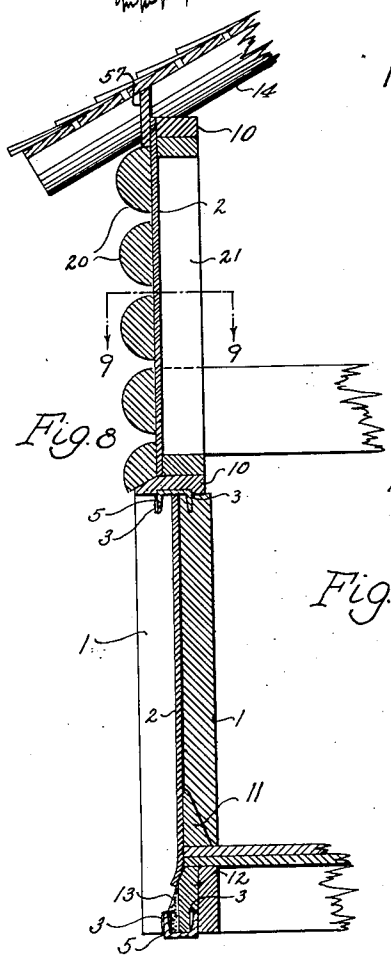


Fig. 8

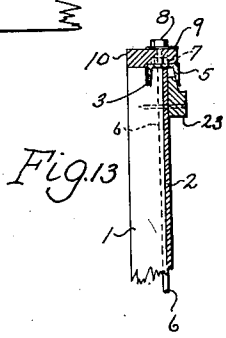


Fig. 13

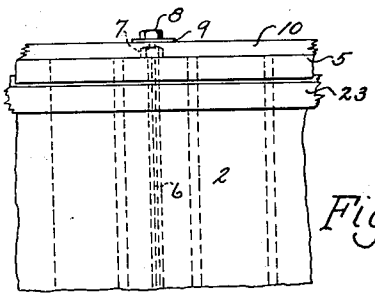


Fig. 12

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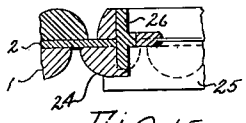


Fig 15

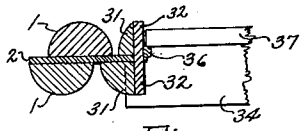


Fig. 18.

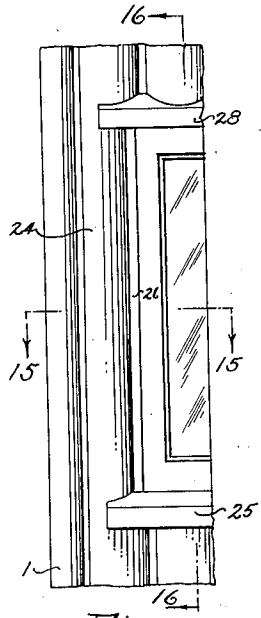


Fig. 14.

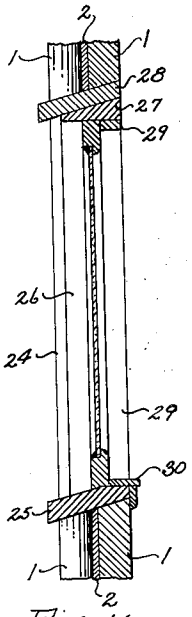


Fig. 16

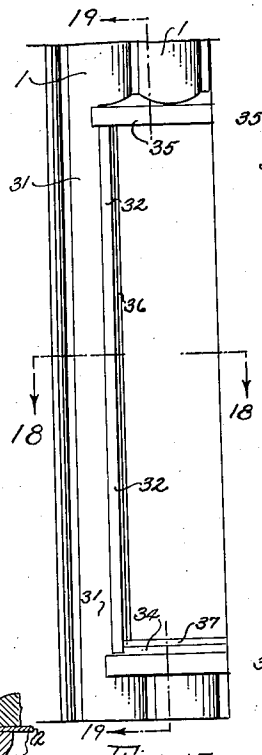


Fig. 17

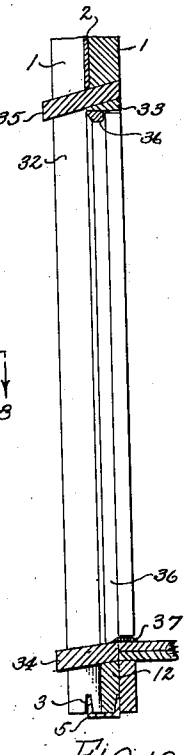


Fig. 19

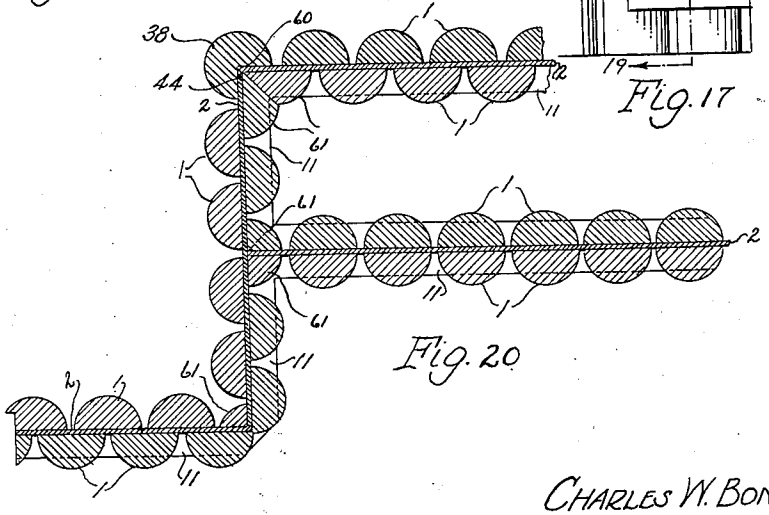


Fig. 20

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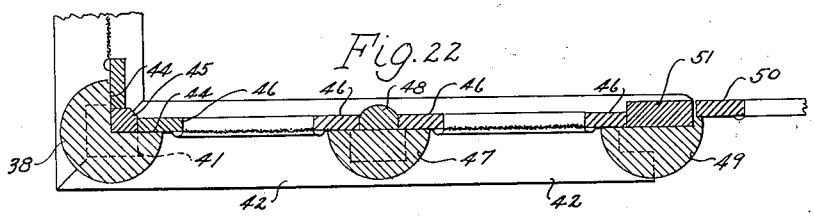


Fig. 22

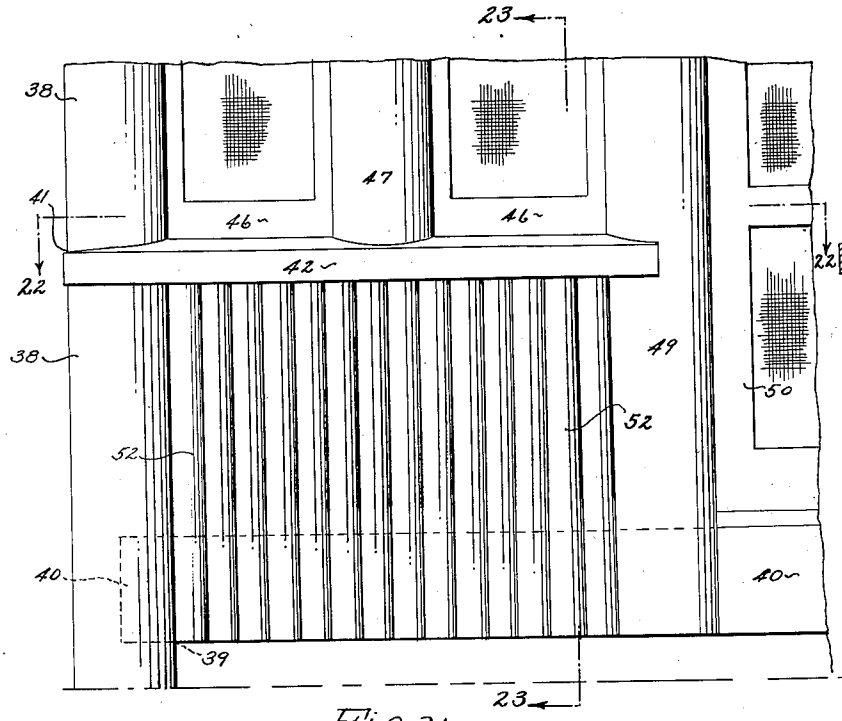


Fig 21

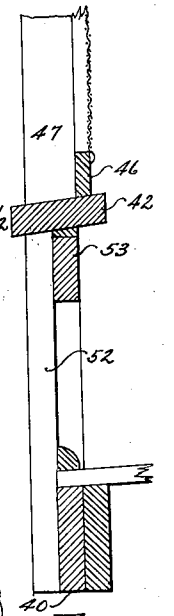


Fig. 23

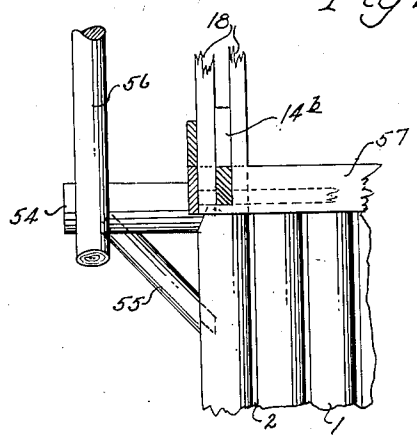


Fig. 24

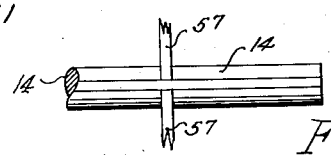


Fig. 25

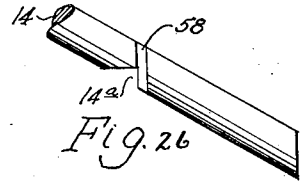


Fig. 26

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UNITED STATES PATENT OFFICE

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CONSTRUCTION OF LOG CABINS

Charles W. Bonn, St. Clair, Mich.

Application May 10, 1933, Serial No. 670,236

8 Claims. (Cl. 20—1)

This invention relates to improvements in the construction of buildings formed principally of natural logs, and more particularly to a building construction embodying the use of half-logs forming the opposite sides of the walls of the building, which walls are preferably formed of suitable insulation board to the opposite faces of which board these half logs are secured as a finish and to add strength and thickness to these walls, the construction and arrangement being such as to eliminate cracks and to do away with the necessity for chinking or calking, and being such as to provide a wall construction which may be shipped in knockdown form and assembled in sections on the job.

A further object of the invention is to provide a novel corner construction whereby the log forming the corner of the wall does not protrude from the wall line; and to make provision whereby the necessary door and window openings will be weathertight and will harmonize with the exterior appearance of the building; and to provide a roof and porch construction that is unique in construction and of rugged characteristics.

With the foregoing and other ends in view, the invention consists in matters hereinafter described and more particularly pointed out in the appended claims, reference being had to the accompanying drawings, in which:—

Figure 1 is a perspective view of a one story cabin illustrative of an embodiment of features of the present invention;

Fig. 2 is a perspective view of a two story cabin illustrative of an embodiment of certain other features and showing an arrangement wherein the logs forming the second story will extend horizontally, and a porch of a novel construction is formed;

Fig. 3 is a sectional plan view of the cabin shown in Fig. 2, the section being taken partly in the plane of the first story and partly in the plane of the second story with the porch roof in plan view;

Fig. 4 is a detail showing a portion of roof and cornice framing in plan view;

Fig. 5 is a vertical section substantially upon the line 5—5 of Fig. 4, of a one story cabin;

Fig. 6 is a sectional elevation detail of gable end outside;

Fig. 7 is a horizontal sectional detail of a portion of wall of modified construction;

Fig. 8 is a detail showing a vertical section through one side of a two story structure;

Fig. 9 is a horizontal section substantially upon the line 9—9 of Fig. 8 showing the second story framing;

Fig. 10 is a detail showing a portion of the lower story wall in upper end elevation;

Fig. 11 is a side elevation of Fig. 10;

Fig. 12 is a detail showing a slightly modified wall construction in inside elevation;

Fig. 13 is a cross sectional detail of Fig. 12;

Fig. 14 is a detail showing a portion of a window casing in outside elevation;

Fig. 15 is a horizontal section substantially upon the line 15—15 of Fig. 14;

Fig. 16 is a vertical section substantially upon the line 16—16 of Fig. 14;

Fig. 17 is a detail of a portion of a door frame showing a further modified construction;

Fig. 18 is a horizontal section upon the line 18—18 of Fig. 17;

Fig. 19 is a vertical section upon the line 19—19 of Fig. 17;

Fig. 20 is a detail showing in horizontal section, a wall construction wherein the log members are cut and notched to make up and fill the several corners;

Fig. 21 is a partial front end elevation of a porch construction;

Fig. 22 is a horizontal section substantially upon the line 22—22 of Fig. 21;

Fig. 23 is a vertical section substantially upon the line 23—23 of Fig. 21;

Fig. 24 is a detail showing a cornice corner construction;

Fig. 25 is a plan view of an end portion of rafter showing the same constructed to receive roofing boards, and

Fig. 26 is an elevation of Fig. 25 showing manner of notching rafter.

Referring to the drawings, the numeral 1 indicates a plurality of halved logs erected vertically and spaced a suitable distance apart, said halves having their natural characteristics on their circumferential or curved surfaces while their divided sides are flat so as to closely engage the surface of a suitable board wall 2, preferably of insulating material, shown in Figs. 1, 5, 10 and 11 as forming the walls of a one story cabin, but also shown in Figs. 3, 7, 8 and 20 as forming the walls of the lower story of a two story building. The upper and lower ends of these log members 1 are grooved as at 3 to receive the two side flanges of U-channel members 5, said channel bars running horizontally across the top and bottom ends of the logs forming each wall and thus providing a wedging action to draw these logs into firm contact with the

exterior and interior surfaces of the walls formed by the insulation board 2.

Tie rods 6 are threaded at their ends to receive nuts 7, and pass through holes in said channel members to connect the same and draw them into wedging engagement with the notches 3 by tightening said nuts. By placing those logs in contact with the exterior of the wall 2 in staggered relation to those in contact with the interior surface of said wall and by the use of such intermediate insulating wall, all cracks or joints are eliminated and no chinking or caulking is required between the logs and a weather-tight wall of uniform thickness and rigidity is secured.

Fig. 7 shows in horizontal section, a slight modification of a wall structure wherein the adjacent side edges of the several half logs are chamfered or beveled at 3*a*. By securing these logs side by side with their chamfered side edges close together and their flat sides against the flat insulating wall 2, it will be noticed that the chinks thus formed between adjacent logs, are concealed and then by coating the wall 2 with a suitable waterproof plaster and filling these chinks with sand plaster as shown at 3*b*, a very strong rigid and impervious wall is formed. At their lower ends, these vertical half logs are beveled at their flat sides downwardly to receive beveled base strips or shoes 11 extending the full length of the wall to fill in the corners between the insulating board or wall 2 and the floor at the base of the wall and to which said logs are secured at the inner side of the wall, to tie these logs together and hold them in place. It will also be noted that the board forming each wall 2 extends below the outer edge of the top and sub floor and lies in contact with the chamfered upper edge of an outer facer joist 12 below the floor, the space between the beveled lower ends of the outer logs and the channel 5, being filled with cement or the like, thus insuring complete protection against the weather and forming a water shed, particularly as shown in Figs. 5 and 8 wherein the U-channel members 5 form a bottom or base frame into which concrete is poured as at 13, producing a lock for the lower ends of the logs and a watershed at the lower ends of said log members.

In a single story structure as shown in Figs. 1 and 5, only one plate or horizontal timber 10 is used upon the upper edge of each wall with the rafters 14 notched as at 14*a* in Fig. 26 to rest directly thereon, and this plate 10 is notched on the underside to receive each of the nuts 7 with the rods 6 extending upwardly through said plates, washers 9 being placed on said rods on the upper sides of said plates and nut 8 then screwed down to securely hold the plates in place.

Fig. 4 shows the details of roof construction wherein ridge pole 15 extends the entire length of the building and is notched to be supported at its ends by suitable supports, such as saddles 16, said saddles being secured between end ceiling joists 17 at their lower ends and between parallel end rafters 18 at their upper ends, said saddle embracing said ridge pole. Rafter stringers 19 are supported in a like manner parallel with said ridge pole, and in order to produce a uniform looking cornice, a short log rafter section 14*b* is spliced in between the lower ends of the two end rafters 18 as shown in Figs. 4, 5 and 6.

Referring to Fig. 8 wherein a two story structure is shown, it will be noted that log members 20 which form the outer surface of the second story wall, run horizontally and are secured with their flat sides against the board wall 2, said logs and insulation board being secured to vertical studs 21 by toe nailing or similar methods, and it will be noted that as shown in Fig. 9, at the abutting ends or joints of the horizontal logs, a double stud 22 is inserted in the framing to form a solid backing for the ends of the log members 20 and to further strengthen the wall, and give an attractive corner finish, said log members are mitered at the corners of the walls so as to form a perfect right angle and continue the lines of these members around the corners of the building.

A modified wall construction as shown in Figs. 12 and 13 includes only the vertical exterior logs 1 and the insulation board wall 2, giving a smooth interior wall surface, and said board wall may be secured to log members 1 and both securely held by the channel bar or bars 5, by providing a wedge strip 23 which is wedged into the space within said channel member between its inner flange and the insulation or other board wall 2, and said wedge strip is then secured in place by nailing, or otherwise. It is obvious that this construction may be used as an inside wall finish or as an exterior wall for summer homes where heat loss is not a material factor.

Where a casement window is desired, log members 24 at each vertical side of the window opening may be notched as shown in Fig. 15, to receive window jamb strips 26, said window jambs resting at their lower ends upon a sill 25 and supporting at their upper ends, a header 27 which is beveled at its upper side, outwardly and downwardly to form a seat for a drip board or cap 28 which forms a structural support for log members above the window opening and also a watershed for the entire window. Window stops 29 and stool 30 are installed in the conventional manner.

The details of door casing structure, as shown in Figs. 17 to 19 inclusive, include vertical side jambs 32 secured against log members 31 fitted into the corners, said jambs each resting at their lower ends upon sill 34 and supporting upon their upper ends, a cap or drip board 35, with a beveled header strip 33 secured to the lower side of said drop or cap 35. Door stops 36 are secured to the two jambs 32 and to the outer edge portion of the header 33 and a weather strip 37 is secured to sill 34 and floor.

Details of porch construction are shown in Figs. 21, 22 and 23 and include corner posts or logs 38 set upon a suitable foundation at their lower ends and extending upwardly to the porch roof, these posts being notched adjacent their lower ends as at 39 to receive porch joists 40, and notched at 41 to receive window sills 42 and each corner post 38 is also formed with a longitudinal 90° notch as shown at 44, Fig. 22, in each of which notches a corner strip 45 is secured and as said strip is of less cross sectional area than said notch, the projecting portions of the log at each side of said strip, form stops for a screen frame 46 to rest against, these corner logs 38 thus forming one side of the window framing. Intermediate half logs 47 rest at their lower ends upon the window sill 42 and divide the space thereabove into a plurality of window openings, a butt strip 48 being secured to the inner flat side of each log 47 to guide and separate the screen frames 46 which thus directly engage the inner side of each log 47 which thus forms a vertical stile of the window framing. A vertical half log 49 is provided at each side of the entrance or doorway to the porch and

these members 49 are each notched to receive joist 40 and sill 42, and they thus form the side members of the door frame and stops for a screen door 50, a butt or stop strip 51 being secured to the flat inner surface of each log member 49; and as illustrated in Fig. 21 slabs 52 are secured flat against a nailing strip 53 beneath sill 42 and extend downwardly, covering joist 40 to form an outside surface finish.

To provide a suitable cornice structure and carry out the appearance of the projecting rafter stringers 19 as well as to form a support for the lower end of each of the outer or cornice rafters 56 as shown in Fig. 24, a short false stringer 54 is supported by a brace 55 in outstanding position in line with the top of the side wall of the building, and as shown in Figs. 25 and 26, a spacer strip or facer 57 for spacing the several rafters 14, is secured along the upper edge of each side wall beneath the projecting eaves of the roof by notching said rafters as shown at 58 and inserting said facer therein, the space between rafters and between wall and roof being thus closed and a rigid cornice construction provided.

As shown in Figs. 3 and 20, the inside partitions may each also be formed of a board wall faced with half logs upon one or both sides and these logs may be placed directly opposite each other as shown, or they may be placed in staggered relation, the same as the outside walls, and where doorways are provided in these partitions, the casing may be formed by the logs 31 and jambs 32 substantially as previously described. Preferably the vertical outside corner logs 38 are each formed with a longitudinal right angle groove as described, to receive the right angle corners 60 of the board wall 2 and cover the corner joints of this wall, the inside angle of such or other corners being preferably filled with mitered logs strips 61 to carry out the appearance of continuous log formed, wall surfaces.

Obviously where exterior and interior half-logs are employed as shown in Fig. 5, instead of employing the U-shaped channel members 5, two angle bars may be used, and where only exterior half-logs are used, as shown in Fig. 13, it is obvious that an angle bar instead of a channel bar may be used to hold the ends of the log members 1 firmly against the outer surface of the wall 2.

Further changes may be made in the details of construction without departing from the spirit of the invention, and such changes are contemplated.

What I claim is:—

1. A building wall construction including a thin flat wall, a plurality of log members formed by dividing logs longitudinally to form each member with a flat side and a side formed by the natural curved log surface, said members being secured with their flat sides against the opposite sides of said thin wall in opposed relation and covering said sides, members extending transversely of the ends of the several log members and adapted to force by a movement of said members toward said log members, the log members at each side of said thin wall into firm contact therewith, and means for so moving said members to firmly clamp said log members against the opposite sides of said thin wall.

2. A building wall including a thin flat wall, a plurality of log members each having a flat side and a side formed by the natural curved log surface, said members being positioned with their flat sides against opposite sides of said thin wall and covering said wall sides, means for securing said log members against said thin wall including channel members extending across the ends of said log members along opposite edges of said thin wall, and means for drawing said channel members toward each other.

3. A building wall including a thin flat wall, a plurality of log members each having a flat side and a side formed by the natural curved log surface, said members being positioned side by side with their flat sides in contact with and covering inner and outer surfaces of said thin wall, and channel members extending across the ends of said log members and over opposite edges of said thin wall, the ends of said log members being formed to be engaged by the side flanges of said channel members to draw said log members into firm contact with the opposite sides of said thin wall and form frame members extending along the opposite edges of said thin wall.

4. A building wall as set forth in claim 3, and including tie rods extending longitudinally of said log members and through said channel members to connect said members and secure the same in connection with the ends of said log members, and means on said tie rods to draw said channel members toward each other and clamp said log members therebetween.

5. A building wall including a thin flat wall, and a plurality of log members each having a flat side and a side formed by the natural curved log surface, said members being secured in parallel relation and side by side with their flat sides against said thin wall, said log members being chamfered at their adjacent side edges to form concealed longitudinal spaces between the sides of adjacent members, a filling of cementitious material in said spaces, and clamping means effective to draw said log members into firm contact with said thin flat wall and confine and compress said filling material within said spaces.

6. A building construction including joists, a floor laid upon said joists, a thin board wall having its lower end edge projecting below the upper edge of said joists and engaging the outer side thereof, a strip within the meeting angle of said floor and board wall at the inner side thereof and formed with an inner bevelled side, a plurality of vertically disposed log members each having a flat side to engage the inner side of said board wall and chamfered at their lower ends to engage the bevelled side of said strip and secured thereto, a plurality of vertically disposed log members having flat sides and secured to the outer side of said board wall in opposed relation to said log members at the inner side of said wall, a channel member extending across the lower ends of said outer log members and within which channel the lower edge of a joist is received, and a filling of cementitious material in said channel.

7. A building construction comprising side walls including a thin board wall, and a plurality of vertically disposed log members each having a flat side secured against said board wall, plates secured upon the upper ends of said log members and extending horizontally throughout the length of said side walls, end joists mounted upon said plates extending along the end walls, saddle members secured at their lower ends between said end joists, a ridge pole and rafter stringers mounted in said saddle members, rafters secured to said pole and stringers and notches to seat upon said plates extending along the side walls, there being pairs of rafters at the ends of the building and between which the up-

per ends of said saddle members are secured, and short log rafter sections secured between the lower ends of said pairs of rafters and forming a continuation thereof projecting beyond said side walls of the building.

8. A building construction as characterized in claim 7 and wherein said ridge pole and rafter stringers are extended at their ends beyond the end walls of the building to provide a cornice, and wherein short false stringer logs are secured at one end to the end of each plate for each side wall to project outwardly in correspondence with the projecting ends of said rafter stringers.

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