Feb. 21, 1967 T. H. WARD 3,304,674

BUILDING CONSTRUCTION

Filed Oct. 29, 1964

FIG. 1

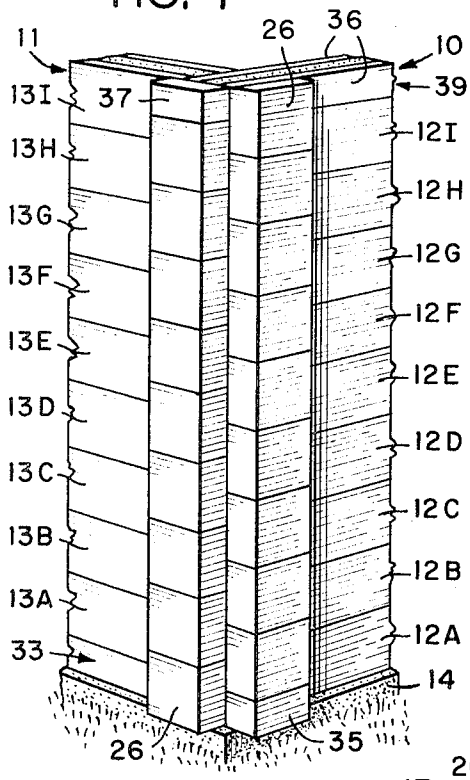
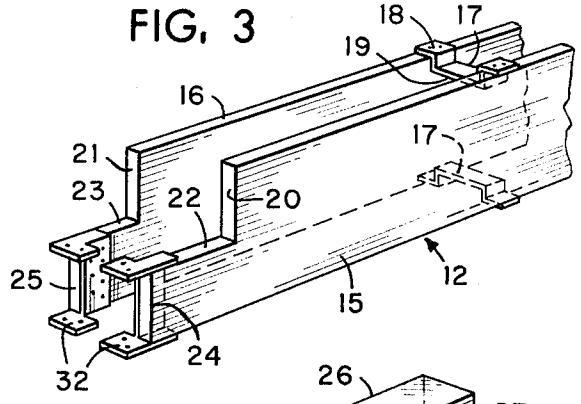


FIG. 3



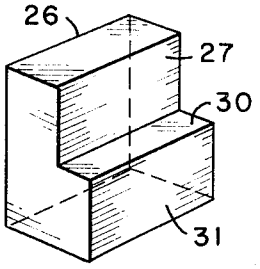
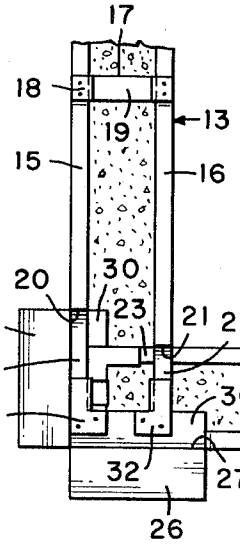


FIG. 4



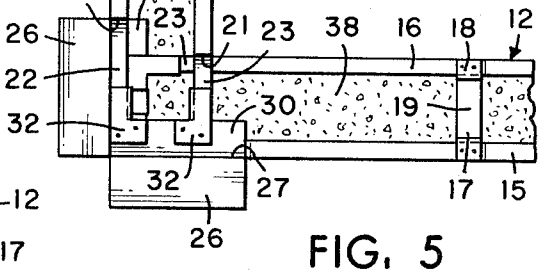


FIG. 5

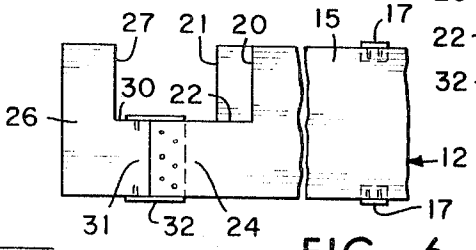


FIG. 6

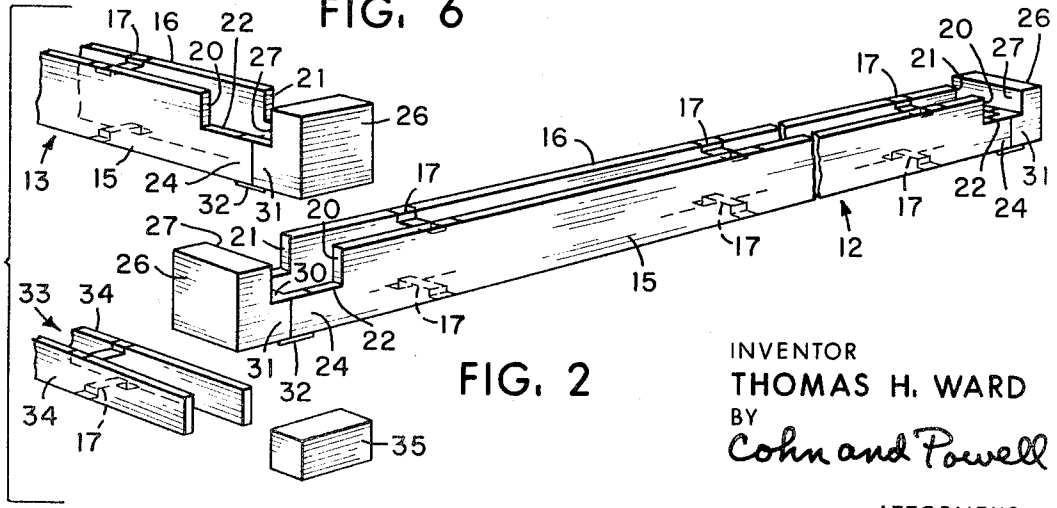


FIG. 2

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BUILDING CONSTRUCTION

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16 Claims. (Cl. 52—233)

This invention relates generally to improvements in building construction, and more particularly to an improved intersecting wall structure and an improved wall member utilized therein.

The log cabin of a past era was characterized by the manner in which the logs were interlocked at the corners of the house to prevent any given log from slipping beneath the log above it and by the distinctive overlapping appearance. It is a major objective to provide a frame house construction using modern materials and methods, and using especially designed building parts, which achieve a log or timber type building. While this present construction is mainly adapted for rustic vacation cabins, it can be used for modern homes. The building construction will retain the rustic, solid timber appearance.

An objective is to achieve a building that is relatively inexpensive because the walls do not require further finishing with either siding or paneling. The basic cost is low and the maintenance is negligible.

Another important object is realized by the provision of component parts that are extremely rugged, and which can be sold as a package for the "do-it-yourself" to erect because the building is comparatively simple to put up. Most of the cutting and fitting is done at the place of manufacture so that no special skills are required for erection.

The primary purpose is to afford a rugged vacation cabin with a log or timber effect. The wall structure enables rough-cut low-grade lumber to be used. As will later appear, even green lumber can be used. Finished lumber can be employed to construct the wall members so that beautiful homes can be built of any size or shape. On the other hand, rough and finished lumber can be combined as by using rough lumber on the outside and finished lumber on the inside of the wall members. With this structural combination, an inexepensive rustic home can be built with an inside finish comparable to fine paneling without further modification.

Still another important objective is attained by the provision of a wall member for horizontal disposition in a cabin structure which is constructed of a pair of elongate, parallel boards disposed in directly opposed, yet laterally spaced relation, the boards being provided with transverse notches in at least one end. A block is fastened to the said one end of the boards, and the block is provided with a transverse notch that communicates with and complements the notches in the boards to provide an open recess adapted to receive and position the boards and end block of a coacting wall member located and extending transversely.

An important object is achieved by making the notch in one board longer than the notch in the other board, and by making the block wider than the boards by a distance substantially equal to the difference in lengths of the notches in the board ends, whereby in assembly, the large blocks create the impression and appearance that the wall in which the member is used is constructed of heavy, thick timbers or logs.

Another important object is realized by the construction of a pair of intersecting walls, each wall consisting of a plurality of wall members laid horizontally upon each other and overlapping the wall members of the other wall. The interconnection of the walls, as enabled by the special construction of the wall members, gives the illusion of a solid timber structure.

The foregoing and numerous other objects and advantages of the invention will more clearly appear from the following detailed description of a preferred embodiment, particularly when considered in connection with the accompanying drawing, in which:

FIG. 1 is a fragmentary, perspective view of a corner construction;

FIG. 2 is a fragmentary exploded perspective view of several component parts of the corner construction of FIG. 1;

FIG. 3 is a fragmentary perspective view showing the construction of the boards at one end of a wall member;

FIG. 4 is a perspective view of a block utilized at the end of the wall member;

FIG. 5 is a fragmentary, top plan view of a pair of wall members in assembly in the corner construction, and

FIG. 6 is a side elevational view of one end of a wall member.

Referring now by characters of reference to the drawing, and first to FIG. 1, it is seen that the corner construction consists generally of a pair of intersecting walls **10** and **11**. The wall **10** includes a plurality of wall members referred to by **12** laid horizontally upon each other. Similarly, the wall **11** consists of a plurality of identical wall members referred to at **13** laid horizontally upon each other. Although the wall members **12** and **13** have the same construction, they are given different reference numerals in order to clarify the later description of the assembly in referring to the wall members of different walls.

It will be noted that the intersecting and overlapping arrangement of the wall members **12** and **13** attain the rustic, solid log or timber type of construction.

The walls **10** and **11** may be supported in a variety of ways. For example, the building can be set firmly on level ground without a separate foundation or the building can be supported on such a foundation if desired, or in rough areas, the building may be set on posts and beams. For simplicity of construction, a separate concrete foundation **14** is provided and is illustrated in FIG. 1 to support the walls **10** and **11**.

The detailed construction of the wall member **12** is best shown in FIGS. 2 through 4. The wall member **12** includes a pair of elongate, parallel boards **15** and **16** disposed in directly opposed and aligned, yet laterally spaced relation. These boards **15** and **16** are maintained in spaced relation and interconnected by a plurality of transverse clips **17** located in longitudinally spaced relation along and between the boards **15** and **16** at both the top and bottom margins. Each clip is constructed of a strip having a substantially U-shape, the clip **17** having outwardly extending tabs **18** that overlie and are secured to the upper and lower board margins. The transverse, substantially U-shaped brace portion **19** of the clip **17** is located within the space between the boards **15** and **16**.

At each end of the wall member **12**, the boards **15** and **16** are provided with transversely aligned notches **20** and

21 respectively. Each of the notches 20 and 21 open to the end of the boards and each is defined by a substantially L-shaped margin 22 and 23. In the embodiment disclosed, the notches 20 and 21 extend approximately halfway down from the upper margin of boards 15 and 16, and form reduced board end portions 24 and 25.

It will be noted that the notch 20 is longer than its cooperating notch 21. The reason and purpose for this particular notch construction will be apparent upon later description of parts and assembly. It will also be understood that while the longer notch 20 is formed in board 15 at one end of the wall member 12, such longer notch 20 can be provided at the opposite end in the same board 15 or in the other board 16, depending upon which side the cooperating wall 11 extends in relation to wall 10.

A solid block 26 is secured to the boards 15 and 16 at each end of the wall member 12. The detailed construction of the block 26 is perhaps best shown in FIG. 4. Formed in block 26 is a transverse notch 27 that is defined by a substantially L-shaped margin 30. In the embodiments disclosed, the notch 27 extends approximately halfway down from the top of the block 26 to provide a reduced inner side portion 31 that is placed in abutment with the outer edges of the reduced board end portions 24 and 25. When the block 26 is located in this position, it is seen that the block notch 27 opens to and complements the aligned board notches 20–21 to form a top-open recess adapted to receive a coacting wall member 13 extending transversely.

The substantially L-shaped margin 30 defining the transverse block notch 27 cooperates with the substantially L-shaped margins 22 and 23 to provide substantially U-shaped openings at each side of the recess. As will later appear, the length of the U-shaped opening at one side is longer than the U-shaped opening at the opposite side. Further, the width of the block 26 is greater than the width of the boards 15 and 16, the block width approximating the length of the larger U-shaped recess opening. In other words, the block 26 is wider than the width of the boards 15 and 16 by a distance substantially equal to the distance in length of the notches 20 and 21 provided in the boards 15 and 16.

A pair of clips 32 are used advantageously and readily to fasten the block end portions 24 and 25 to the block side portion 31. These clips 32 are formed of sheet metal and have portions that embrace and are secured to the inside surface and the upper and lower margins of the board end portions 24 and 25, and have vertically spaced tab portions that are attachable to the upper and lower margins defining the block side portion 31.

It will be understood that while the boards 15–16 and the block 26 have been described in detail at one end of the wall member 12, a corresponding structure is supplied at the opposite end of the same wall member 12. Moreover, it will be readily understood that the wall member 13 has the same construction as the wall member 12.

When the wall members 12 and 13 are located in transverse relationship, as illustrated in FIG. 5, the uppermost wall member 13 is received in the substantially U-shaped recess formed by the compatible board notches 20–21 and block notch 27 in the lower wall member 12. More specifically, the boards 15 and 16 of the wall member 13 are embraced by the substantially L-shaped notch margins 23 and 30, while the block 26 of the wall member 13 is seated on and embraced by the substantially L-shaped margins 22 and 30. Under those circumstances where the width of the block 26 is greater than the width of the boards 15 and 16, the wide block 26 is seated in and embraced by the notch margins 22 and 30 providing the longer side of the U-shaped recess. Because the block 26 is relatively wide, it creates the impression that the wall member is constructed of a solid timber having the same dimensions as the outer end of block 26.

It is thought that the assembly of the wall members 12 and 13 in alternately overlapping relationship to form the corner construction illustrated in FIG. 1 has become fully apparent from the foregoing detailed description of parts, but for completeness of disclosure, the erection of walls 10 and 11 will be briefly described. It will be assumed that the wall members 12 and 13 have been prefabricated in the manner described previously. Moreover, it will be assumed that the foundation 14 has been laid on the ground to support the walls 10 and 11.

As illustrated in FIG. 1, the wall member 12–A of wall 10 is placed on the foundation 14 first. A filler element 33 is located on foundation 14 and disposed transversely to the lowermost wall element 12–A, the filler element 33 constituting the bottom of wall 11. As is best seen in FIG. 2, the filler element 33 is constructed of a pair of elongate, narrow boards 34 disposed in parallel, yet laterally spaced relation. These boards 34 are operatively interconnected by a series of U-shaped clips 17. As will be understood, the boards 33 are spaced the same distance as the boards 15 and 16 of the wall members 12 and 13. However, the boards 34 are approximately one-half the height of the boards 15 and 16, thereby corresponding to the height of the reduced board end portions 24–25. The filler element 33 will support the lowermost wall element 13–A in its horizontal position when it is disposed transversely to the lower wall element 12–A and located in the board and block notches. Of course, a dummy block 35, approximately one-half the height of the block 26, is located and secured to the outside of wall member 12–A and to the under side of the block 26 of the wall member 13–A.

Then, the next wall member 12–B is disposed on top of wall member 12–A and is located within the board and block notches of the underlying transversely arranged wall member 13–A. Similarly, the next wall member 13–B is located on top of the underlying wall member 13–A and is disposed transversely to the underlying wall member 12–B and is disposed and retained in the board and block notches of the wall member 12–B. It will be readily understood that each superjacent wall member constituting the walls 10 and 11 is alternately arranged in the manner described. The wall members 12 and 13 of the walls 10 and 11 respectively are disposed in vertically stacked relationship and extend horizontally.

Because the blocks 26 of the wall members constituting each wall are closely embraced and seated by the board and block notches 20 and 30 of the wall members forming the other wall, and because the wall members of each wall are seated one on top of the other, all that is visible from the outside corner construction is the outer portion of the end blocks 26 and the outermost board 15 of each wall member. Consequently, the corner construction provides an appearance that gives the impression that the walls 10 and 11 are constructed of solid timbers having dimensions the same as the outermost portions of the end blocks 26.

Of course, the boards 15 and 16, as well as the end blocks 26 constituting each of the wall members 12 and 13 can have a rounded outer surface to give the appearance that the wall members are logs when they are assembled in the manner previously described to provide the corner construction illustrated in FIG. 1.

In order to provide an even margin at the top of the corner construction of FIG. 1, another filler element 35 is attached to and laid horizontally on the uppermost wall element 12 of wall 10. The boards 36 constituting the filler element 39 are extended into and across the board and block notches formed in the uppermost wall element 13 of wall 11. The boards 36 are approximately one-half the height of the boards 15 and 16, and correspond to the depth of the board and block notches formed in the uppermost wall element 13. Another dummy block 37 having the same width as the end block 26 is secured to the ends of the boards 36 of the filler element 39, and seats on top of the end block 26 of the subjacent wall element 12.

After the wall members are erected, the space between the boards **15** and **16** is filled with concrete **38**, the concrete acting as a seal and giving structural strength. The wall members **12** and **13** are designed so that the concrete can be poured in from the top after the walls **10** and **11** are erected, or the concrete can be poured as the wall members **12** and **13** are placed. The concrete, when it is poured in the space between the boards **15** and **16**, reaches all of the parts and flows between the interlocked wall members **12** and **13** of the intersecting walls **10** and **11** at the corner, so that after the concrete cures, all of the wall members are solidly locked together and most parts are secured without other fasteners. In order to save on concrete, rock may be added. For better insulation, other mixes may be used which incorporate Perlite or Haydite.

As mentioned previously, a separate foundation or slab need not be used. Footing holds, and a trench if needed, can be dug under the walls and floor beams, and the building can be set on level ground without a separate foundation. The concrete will run through and fill up the holes, walls and beams in one pouring. In rough areas, the building may be set on posts and beams. Solid beams placed under the wall members will give support and stop the concrete from flowing out the bottom of the walls when poured.

Although the invention has been described by making detailed reference to a single preferred embodiment, such detail is to be understood in an instructive, rather than in any restrictive sense, many variants being possible within the scope of the claims hereunto appended.

I claim as my invention:

1. A wall member for horizontal disposition in a building structure comprising:

(a) a pair of elongate, parallel boards disposed in directly opposed, yet spaced relation,

(b) the boards being provided with transverse notches in at least one end, and

(c) a block fastened to the said one end of the boards,

(d) the block being provided with a transverse notch that complements the notches in the boards to provide an open recess adapted to receive and position the boards and end block of a coacting wall member extending transversely.

2. A wall member for horizontal disposition in a building structure comprising:

(a) a pair of elongate, parallel boards disposed in directly opposed, yet spaced relation, the boards being provided with transverse notches in at least one end,

(b) the notch in one board being longer than the notch in the other board, and

(c) a block fastened to the said one end of the boards,

(d) the block being wider than the width of the boards,

(e) the block being provided with a transverse notch that complements the notches in the boards to provide an open recess adapted to receive and position the boards and end block of a coacting wall member extending transversely.

3. A wall member for horizontal disposition in a cabin structure comprising:

(a) a pair of elongate, parallel boards disposed in directly opposed, yet spaced relation, the boards being provided with transverse notches in at least one end,

(b) the notch in one board being longer than the notch in the other board, and

(c) a block fastened to the said one end of the boards,

(d) the block being wider than the width of the boards by a distance substantially equal to the difference in lengths of the notches provided in the board ends,

(e) the block being provided with a transverse notch that complements the notches in the boards to provide an open recess adapted to receive and position the boards and end block of a coacting wall member extending transversely, the boards of the coacting wall member being positioned in the shorter notch and the block of the coacting wall member being positioned in the longer notch.

4. A wall member for horizontal disposition in a building structure comprising:

(a) a pair of elongate, parallel boards disposed in directly opposed, yet spaced relation,

(b) the boards being provided with aligned transverse notches opening to one end to provide reduced board end portions, and

(c) a block fastened to the reduced board end portions,

(d) the block being provided with a transverse notch that opens to and complements the notches in the boards to provide an open recess adapted to receive and position the boards and end block of a coacting wall member located and extending transversely.

5. A wall member for horizontal disposition in a building structure comprising:

(a) a pair of elongate, parallel boards disposed in directly opposed, yet spaced relation,

(b) the boards being provided with aligned transverse notches opening to one end to provide reduced board end portions,

(c) the notch in one board being longer than the notch in the other board, and

(d) a block fastened to the reduced board end portions,

(e) the block being wider than the width of the boards by a distance substantially equal to the difference in lengths of the notches provided in the board ends,

(f) the block being provided with a transverse notch that opens to and complements the notches in the boards to provide an open recess adapted to receive and position the boards and end block of a coacting wall member located and extending transversely.

6. A wall member for horizontal disposition in a cabin structure comprising:

(a) a pair of elongate, parallel boards disposed in directly opposed and aligned, yet laterally spaced relation,

(b) means connecting the spaced boards together,

(c) the boards being provided with aligned transverse notches at each end,

(d) the notches opening to the associated board ends to provide reduced board end portions,

(e) a block fastened to each reduced board end portion,

(f) each block being provided with a transverse notch that opens to and complements the notches in the associated board end to provide an open recess adapted to receive and position the boards and end block of a coacting wall member located and extending transversely.

7. A wall member as defined in claim **6**, in which:

(g) each open recess is defined by the notches so that one open side is shorter than the other opposite open side, and

(h) each block is wider than the width of the boards by a distance substantially equal to the difference in lengths of the open recess sides provided in each board end, the boards of the coacting wall member being received and positioned in the shorter open recess side while the block of the coacting wall member is received and positioned in the longer open recess side.

8. In a building:

(a) a pair of intersecting walls, each wall consisting of a plurality of wall members laid horizontally upon each other,

(b) each wall member comprising a pair of elongate, parallel boards disposed in directly opposed and aligned, yet laterally spaced relation,

(c) the boards of each wall member of a first wall being provided with transverse notches in one end, and

(d) a block fastened to the said one end of the boards,
(e) the block being provided with a transverse notch that complements the notches in the boards to provide an open recess receiving a wall member of a second wall, the boards of each wall member of the second wall being provided with transverse notches receiving a wall member of the first wall.

9. In a building:
(a) a pair of walls intersecting at a corner, each wall consisting of a plurality of wall members laid horizontally upon each other,
(b) each wall member comprising a pair of elongate, parallel boards disposed in directly opposed and aligned, yet laterally spaced relation,
(c) the boards being provided with transverse notches in the corner end,
(d) a block fastened to the corner end of the boards,
(e) the block being provided with a transverse notch that opens to and complements the notches in the boards to provide an open recess receiving a wall member of the other associated wall,
(f) each wall member of each wall having its boards received and positioned in one open side of the recess of a coacting wall member of the other wall while the end block is received and positioned in the opposite open side of such recess.

10. In a building:
(a) a pair of walls intersecting at a corner, each wall consisting of a plurality of wall members laid horizontally upon each other,
(b) each wall member comprising a pair of elongate, parallel boards disposed in directly opposed and aligned, yet laterally spaced relation,
(c) the boards at the corner end being provided with transverse notches, the notch in one board being longer than the notch in the other board, and
(d) a block fastened to the corner end of the boards,
(e) the block being wider than the width of the boards by a distance substantially equal to the difference in lengths of the notches provided in the corner board ends,
(f) the block being provided with a transverse notch that complements the notches in the boards to provide a recess open at the top and at opposite sides of the wall member of one wall adapted to receive and position a coacting wall member of the other wall,
(g) the wall member of each wall having its boards received and positioned in the shorter side of the recess of a coacting wall member of the other wall while the block is received and positioned in the longer open recess side.

11. In a building:
(a) a pair of walls intersecting at a corner, each wall consisting of a plurality of wall members laid horizontally upon each other,
(b) each wall member comprising a pair of elongate, parallel boards disposed in directly opposed and aligned, yet laterally spaced relation,
(c) the boards being provided with aligned transverse notches opening to the corner end of the boards to provide reduced board end portions, and
(d) a block fastened to the reduced board end portions,
(e) the block being provided with a transverse notch that opens to and complements the notches in the boards of a wall member of one wall to provide a recess adapted to receive and position the boards and end block of a coacting wall member of the other wall.

12. In a building:
(a) a pair of walls intersecting at a corner, each wall consisting of a plurality of wall members laid horizontally upon each other,
(b) each wall member comprising a pair of elongate, parallel boards disposed in directly opposed and aligned, yet laterally spaced relation,
(c) means connecting the spaced boards together,
(d) the boards being provided with aligned transverse notches at each end, the notches opening to the associated board ends to provide reduced board end portions,
(e) a block fastened to each reduced end portion,
(f) each block being provided with a transverse notch that opens to and complements the notches in the associated board ends of a wall member of one wall to provide an open recess adapted to receive and position the boards and end block of a coacting wall member of the other wall.

13. In a building structure as defined in claim 12, in which:
(g) the notch in one board at each board end is longer than the cooperating notch in the other board, and the block at each board end is wider than the width of the boards by a distance substantially equal to the difference in lengths of the notches provided in the associated board ends, and
(h) each wall member of one wall having its boards received in the shorter notch of a wall member of the other wall while its block is received in the cooperating longer notch.

14. In a cabin:
(a) a pair of walls intersecting at a corner, each wall consisting of a plurality of wall members laid horizontally upon each other,
(b) each wall member comprising a pair of elongate, parallel boards disposed in directly opposed and aligned, yet laterally spaced relation,
(c) means connecting the spaced boards together,
(d) the boards being provided with aligned transverse notches defined by a substantially L-shaped margin leading to one end to provide reduced board end portions, and
(e) a block provided with a transverse notch defined by a substantially L-shaped margin that leads to its inner side to provide a reduced block end portion that matches and engages the reduced board end portions,
(f) the block notch communicating with and complementing the board notches to provide an open, substantially U-shaped recess receiving a coacting wall member of the other wall,
(g) the coacting wall member seating on and being embraced by the substantially L-shaped notches formed in the board ends and block, one side of the recess embracing the boards of the coacting wall member while the opposite side of the recess embraces the block of the coacting wall member.

15. A cabin structure as defined above in claim 14, in which:
(h) the substantially U-shaped recess is of a greater width at one side than at the opposite side, and the block is wider than the width of the boards by a distance substantially equal to the difference in widths at the sides of the recess, the recess side of lesser width seating and embracing the boards of the coacting wall member while the recess side of greater width seats and embraces the block of such coacting wall member.

16. A cabin structure as defined above in claim 14, in which:
(h) the L-shaped notch in one board of each wall member is longer than the associated L-shaped notch in the other board so that the substantially U-shaped recess is of a greater width at one side than at the opposite side, and the block is wider than the width of the boards by a distance substantially equal to the difference in lengths of the L-shaped notches provided in the boards, the recess side of lesser width seating and embracing the boards of the coacting

wall member while the recess side of greater width seats and embraces the block of such coacting wall member.

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