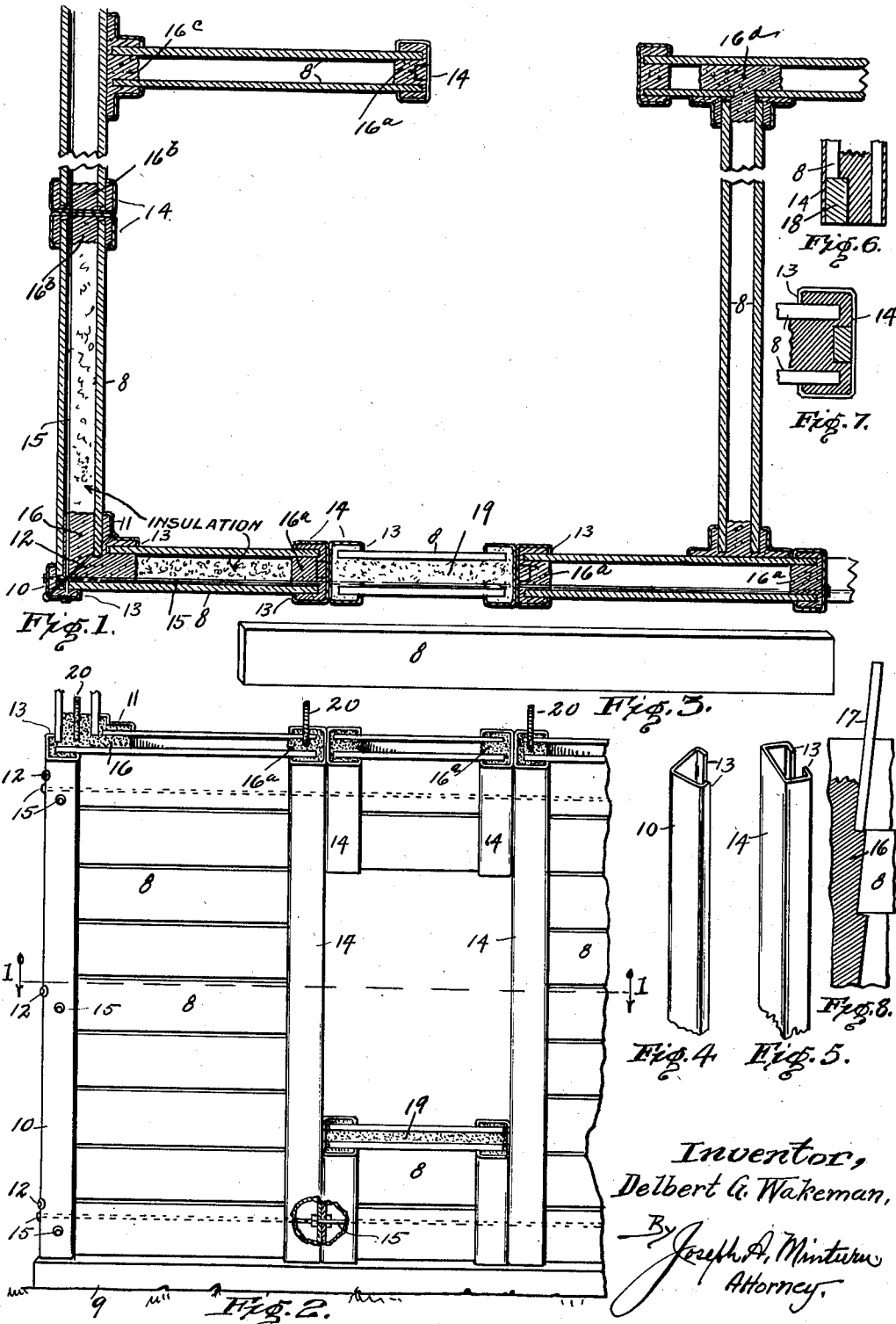


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D. G. WAKEMAN
BUILDING CONSTRUCTION
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UNITED STATES PATENT OFFICE.

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BUILDING CONSTRUCTION.

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To all whom it may concern:

Be it known that I, DELBERT G. WAKEMAN, a citizen of the United States, residing at Mooresville, in the county of Morgan and State of Indiana, have invented certain new and useful Improvements in Building Constructions, of which the following is a specification.

The object of this invention is to provide a building construction which is well adapted for small dwelling houses, which will be inexpensive as to first cost, extremely durable and very inexpensive as to up-keep, and which will be very dry and warm, insect proof, and also of slow-burning construction.

I accomplish the above, and other objects incidental thereto which will hereinafter appear, by the means illustrated in the accompanying drawing, in which—

Fig. 1, is a horizontal section on the line 1—1 of Fig. 2, of a sufficient part of a building to illustrate my invention which is embodied thereon. Fig. 2, a front elevation and perspective of the fragment illustrated in Fig. 1, Fig. 3 is a perspective view of one of the concrete slabs or boards for facing both sides of all walls, Figs. 4 and 5 are fragments, in perspective of metal joint reinforcements, Fig. 6, is a fragment in vertical section of the wall above a window or door opening showing a wooden header to hold shades and curtains, Fig. 7, is a horizontal section through a wall opening showing a wooden strip to hinge a door or window to, and Fig. 8, is a detail in vertical section illustrating my preferred method of limiting the thickness of the vertical columns.

Like characters of reference indicate like parts in the several views of the drawing.

A suitable foundation 9, usually and preferably concrete, is first constructed and upon the foundation, at all of the corners, on what will be the outer face of the building wall heavy sheet metal angle-bars 10 are erected, and at the adjacent angles of the inner wall similar sheet metal angle-bars 11 are erected. The outer and inner corner angle bars 10 and 11 are connected together by bolts 12, extending diagonally of the corner, here shown as three in number,—one near the top, one near the bottom and the third midway between the other two, but obviously both the number of bolts and their placing may be varied. The outer angle bars 10 have longi-

tudinal inturned edges forming narrow flanges 13 and the angle bars 11 have oppositely turned flanges 13, generally less than an inch in width, to make the projection of the bars from the wall about the same as the thickness of wooden corner strips or casings. When the entering angle is on the outside of the building the above corner angle bars are reversed in position to correspond.

At all window and door openings, and also where the concrete slabs or boards which will form the outer and inner wall facings end, I erect sheet metal channel bars 14, in duplicate, with oppositely turned channels where the course or courses of concrete boards are continuous, and the two contacting channel bars are united by rivets, bolts, or spot-welding. The longitudinal edges of bars 14 have return flanges 13 for the same purpose as above described.

Tie-rods 15, extend in both directions from the wall corner-bars, through the channel-bars 14, preferably from each corner to the next, in order to tie the bars together in a secure manner, but they may stop after passing through any of the channel bars 14, as shown below the window opening in Fig. 2.

If the house wall to be constructed is small, all of the vertical metal bars may be set and plumbed at once, and their vertical positions retained by temporary bracing, in any suitable or usual manner; or, the vertical bars for a part only, of the building walls may be erected at a time, but in all cases care must be taken to make and keep the vertical bars plumb, as they are the guides or gauges by which the finished wall is plumbed.

The next step is to assemble the concrete slabs or boards 8 which comprise the outer and inner facings of the wall. These are molded in polished steel forms or molds of the length and width of the desired board, and approximately an inch and a quarter in thickness, depending upon size and other conditions. A very smooth-finished surface may be secured by the known method of agitation and vibration before the concrete-mixture is set. The boards 8 molded the proper length to extend from a corner to an opening or from a corner to a wall intersection, a wall intersection to an opening, or from an opening to an opening, are dry and firm, and in that condition they are assembled against the inturned edges 13 of the vertical bars, 10 or 11 and channel bar 14,

as the case may be. They are laid a course at a time, in pairs, one board of which forms the outer wall facing and the other board the inner wall facing. When such a pair has been assembled for both of the walls meeting at a corner the intervening space between the board, near their ends and back therefrom as far as is necessary to form a column 16 strong enough to carry structural loads, is filled with a wet mixture of concrete. This is carried now only to the top of that course of boards, but is added to in like manner, course upon course, as the wall is advanced to completion.

15 I have found it convenient to limit the cross sectioned area of the column by driving a wooden board 17 between the pair of concrete boards 10 and 11; slightly oblique to the vertical as shown in Fig. 8 to form
20 a shelf-rest for the board at the upper course. The board is withdrawn and replaced as the courses are added.

Columns 16^a at door and window openings, 16^b at the meting ends of concrete boards,
25 16^c at intersections between inside and outside walls and 16^d at the intersections of inside walls, are formed in the same manner as described for an outside wall corner column 16.

30 Fig. 6, illustrates the manner in which a wooden strip 18 is embedded in a concrete filler as a header over a window opening to provide a backing into which shade and curtain fixture may be screwed, and Fig. 7
35 illustrates the manner of introducing a wooden strip in the side casings of windows and doors to nail the window guides and parting strips to for window sash or to hinge casement windows or doors to.

40 The bottoms of window openings are preferably filled in with concrete 19 entirely across the opening, and the light frames of casement and other windows having such, are embedded in this cement which is carried
45 up in a manner to make an air and water tight fit. Where the space between the inner and outer concrete boards of a wall are filled with planer shavings sawdust or other insulation this will be carried up under the
50 window openings sufficiently to define the proper concrete sill, and if the space between the concrete boards is to be left empty the limits of the concrete sill may be defined by making a barrier out of crumpled waste
55 paper.

The concrete slabs are set in a rich cement mortar with a lime content to aid pliability, and pains are taken to make a perfect joint on the inside where it is desired to decorate
60 the wall there without plastering it. Should it be proposed to plaster the inner wall, or the outer one either as in stucco work, the rough sides of the concrete boards are turned to plaster against.

65 The concrete boards may be placed any

desired distance apart to make a wall of any required thickness for varying degrees of strength or opportunity for insulation.

Bolts 20, one for each concrete column, have their lower ends securely embedded in the column and extending upwardly of the column provide the means for bolting the purlin plate for the roof rafters thereto.

While I have here described the slabs or boards 8 as being formed out of concrete,
75 because it is the least expensive and easiest obtainable, it is obvious that slabs or boards made out of other materials, as natural stone and even wood, may be used without departing from the spirit of this invention. 80

I claim:

1. A building wall comprising an outer and an inner facing of boards, vertical metal strips contacting the outer surfaces of the facing boards and holding them in vertical
85 alinement, and concrete columns at and between the ends of the boards adhesively united with the boards at all contacts there-with and spacing the two facings apart and extending from top to bottom of the wall. 90

2. A building wall comprising spaced apart outer and inner facings of concrete boards, vertical metal strips contacting the outer faces of the facing boards and holding them in vertical alinement, tie rods connect-
95 ing opposite vertical strips to keep them from spreading, and concrete columns contacting directly with and spacing the inner and outer facings apart and filling the spaces between the flanges and boards and extend-
100 ing from top to bottom of the wall to strengthen the structure.

3. A building wall comprising spaced apart outer and inner wall facings formed out of boards set in mortar on their edges,
105 vertical metal angle bars lapping the ends of the boards outside and inside of the wall at the corners of the wall, vertical metal channel bars lapping the ends of the boards inside and outside of the wall at the openings in the wall and at the vertical joints in the boards, flanges of said angle and channel bars having inturned edges to space the flanges from the boards, and concrete pillars between the outer and inner facings contact-
110 ing said facings and located next to the vertical channel bars and filling the spacings between the flanges and boards. 115

4. A building wall comprising spaced apart outer and inner wall facings formed out of boards set on edge in mortar, vertical metal angle bars lapping the ends of the boards outside and inside of the wall at the corners of the wall but spaced therefrom,
120 diagonal rods connecting each corner pair of angle bars, vertical metal channel-bars lapping the ends of the boards inside and outside of the wall at the openings in the wall and vertical joints in the boards, tie rods connecting opposite ones of said last
125 130

channel-bars to keep them from spreading and concrete pillars spacing the outer and inner facings apart and strengthening the structure, the concrete of said pillars being in direct contact with the boards making adhesive joints therewith, said concrete also filling the spaces between the flanges of the angle bars and the boards.

5. A building wall comprising spaced apart outer and inner wall facings formed out of boards set on edge in mortar, vertical metal angle bars lapping the ends of the boards outside and inside of the wall at the corners of the wall, diagonal rods connecting each corner pair of angle bars, vertical metal channel-bars lapping the ends of the boards inside and outside of the wall at the openings in the wall and vertical joints in the boards, all of said bars having flanges at right angles and said flanges having inturned vertical edges, spacing the flanges away from the boards, tie rods connecting opposite ones of said last channel-bars to keep them from spreading, and concrete pillars spacing the outer and inner facings apart and filling the spaces between the boards and vertical bars caused by the inturned edges, said concrete pillars being adhesively united with the boards.

6. A building wall comprising spaced apart outer and inner facings of boards set

on their edges in mortar, outside metal reinforcements at all corners, openings and joints, means comprising rods for tying the metal reinforcements together and concrete columns spacing the boards apart and adhesively united with said boards and adding to the strength of the structure.

7. A building wall comprising spaced apart outer and inner facings of concrete boards set on their edges in mortar, outside metal reinforcements at all corners, openings and joints, means comprising rods for tying the metal reinforcements together and concrete columns spacing the boards apart and adhesively united with said boards and adding to the strength of the structure, and purlin bolts seated in the tops of the concrete columns.

8. A building wall comprising spaced apart outer and inner facings of boards set on their edges in mortar, outside metal reinforcements at all corners, openings and joints, means comprising rods for tying the metal reinforcements together and concrete columns spacing the boards apart and adhesively united with said boards and adding to the strength of the structure, and insulating material filling the spaces defined by the columns and concrete boards.

In testimony whereof I affix my signature.

DELBERT G. WAKEMAN.