Dec. 20, 1938. R. L. HOHL 2,140,998

WALL OR THE LIKE

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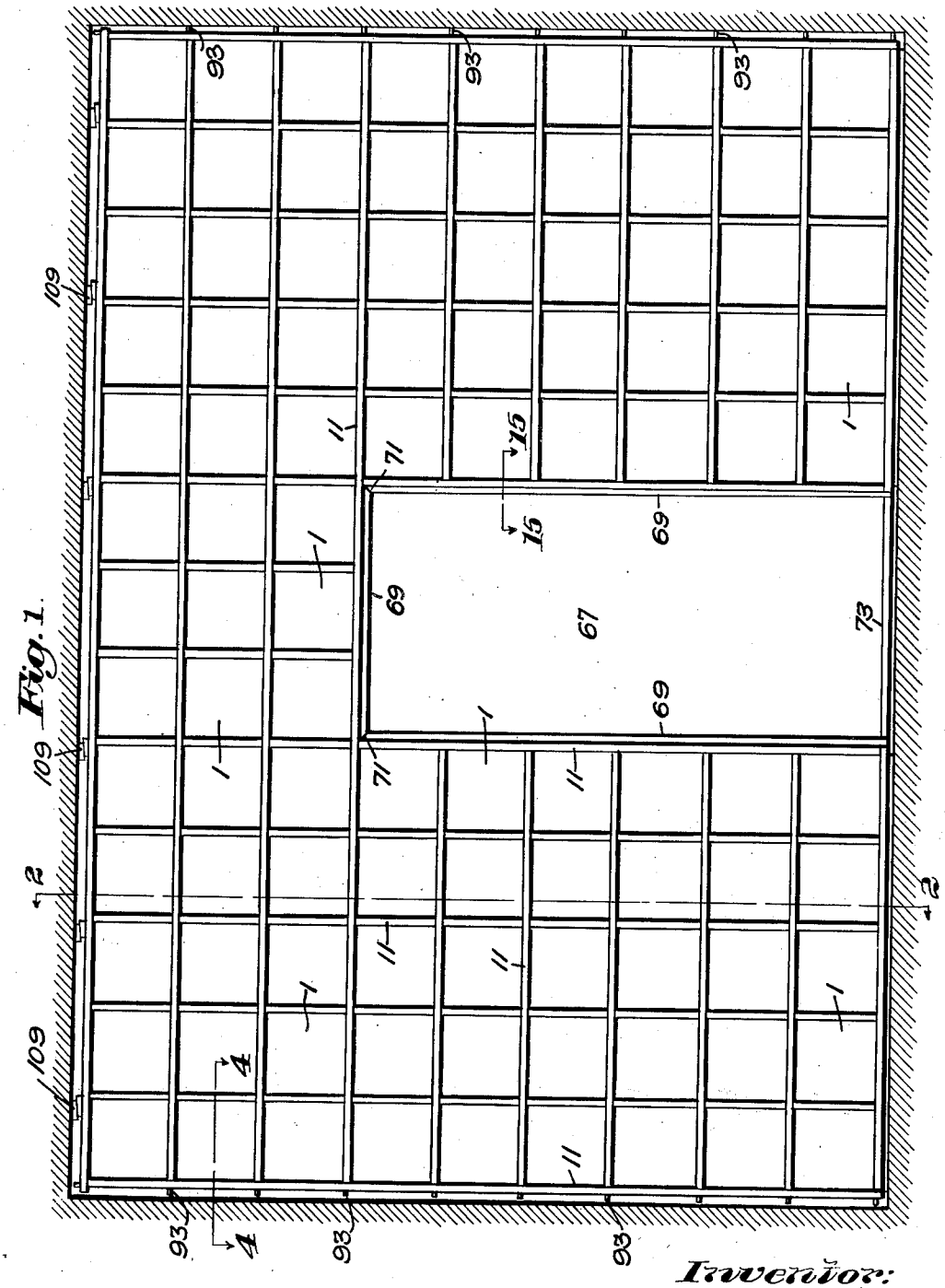

Fig. 1.

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Fig. 2

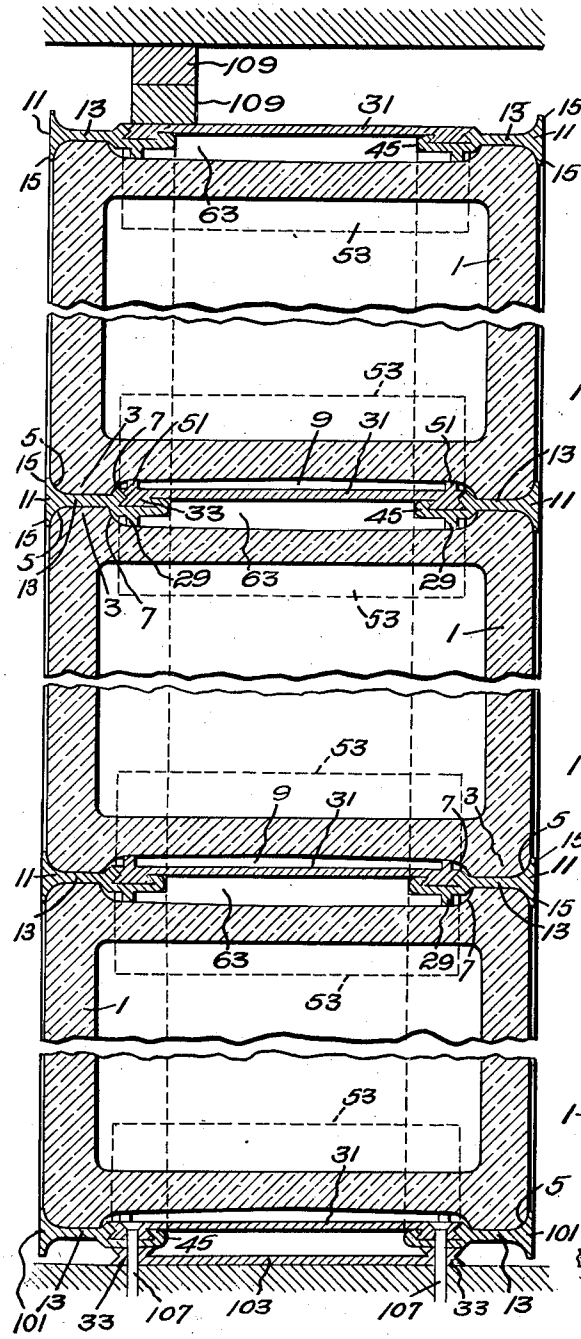

Fig. 3.

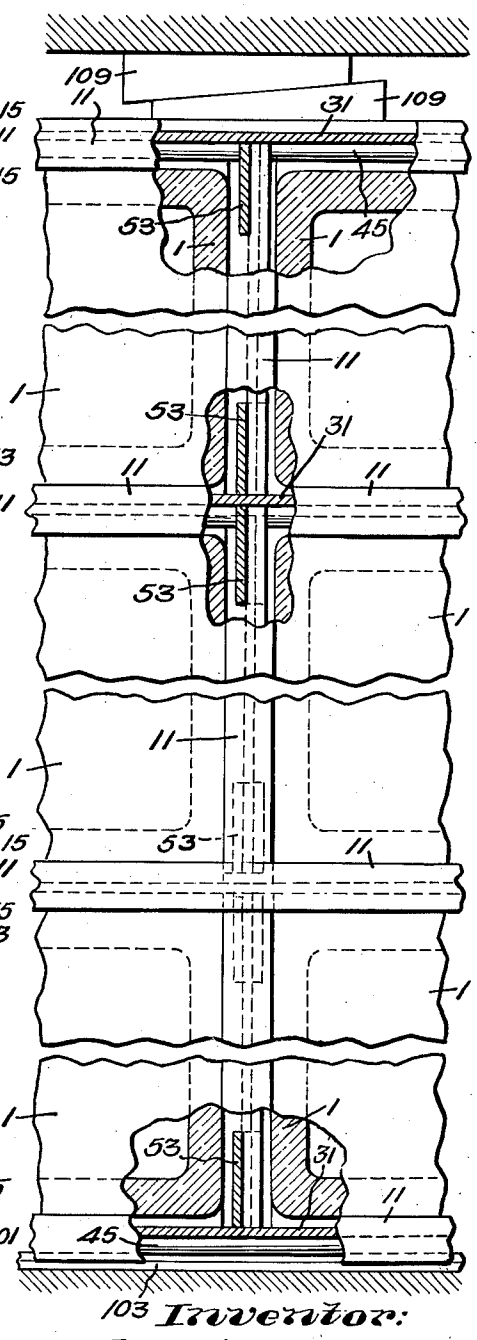

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Fig. 5.

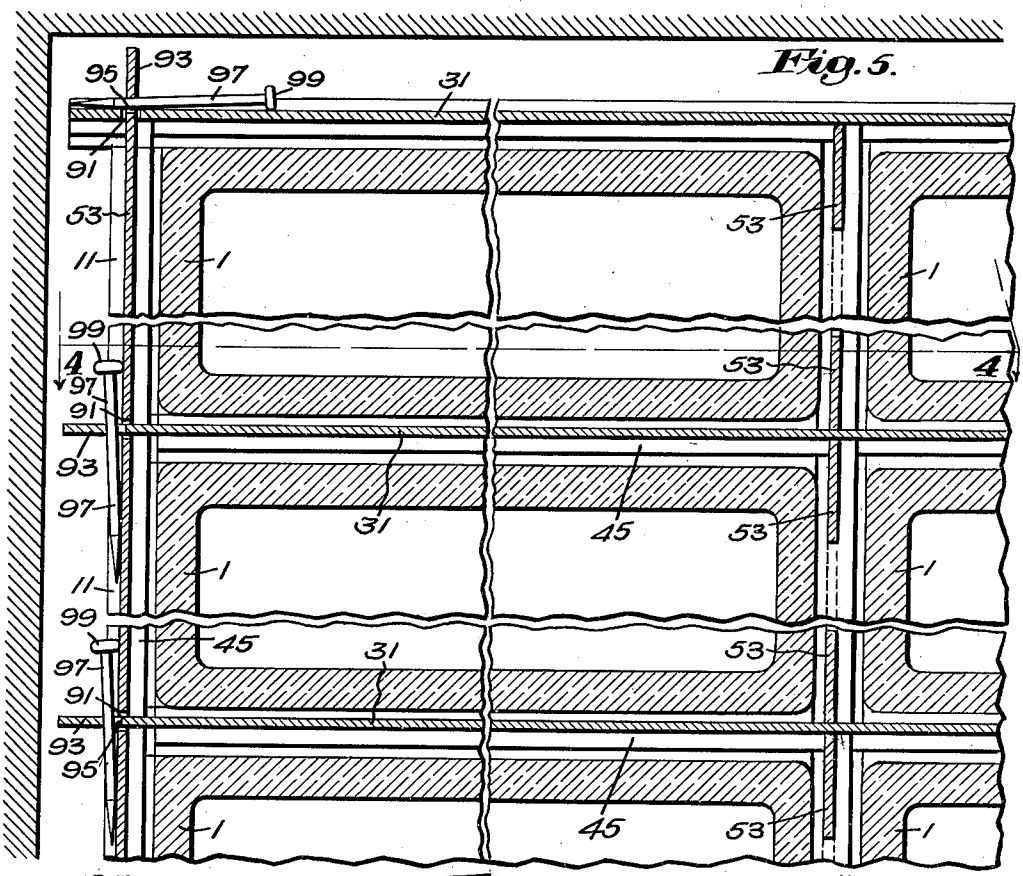

Fig. 4.

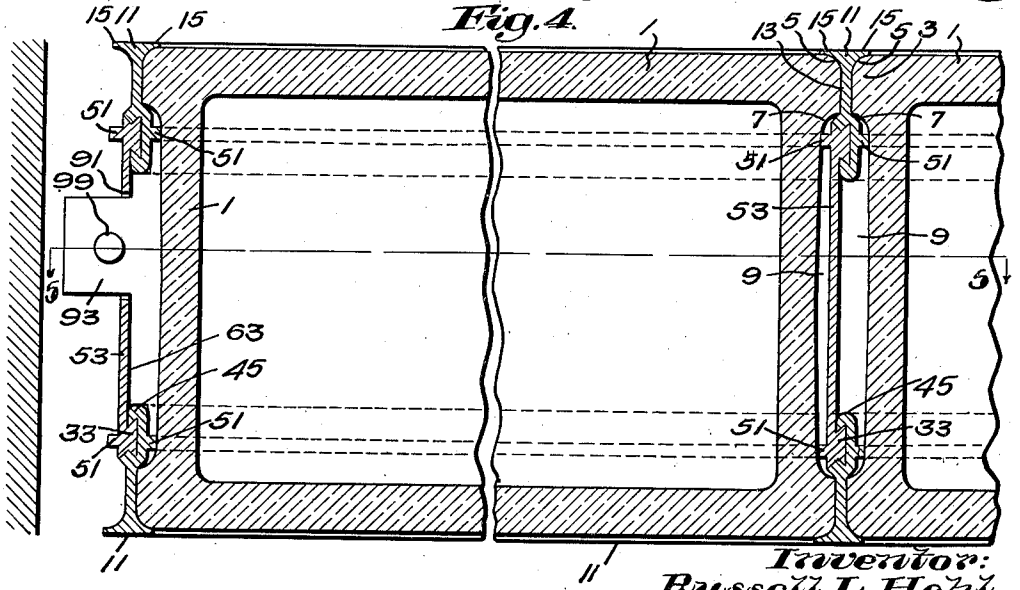

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Fig. 7.

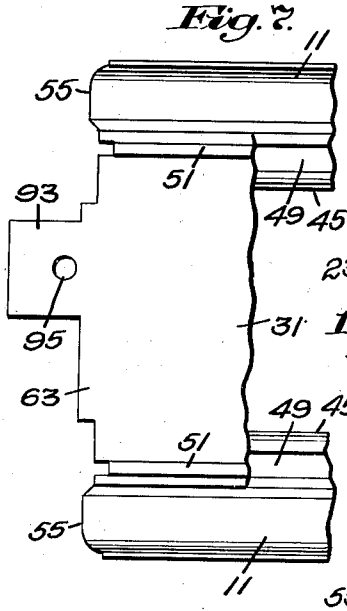

Fig. 6.

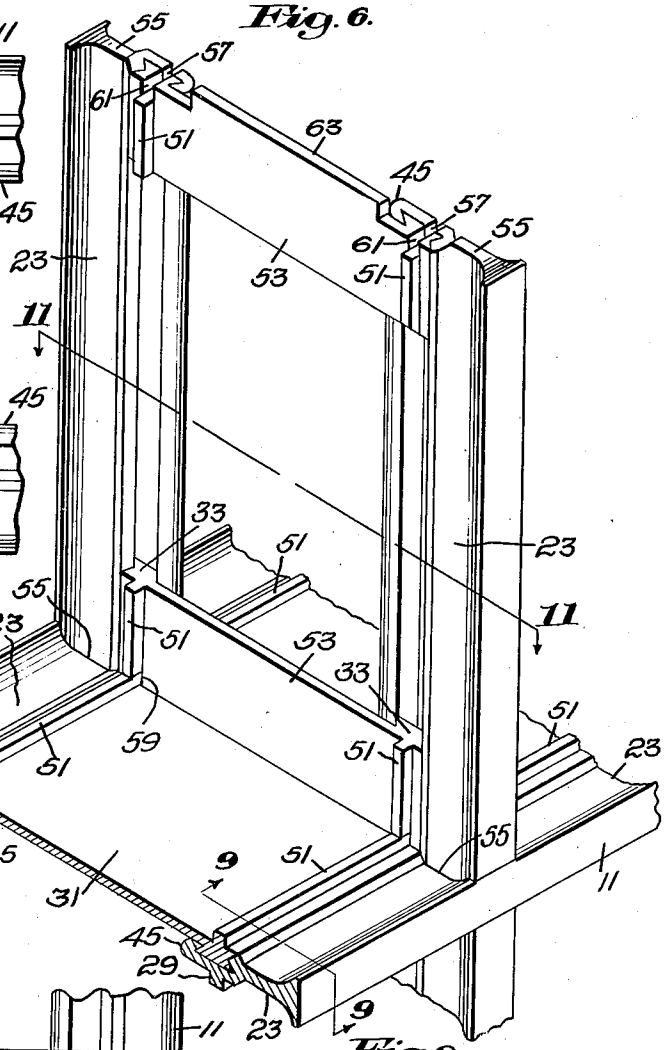

Fig. 8

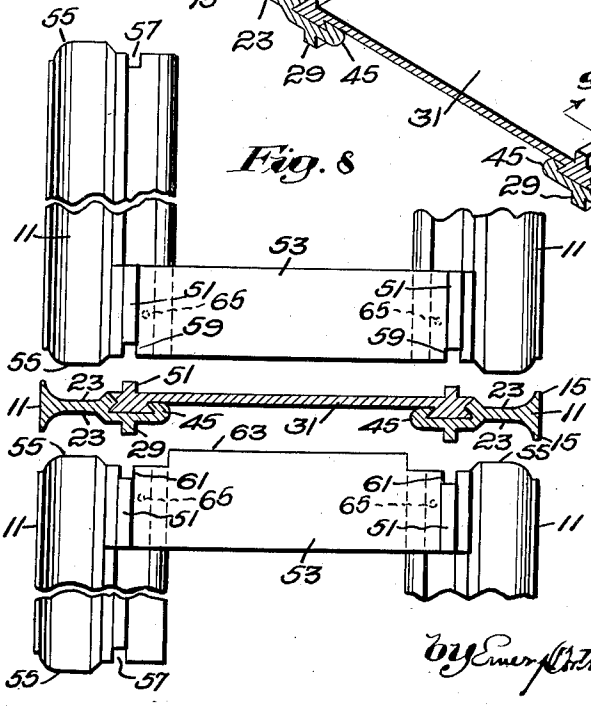

Fig. 9.

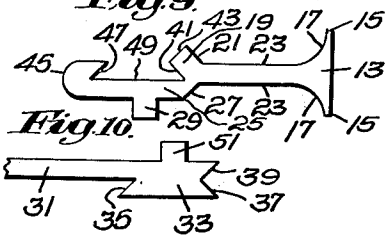

Fig. 10.

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Fig. 11.

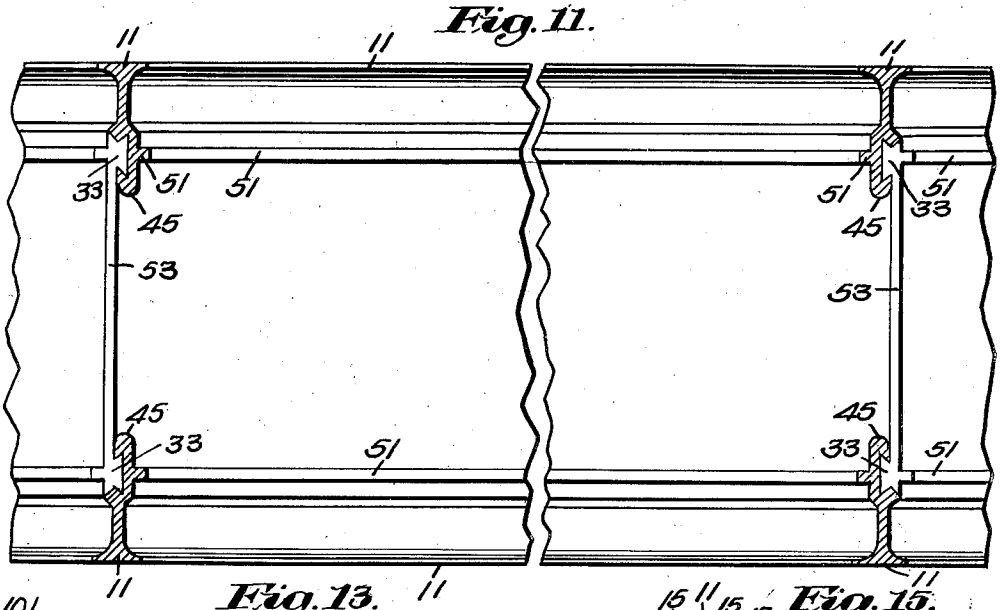


Fig. 13.

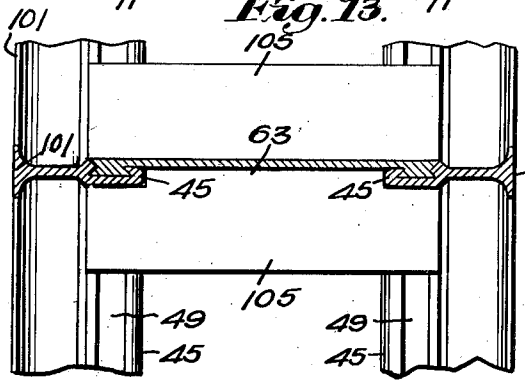


Fig. 15.

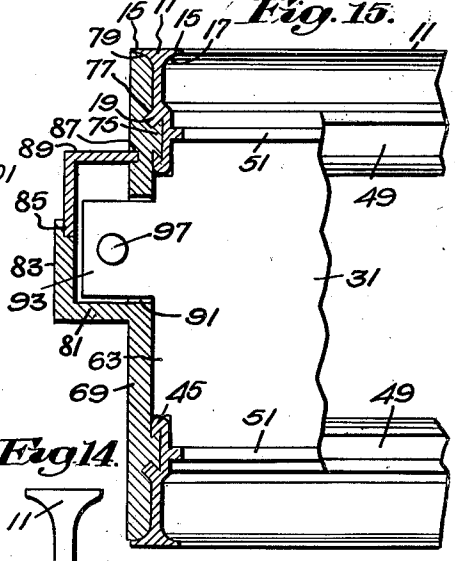


Fig. 12

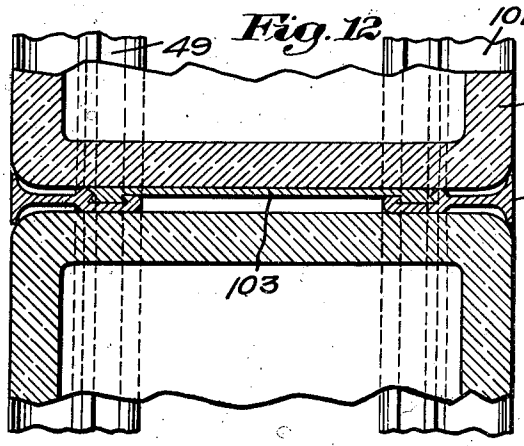
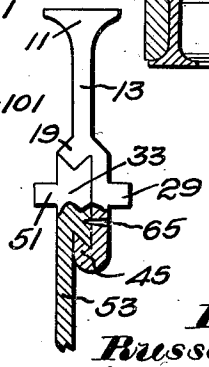


Fig. 14.



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Patented Dec. 20, 1938 2,140,998

UNITED STATES PATENT OFFICE

2,140,998

WALL OR THE LIKE

Russell L. Hohl, New York, N. Y., assignor to Revere Copper and Brass Incorporated, New York, N. Y., a corporation of Maryland

Application March 12, 1938, Serial No. 195,561

22 Claims. (Cl. 72—42)

My invention relates to building constructions, and is particularly, but not exclusively, concerned with walls made of blocks held together by preformed bonding means.

The invention, which has among its objects the provision of an improved wall construction of the above mentioned character and improved bonding means for use in connection with the same, will be best understood from the following description when read in the light of the accompanying drawings of a wall embodying the invention, the scope of which latter will be more particularly pointed out in the appended claims.

In the drawings:—

Fig. 1 is an elevation of a wall constructed according to the invention;

Fig. 2 is a section on the line 2—2 of Fig. 1 on an enlarged scale, with parts broken away;

Fig. 3 is an elevation of the parts shown by Fig. 2, with parts broken away;

Fig. 4 is a section on the lines 4—4 of Figs. 1 and 5 on an enlarged scale, with parts broken away;

Fig. 5 is a fragment of the upper left hand corner of the wall according to Fig. 1 on an enlarged scale, with parts broken away, corresponding to a section on the line 5—5 of Fig. 4;

Fig. 6 is a perspective, on an enlarged scale, showing the relation between the horizontal and vertical bonding members of Fig. 1;

Fig. 7 is a plan of the end portion of the horizontal bonding members according to Fig. 1, corresponding to a section on the lines 4—4 of Figs. 1 and 5;

Fig. 8 is an elevation of the parts according to Fig. 6 with the horizontal and vertical bonding members moved into disassembled relation;

Figs. 9 and 10 illustrate details of the bonding members on an enlarged scale, each corresponding to a section on the line 9—9 of Fig. 6;

Fig. 11 is a section on the horizontal plane illustrated by the line 11—11 of Fig. 6;

Fig. 12 illustrates a modified form of block and bonding members;

Fig. 13 is a view similar to Fig. 12 with the blocks omitted;

Fig. 14 shows a detail of construction; and

Fig. 15 is a section on the line 15—15 of Fig. 1.

According to one form of the invention the wall is formed of preformed blocks 1 which, as shown, are hollow, the blocks preferably being formed of glass. The blocks however may be formed of other material, and may be solid.

As illustrated, the blocks are formed about their four edges at the front and back of the wall with continuous raised portions or ribs 3, each of which provides oppositely facing shoulders 5 and 7 (Figs. 2 and 4) transverse to the adjoining faces of the blocks, the shoulders 5 constituting part of the exterior faces of the blocks at the front and back of the wall, and the ribs at opposite sides of the blocks causing the blocks to present recesses 9 which extend entirely around their four adjoining faces.

In the present embodiment of the invention between adjoining horizontal rows of blocks at opposite edges thereof are elongated members 11 having flattened body portions 13 which at their outer edges are provided with oppositely extending flanges 15 having curved inner faces 17 (Fig. 9) cooperating with the shoulders 5 of the blocks. In spaced relation to the flange 15 at one side of each member 11 is a longitudinally extending raised portion in the form of an oblique flange 19 (Fig. 9) having a face 21 opposed to the face 17 of the flange 15 so as to provide between those flanges a groove 23 which receives the adjacent raised portion 3 of the block, as shown in Fig. 2. At the side of each member 11 opposite the raised portion 19 thereof is an offset portion 25 which forms a longitudinally extending face or shoulder 27 opposed to the face 17 of the adjacent flange 15 so as to provide a second groove 23 for receiving the raised portion 3 of the block at that side of the member. It will thus be observed that in the present embodiment of the invention the faces 17 and 21 cooperate with the shoulders 5 and 7 of the block at one side of the member 7, and the faces 17 and 27 with the shoulders 5 and 7 of the block at the opposite side of the member, for retaining the blocks against relative displacement transversely of the wall. In the present embodiment of the invention the offset portion 25 is provided with a longitudinally extending bead 29 which in effect provides a prolongation of the shoulder formed by the face 27 so that both the bead and the shoulder 27 cooperate with the shoulder 7 of the adjacent raised portion of the block, as will be clear from Fig. 2.

As will be clear from Fig. 1, the horizontal members 11 between the rows are coextensive in length with a plurality of blocks. For holding these members 11 in spaced relation transversely of the wall are shown plate-like members 31 coextensive in length with the members 11. As illustrated, these members are formed at one side thereof at each of opposite edge portions with laterally projecting longitudinally extending portions 33 provided at one side with an overhanging

beveled wall 35 (Fig. 10), the thickened portions of the plate caused by the laterally projecting portions 33 thereof at their outer edges being provided with V-grooves having the sides 37 and 39. The raised portion or flange 19 of each member 11 is provided with faces 41 and 43 complementary to the faces 37 and 39 of the plate-like member 31. The offset portion 25 of the member 11 at its edge opposite the shoulder 27 thereof is formed with a laterally projecting bead or flange 45 opposite the raised portion or flange 19, one face of the bead being beveled as shown at 47 (Fig. 9), this bevel being complementary to the beveled face 35 of the plate-like member 31. This construction permits the laterally projecting portions 33 of the plate-like members 31 to be slid by longitudinal movement of the latter into the grooves 49 between the faces 41 and 47 of the members 11 so as to retain the members 11 against transverse movement relative to the members 31 in all directions normal to the directions of length of the grooves 49. The cooperation between the faces 39 of the V-grooves at the edges of the plate-like members 31 with the faces 43 on the raised portions 19 of the members 11 aids in making the joints between the members 11 and the plate-like members 31 more rigid when the parts are assembled. As shown, the plate-like members 31 opposite the laterally projecting portions 33 thereof are provided with longitudinally extending beads 51 which, when the parts are assembled, in effect form prolongations of the faces or shoulders 21 of the members 11 for cooperation with the shoulders 7 of the blocks.

As illustrated, the members 11 between the vertical adjoining faces of the block are coextensive in length with the height of the block. These vertical members 11 are identical in cross-section with the horizontal members 11 and, as shown, are tied together by plate-like members 53, which latter are identical in cross-section with the plate-like members 31 but are of relatively short length and are arranged to abut with the members 31, as clearly shown in Figs. 3, 5 and 6. As will be clear from Figs. 6, 7 and 8, the opposite ends of the vertical members 11 are shaped to conform to the adjacent faces of the horizontal members 11 and horizontal plate-like members 31, for this purpose being provided with raised portions 55 which fit the grooves 23 of the horizontal members 11 and with notches 57 which fit the beads 29 and 51. The short plate-like members 53 at the upper sides of the horizontal members, as shown, are notched at 59 to receive the adjacent beads 51, while the upper ends of the members 53 are notched at 61 to receive the beads 29 and have projecting portions 63 which fit between the opposed edges of the horizontal members 11. If desired, prevention of longitudinal movement between the members 53 and those members 11 to which they are connected may be insured by prick punching the members 53, as indicated at 65, in Figs. 8 and 14.

At the door or other openings of the wall, such as the door opening 67 shown in Fig. 1, may be placed members 69 having the cross-section illustrated by Fig. 15, the adjoining ends of the horizontal and vertical members 69 being mitered as indicated at 71 (Fig. 1), while a doorsill 73, of any appropriate construction, may be placed at the bottom of the door opening. The vertical members 11 at the door opening may extend the full height thereof. For joining the members 11 to the members 69 the latter on one face thereof are provided with longitudinally extending raised portions 75, of dovetailed shape, to fit the dovetailed grooves 49 (Fig. 9) in the members 11, the members 69 being also formed with grooves 77 of appropriate shape to receive the flanges 19 of the members 11, while the corners of the members 69 are rounded at 79 (Fig. 15) to fit the rounded faces 17 of the adjacent flanges 15 of the members 11. The members 69 are shown with integral angle portions comprising the legs 81 and 83, the ends of the legs 83 having on their inner sides longitudinally extending grooves 85, while in the bodies of the members 69 are formed longitudinally extending grooves 87. This construction of the members 69 permits them to be readily extruded in long lengths. As illustrated (see Fig. 15), sprung into the grooves 85 and 87 are the edges of the legs of slightly flexible angle members 89, these angle members together with the angle members 81, 83 forming the door jamb. The member 69 at the top of the door opening is constructed similarly to that just described, and is secured to the adjacent horizontal members 11 in the same way.

For holding the horizontal members 53 and their associated members 11 in vertically spaced relation, and to aid in tying the parts of the wall together, the vertical members 53 and 11 at the ends of the wall, as shown, are coextensive with the height of the wall, and the horizontal members between the rows of blocks are secured to these vertical members. As illustrated (Figs. 4, 5 and 7), the vertical end members 53 are provided with spaced openings 91, while the members 31 are formed to provide tabs 93 having perforations 95 (Fig. 7), the tabs extending through the openings 91, while wedge members, herein shown in the form of nails having the shanks 97 and heads 99, are passed through the perforations 95, the heads and the ends of the shanks resting against the members 53 so as to form wedges. At the upper corners of the wall the construction is the reverse of that just described, that is to say, the vertical members 53 at those corners are provided with the tabs 93, and the openings 91 are formed in the horizontal members 31, the construction being otherwise the same. Where the members 31 intersect the door frame, as illustrated in Fig. 15, spaced openings 91 are formed in the door frame members 69, the tabs 93 at the adjacent ends of the members 31 passing through these openings into the hollow door jamb and being secured thereto by the nails or other wedge members 97 prior to snapping the angle member 89 in place.

Where the blocks are not provided with the raised portions or ribs 3 as shown in Fig. 12, members 101 may be substituted for the members 11, plates 103 for the plates 31, and plates 105 for the plates 53, the construction of these substituted members being identical with those for which they are substituted, except that the ribs 29 and 51 and associated notches are omitted, as will be clear from Figs. 12 and 13.

The various members 11, 31, 53, 69, 101 and 105, above described, conveniently may be made of bronze, aluminum, aluminum alloy, and the like, by extruding them in long lengths, cutting these lengths to appropriate shorter lengths, and finishing the ends of the shorter lengths to cause such ends to have the configurations described.

In laying the wall elongated members 103 or 31, preferably the former, may be placed along the floor with the raised portions 33 uppermost, as indicated in Figs. 2 and 3. Upon these members 103 may then be laid members 101 and asso-

ciated horizontal plates **31**, and the three parts may be secured to the floor by fastening members **107** passing through holes drilled in those parts. Upon the members **101** may then be laid the lower horizontal row of blocks **1**. As this row is laid vertical members **11** and associated plates **53** may be placed at the ends of each block before the next block is placed in position. After the first row is laid horizontal members **31** and associated members **11** may be laid upon the row and secured to the end vertical member by means of the nails **97** (Fig. 5). The next row of blocks may be laid in the same manner, employing members **11** and plates **53** between the vertical faces of the blocks. If desired, at the top of the wall and at the ends thereof, if convenient, may be placed wedges **109** (Figs. 2 and 3) cooperating with the ceiling or vertical wall of the building, the spaces between the block wall and the walls and ceiling of the building being then filled with cement or other plastic substance to finish the construction.

If it is desired to make the wall water or air tight, mastic or other plastic material may be placed in the grooves **23** (Fig. 9) of the members **11** as the blocks are being laid, excess of this mastic squeezing out into the spaces, shown in Figs. 2 and 4, adjacent the ribs **51** and **29**. If desired, however, the entire cavities **9** between the blocks of the wall and adjacent bonding members may be filled with plastic material.

It will be understood that the "blocks" herein described may be of any convenient size, and, if desired, may be narrow transversely of the wall so as to be in the nature of sheets. It will also be understood that the entire wall may be made of the blocks, or that the blocks may sheath a separate wall. Either or both the horizontal and vertical members **11**, if desired, may be short, say about twice the length shown for the vertical tie members **53**, and may be placed at the corners of the blocks so that one or the other engages with two adjacent blocks, in which case the spaces between the adjacent horizontal and adjacent vertical members **11** along the cracks between the blocks may be filled in with plastic caulking material. On the other hand, the vertical tie members **53** may be coextensive in length with the vertical members **11**, which latter, as shown, are substantially coextensive with the height of the blocks, and, if desired, the horizontal tie members **31** may be short like the vertical tie members **53** shown in the drawings. It will also be understood that the tie members **31** and **53** or even the members **11** may be formed of materials such as Bakelite, wood, or other poor conductors of heat so as better to insulate the wall.

It will be understood that within the scope of the appended claims wide deviations may be made from the forms of the invention herein described without departing from the spirit of the invention.

I claim:

1. A wall or the like having, in combination, a preformed block, preformed bonding means for said block comprising spaced members adjacent a transverse face of the block having shoulder means cooperating with shoulder means presented by said block, and separately formed means interconnecting said members and holding them in spaced relation, said last mentioned means and said members having slidably engageable cooperating portions forming a joint between them interlocking them in all directions normal to that in which they are slid to cause them to engage.

2. A wall or the like having, in combination, a preformed block, preformed bonding means for said block comprising spaced members adjacent a transverse face of the block having shoulder means cooperating with shoulder means presented by said block, and separately formed means interconnecting said members and holding them in spaced relation, said last mentioned means and each of said members having one a slot parallel to said shoulder means and the other a head, which head may be slid into said slot by movement longitudinally of the latter, said head engaging the walls of said slot to interlock said last mentioned means and members in all directions normal to the direction in which said slot extends.

3. A wall or the like having, in combination, a preformed block, preformed bonding means for said block comprising spaced members adjacent a transverse face of the block having shoulder means cooperating with shoulder means presented by said block, and separately formed means interconnecting said members and holding them in spaced relation, and dovetailed joints between said last mentioned means and each of said members.

4. A wall or the like having, in combination, adjoining preformed blocks, bonding means between the adjoining faces of said blocks comprising a pair of spaced longitudinally extending members having shoulder means cooperating with shoulder means presented by said blocks, said members having slots extending in the direction of their length, and means interconnecting said members having heads in said slots cooperating with the walls thereof to interlock said means and members in all directions normal to the direction of length of said slots.

5. A wall or the like having, in combination, adjoining preformed blocks, bonding means between the adjoining faces of said blocks comprising a pair of spaced longitudinally extending members having shoulder means cooperating with shoulder means presented by said blocks, and separately formed means interconnecting said members and holding them in spaced relation, said last mentioned means and said members having slidably engaging cooperating portions forming a joint between them interlocking them in all directions normal to the direction of length of said members.

6. A wall or the like having, in combination, adjoining preformed blocks, bonding means between the adjoining faces of said blocks comprising a pair of spaced longitudinally extending members having shoulder means cooperating with shoulder means presented by said blocks, said members having dovetailed slots extending in the direction of their length, and means interconnecting said members having dovetailed heads in said slots cooperating with the walls thereof to interlock said means and members in all directions normal to the direction of length of said slots.

7. A wall or the like having, in combination, adjoining preformed blocks, bonding means between the adjoining faces of said blocks comprising, at each side of the wall, a longitudinally extending member having a portion between said blocks and flanges cooperating with the edges of the exterior surfaces of the wall, and separately formed means interconnecting said members and holding them in spaced relation, said last mentioned means and said portions of said members having slidably engaging cooperating parts forming a joint between them interlocking them in all

directions normal to the direction of length of said members.

8. A wall or the like having, in combination, adjoining preformed blocks, bonding means between the adjoining faces of said blocks comprising, at each side of the wall, a longitudinally extending member having a portion between said blocks and flanges cooperating with the edges of the exterior surfaces of the wall, said portions of said members being formed with slots extending in the direction of their length, and means interconnecting said members having heads in said slots cooperating with the walls thereof to interlock said means and members in all directions normal to the direction of length of said members.

9. A wall or the like having, in combination, adjoining preformed blocks, bonding means between the adjoining faces of said blocks comprising, at each side of the wall, a longitudinally extending member having a portion between said blocks and flanges cooperating with the edges of the exterior surfaces of the wall, said portions of said members being formed with dovetailed slots extending in the direction of their length, and means interconnecting said members having dovetailed heads in said slots cooperating with the walls thereof to interlock said means and members in all directions normal to the direction of length of said members.

10. Bonding means for a block wall comprising elongated members each having a lateral flange at at least one edge thereof and being formed on one face thereof with a longitudinally extending dovetailed groove.

11. Bonding means for a block wall comprising elongated members each having laterally projecting longitudinally extending flanges at opposite sides thereof at one edge thereof and being formed on one face thereof with a longitudinally extending dovetailed groove.

12. Bonding means for a block wall comprising elongated members each having a lateral flange at at least one edge thereof and being formed on one face thereof with a longitudinally extending dovetailed groove, and a member having means forming dovetailed projections for reception in said dovetailed grooves of said first mentioned members.

13. Bonding means for a block wall comprising an elongated member having a lateral flange at at least one edge thereof and being formed with a slot extending in the direction of the length of said member, which slot at the surface of said member is of narrower width than at portions below said surface.

14. Bonding means for a block wall comprising an elongated member having a lateral flange at at least one edge thereof and being formed with a slot extending in the direction of the length of said member, which slot at the surface of said member is of narrower width than at portions below said surface, and a member having means forming a head for reception in said slot presenting portions of lesser and greater width, whereby said head will be retained in said slot against removal in all directions normal to the direction of length of said slot.

15. A wall or the like comprising preformed blocks arranged in rows, separate elongated members between said rows at each edge thereof common to a plurality of blocks, separate elongated members between the blocks of said rows at each edge thereof abutting with the first mentioned members, each of said first mentioned elongated members and the end portion of each of the second mentioned members having cooperating portions for locking them against displacement in both directions transversely of the wall.

16. A wall or the like comprising preformed blocks arranged in rows, separate elongated members between said rows at each edge thereof common to a plurality of blocks, separate elongated members between the blocks of said rows at each edge thereof abutting with the first mentioned members, at least some of said first mentioned elongated members and the end portion of at least some of the second mentioned members having cooperating portions for locking them against displacement in both directions transversely of the wall.

17. A wall or the like comprising preformed blocks arranged in rows, separate elongated members between said rows at each edge thereof common to a plurality of blocks, separate elongated members between the blocks of said rows at each edge thereof abutting with the first mentioned members, each of said first mentioned elongated members and the end portion of each of the second mentioned members having cooperating portions for locking them against displacement in both directions transversely of the wall, tie members between the first mentioned members, and separate tie members between the second mentioned members, and means locking said tie members to each other against movement transversely of the wall.

18. A wall or the like comprising preformed blocks arranged in rows, separate elongated members between said rows at each edge thereof common to a plurality of blocks, separate elongated members between the blocks of said rows at each edge thereof abutting with the first mentioned members, at least some of said first mentioned elongated members and the end portion of at least some of the second mentioned members having cooperating portions for locking them against displacement in both directions transversely of the wall, tie members between the first mentioned members, and separate tie members between the second mentioned members, and means locking said tie members to each other against movement transversely of the wall.

19. A wall or the like having, in combination, preformed blocks arranged to form the wall, plate-like members between the vertical and horizontal joints of the wall, means locking said members together for preventing relative displacement thereof transversely of the wall, separate members at the several horizontal and vertical edges of the wall having shoulder means cooperating with shoulder means presented by the blocks for holding the blocks against relative displacement transversely of the wall, and means connecting the several separate members to said plate-like members for holding said separate members against separation transversely of the wall.

20. A wall or the like having, in combination, preformed blocks arranged in rows, plate-like members between said rows, means holding said plate-like members in spaced relation, and separate members at each side of said rows, respectively, having shoulder means cooperating with shoulder means on said blocks for holding said blocks against displacement transversely of the wall, and means connecting the several separate members to said plate-like members for holding

said separate members against relative movement transversely of the wall.

21. A wall or the like having, in combination, adjoining preformed blocks formed at opposite edges of opposed faces thereof transverse to the wall with raised portions forming oppositely facing shoulders, and separately formed longitudinally extending members having opposite grooves receiving said raised portions of said blocks.

22. A wall or the like having, in combination, adjoining preformed blocks arranged in rows, which blocks on four faces thereof transverse to the wall have raised edge portions forming oppositely facing shoulders, separate longitudinally extending members at the opposite edges of the rows common to a plurality of the blocks, and separate longitudinally extending members at the opposite edges of the blocks of said rows interlocked at opposite ends to the adjacent members between the rows; said members having oppositely facing grooves for receiving the raised portions of said blocks.

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