V. J. MADSEN.

REINFORCED CONCRETE WALL STRUCTURE.

APPLICATION FILED SEPT. 22, 1919.

1,343,926. **Patented June 22, 1920.**

Fig. 1

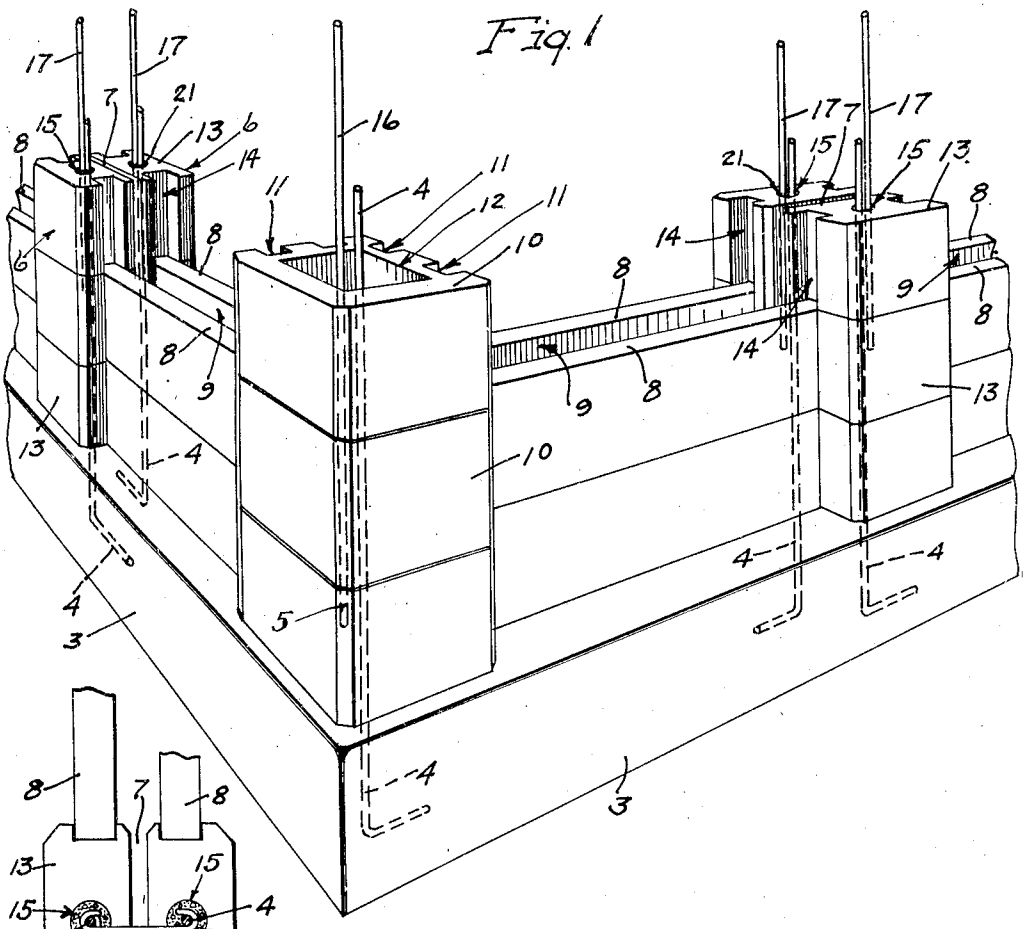
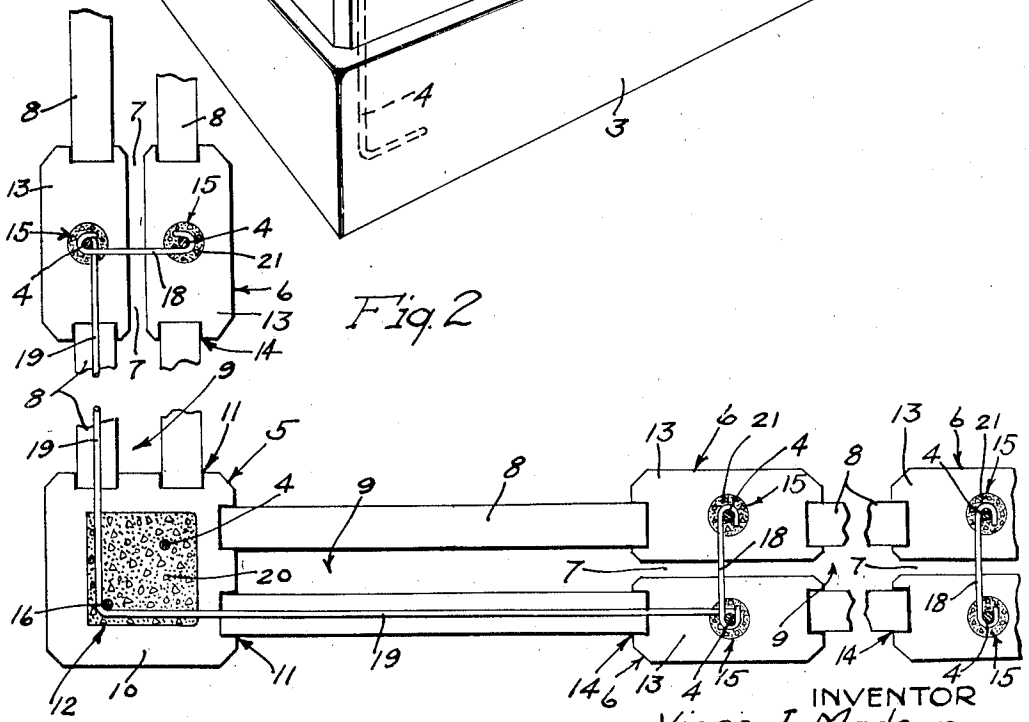


Fig. 2



INVENTOR

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BY HIS ATTORNEYS

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REINFORCED-CONCRETE WALL STRUCTURE.

1,343,926. Specification of Letters Patent. Patented June 22, 1920.

Application filed September 22, 1919. Serial No. 325,292.

To all whom it may concern:

Be it known that I, VIGGO J. MADSEN, a citizen of the United States, residing at Fargo, in the county of Cass and State of North Dakota, have invented certain new and useful Improvements in Reinforced-Concrete Wall Structures; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in reinforced concrete wall structures, and is in the nature of an improvement on my co-pending application filed February 16, 1918, under Serial Number 217,687, entitled "concrete block"; and has for its primary object to continue the air spaces between the laterally spaced slabs through the intermediate piers so as to form a single continuous air space in each wall which extends the full distance between the corner piers.

To the above end, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the drawings.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:—

Figure 1 is a fragmentary perspective view of a wall constructed in accordance with my present invention; and

Fig. 2 is a plan view of the same.

The numeral 3 indicates a foundation, which may be composed of any suitable material, upon which is supported and secured by means of anchor rods 4 a wall constructed in accordance with my present invention.

The improved wall structure includes corner piers 5, only one of which is shown, pairs of intermediate piers 6 laterally spaced to afford air spaces 7 therebetween, and concrete slabs 8 also laterally spaced to form air spaces 9 which continue into the air spaces 7 to form a single air space which covers the entire area of the wall and extends from one corner post to the other.

Each corner pier 5 comprises pre-formed superimposed concrete blocks 10 having in each of their wall faces laterally spaced vertically alined grooves 11 and also having vertically alined openings 12 into which the corner anchor rods 4 extend. Each intermediate pier 6, of each pair, also comprises pre-formed superimposed concrete blocks 13 having in each of their wall faces vertically alined grooves 14 and also having alined openings 15 into which the intermediate anchor rods 4 extend. The superimposed concrete slabs 8 are interlocked with the piers 5 and 6 by vertically sliding the same into the grooves 11 and 14, as best shown in Fig. 2. The joints in the structure, wherever required, are luted with mortar or cement.

Extending through the alined openings 12 in each corner pier 5 is a vertical tie-rod 16 preferably located, as shown, at the intersection of the longitudinal centers of the outer slabs 8, and a vertical tie-rod 17 is extended through the alined openings 15 in each intermediate pier 6. The lower end portions of the rods 16 and 17 overlap the upper end portions of the anchor rods 4, as best shown in Fig. 1.

The intermediate piers 6 of each pair are connected between the blocks 13 at various different elevations by transverse tie-rods 18 having hook-like ends which are interlocked either with the respective anchor rods 4 or the rods 17, depending on the elevation at which said tie-rods are located. The two outer intermediate piers 6, adjacent to the corner post 5, and on opposite sides thereof, are connected to said corner pier, to afford a reinforced corner structure, by horizontal angle tie-rods 19 having hook-like ends which are interlocked with the respective anchor rods 4 or tie-rods 17, depending on the elevation at which they are located. The angle portions of the rods 19 extend around and outward of the tie-rods 16 and thereby anchor the respective piers 6 to the corner pier 5. These tie-rods 19 are laid, at various different elevations, between the upper and lower faces of certain of the outer slabs 8, blocks 10 and blocks 13, as best shown in Fig. 2.

The alined openings 12, in the corner pier 5, are filled with a body of concrete 20 and, likewise, the alined openings 15, in each intermediate pier 6, are filled with a body of concrete 21. These bodies of concrete 20 and 21 extend from the foundation 3 to the tops of the piers 5 and 6, and have embedded therein the anchor rods 4 and vertical tie-rods 16 and 17.

The ends of the transverse tie-rods 18 are embedded in the concrete bodies 21 of each laterally spaced pair of intermediate piers 6, and rigidly connect said bodies to hold the said pair of piers properly spaced. The

angle portions of the horizontal tie-rods 19 are embedded in the concrete body 20 and the ends thereof are embedded in the concrete bodies 21 of the respective outer intermediate piers 6 and thereby rigidly anchor the said concrete bodies 21 to the concrete body 20.

What I claim is:—

1. A wall structure including corner and laterally spaced pairs of intermediate piers, each of said piers comprising superimposed concrete blocks, said intermediate piers being laterally spaced to afford horizontal ventilating passageways therebetween, said corner pier having in each of its wall faces two laterally spaced grooves, each intermediate pier having in each of its wall faces a single groove, and pre-formed concrete slabs positioned in said grooves between the piers.

2. A wall structure including corner and laterally spaced pairs of intermediate piers, each of said piers comprising superimposed concrete blocks, said intermediate piers being laterally spaced to afford horizontal ventilating passageways therebetween, said corner pier having in each of its wall faces two laterally spaced grooves, each intermediate pier having in each of its wall faces a single groove, pre-formed concrete slabs positioned in said grooves between the piers, said superimposed concrete blocks having alined openings filled with bodies of concrete, vertical tie-rods embedded in said bodies of concrete, transverse tie-rods connecting the vertical tie-rods of each pair of intermediate piers, and horizontal tie-rods connecting the vertical tie-rods in one of the intermediate piers on each side of the corner pier with the vertical tie-rod in said corner pier.

In testimony whereof I affix my signature in presence of two witnesses.

VIGGO J. MADSEN.

Witnesses:
KATHERINE RISK,
ED A. ADAMS.