G. L. RACKLE.

REENFORCED CONCRETE WALL CONSTRUCTION.

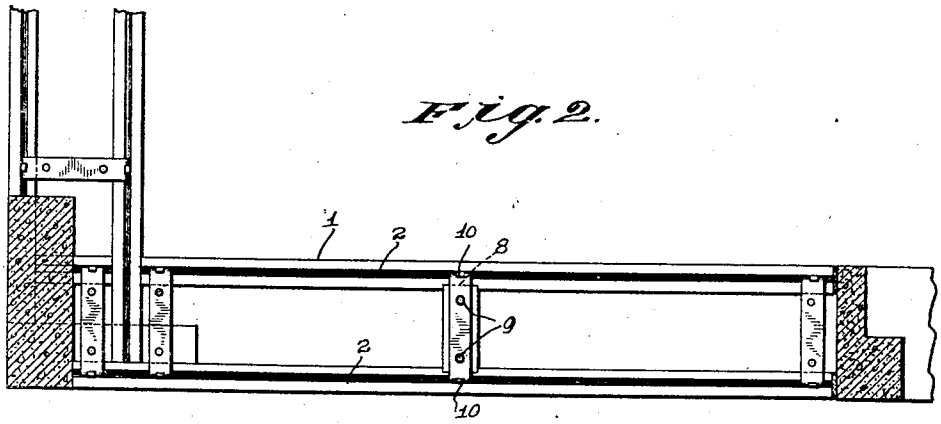
APPLICATION FILED DEC. 31, 1920.

1,404,647.

Patented Jan. 24, 1922.

2 SHEETS—SHEET 1.

Fig. 2.



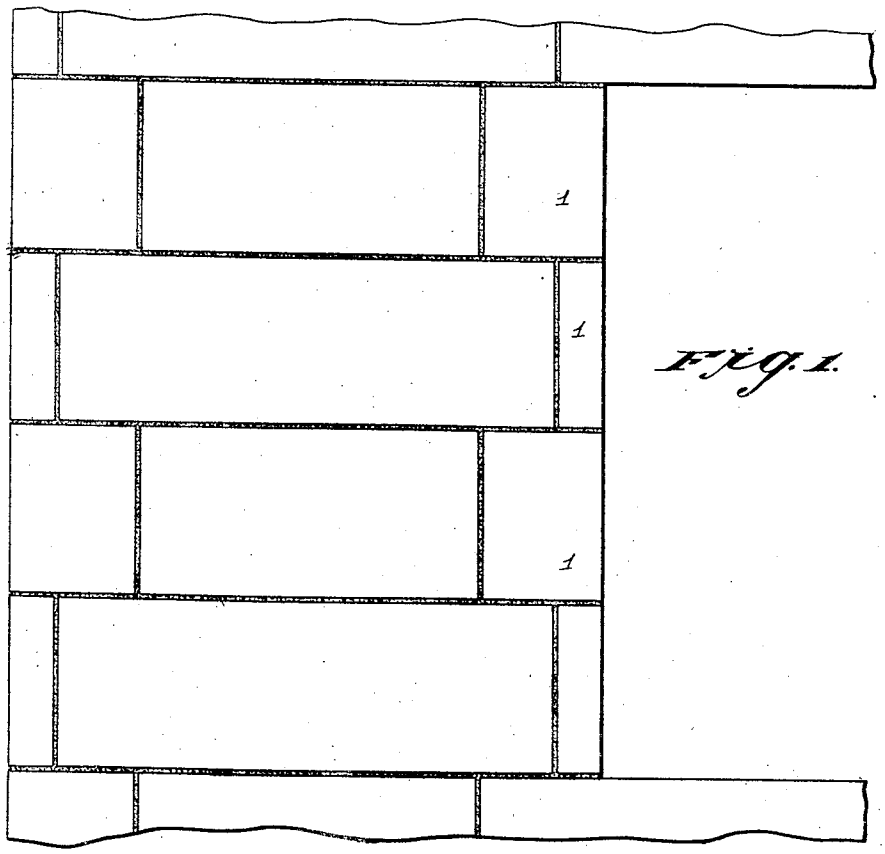


Fig. 1.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

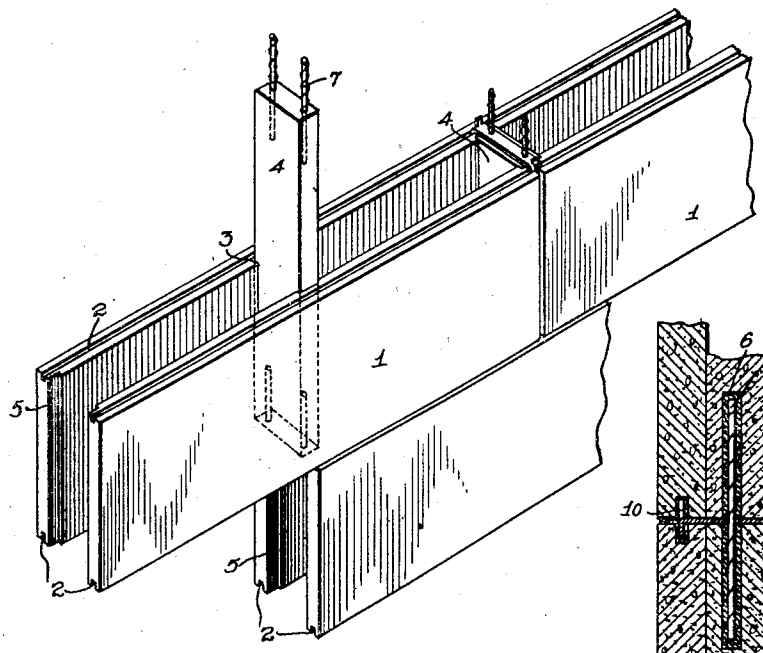


Fig. 4.

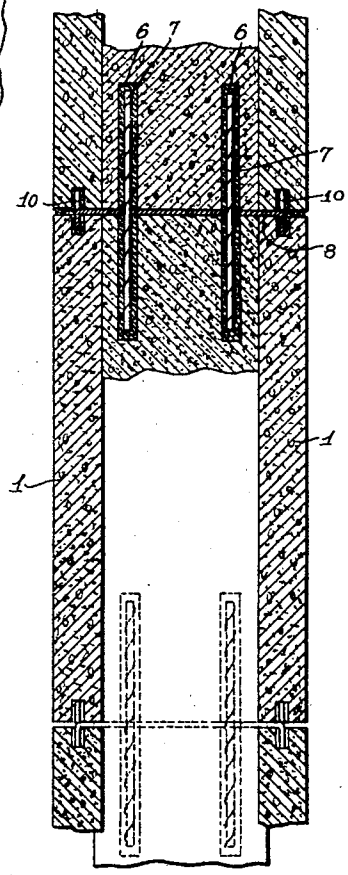
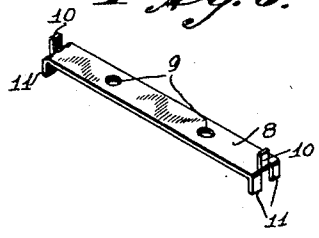


Fig. 5.



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REENFORCED-CONCRETE WALL CONSTRUCTION.

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To all whom it may concern:

Be it known that I, GEORGE L. RACKLE, a citizen of the United States, and a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and Improved Reenforced-Concrete Wall Construction, of which the following is a full, clear, and exact description.

This invention relates to reenforced concrete wall construction, and has for an object the provision of such a structure as is economical to manufacture, convenient to ship, speedily erected, and requiring a minimum amount of material to make a strong wall with a maximum amount of air space.

The invention is illustrated in the drawings, in which—

Figure 1 is an elevation of the wall;

Figure 2 is a plan view of a portion of the wall;

Figure 3 is a perspective view of part of the wall;

Figure 4 is a vertical transverse section taken through the studding section; and

Figure 5 is a detail of a bonding clamp for positioning the inner and outer slabs of the wall.

The invention as illustrated in the drawings comprises a wall construction made up of a plurality of layers of slabs of concrete, which are preferably reenforced. These slabs are arranged in the form of inner and outer walls with an air space between them. These flat slabs, such as are designated by the numeral 1, can be entirely precast before being assembled in the wall construction. Each slab is formed with a longitudinally extending groove 2 in its lower and upper edges. These grooves are provided to engage and co-operate with projections on the bonding clamp, to be hereinafter described. Intermediate the length of each slab and disposed on the inner face thereof is a groove 3 into which one edge of the studding 4 is adapted to lie when the slabs are assembled. Each end of each slab is likewise provided with a groove 5 which in combination with a similar groove in the adjacent end of another slab forms a complete groove similar to the groove 3 above mentioned.

The studding 4 is constructed of a plurality of short sections substantially equal in length to the depth of two of the slabs 1. These sections of studding, such as 4, are made of reenforced concrete and are provided with dowel holes, such as are represented in Figures 6 and 4, into which dowel pins 7, preferably made of twisted steel, may be grouted. These sections of studding are arranged one above the other to form a continuous studding member, the dowel pins 7 projecting from the end of one section of studding into the dowel holes 6 of the adjacent section. The studding co-operating with the grooves in the wall slabs 1 definitely space these slabs the required distance apart. The grooves in the slabs are arranged as above described for the reason that the slabs are generally arranged in the wall with short joints staggered with respect to the slabs in the adjacent levers. However, this particular arrangement of grooves need not be essentially identical in all cases. Variations thereof are permissible, depending upon the particular type of wall being constructed.

A bonding clamp 8, made of sheet metal of any suitable size and strength, is provided to co-operate with and lie between adjacent ends of the studding sections 4 so as to hold each of the slabs 1 in the definite spaced position determined by the studding sections 4. These bonding clamps are provided with apertures, such as 9, through which the dowel pins 7 extend. Each bonding clamp is adapted, as shown particularly in Figures 3 and 4, to be disposed between the ends of adjacent studding sections 4, and each end is provided with upwardly and downwardly projecting ears 10 and 11, as shown particularly in Figure 5. These ears are struck up out of the metal of the clamp itself, making it an article which can be very simply and economically manufactured.

As shown in Figure 4, one of the ears 10 and 11 extends upwardly from the end of the clamp 8 into one of the grooves 2 in the slab 1 with which it co-operates, whereas the other ears project downwardly into a similar groove in the slab 1 positioned below. Therefore, it is seen that the one clamp made of a single piece of metal is provided with means whereby four slabs are definitely and relatively positioned with respect to each other and the studding.

The slots 2 in the upper and lower edges of each slab are provided not only to receive the ear portions 10 and 11 of the bonding clamps 8 but also are adapted to receive mortar, which may be placed in the joints between adjacent slabs, thus making a very firm and integral wall construction. The

outer faces of each slab may be provided with any facing material of any suitable design.

It will be readily observed that this wall is made up of elements which are substantially entirely precast and are very easily and quickly assembled into a strong wall construction. The space between the slabs on one face of the wall and the slabs on the other provides a maximum air space.

What I claim is:

1. A wall construction having inner and outer spaced walls formed of a plurality of cementitious slabs, which comprises a studding section of cementitious material disposed between the wall sections to space the same, connections between said section of studding and an adjacent section, and a bonding clamp engaged with and positioned by each section and connection, the ends of the clamp engaging with the walls to hold the walls in their proper spaced relation.

2. A bonding element for wall structures having inner and outer spaced walls formed of a plurality of cementitious slabs, which comprises a studding section of cementitious material disposed between the wall sections to space the same, dowel connections extending from the end of the studding section to engage with an adjacent studding section, a bonding clamp engaged and positioned by the dowel connections, and projections on the ends of the clamp adapted to engage with the inner and outer wall slab.

3. A bonding device for wall structures having inner and outer wall sections, formed of a plurality of cementitious slabs, which comprises a pair of superposed studding sections disposed between the wall sections to space the same, dowel connections between and connecting said studding sections, a metallic bonding plate disposed between said sections and engaged by said dowel connections, and turned over ear portions on each end of the clamp adapted to engage the edges of adjacent wall slabs on the inner and outer wall surfaces.

4. A bonding device for wall structures having inner and outer wall surfaces formed of a plurality of slabs, each slab having a groove in its upper and lower edges, which comprises a pair of superposed studding sections disposed between the inner and outer walls, each section having recesses therein, dowel connections positioned in said recesses by cementitious material and extending between adjacent sections to bind them together, a bonding plate engaged by said dowel connections and disposed between the ends of adjacent studding sections, and turned-over ear portions on each end of the bonding plate, said ear portions adapted to engage with grooves in adjacent slabs on the inner and outer wall surfaces.

5. A wall structure having inner and outer wall sections formed of slabs, which comprises a studding section disposed between the inner and outer wall sections, dowel pins extending from the ends of the studding section, a metal clamping plate having apertures therein disposed on the end of the studding section, said dowel pins extending through said apertures, and projections on the ends of the clamping plate adapted to engage the slabs on the inner and outer walls to hold the same in the proper relative position.

6. A wall structure having inner and outer walls, which comprises a studding section disposed therebetween to space the same, said studding section having recesses in each end, and a plurality of dowel pins disposed in said recesses and held therein by cementitious material, said pins being formed of twisted metal.

7. A wall structure having continuous inner and outer walls spaced from each other throughout their extent and formed of a plurality of slabs of cementitious material, said slabs being rabbeted vertically at intervals throughout their length, which comprises a pair of superposed studding sections of cementitious material adapted to engage the rabbeted grooves to space the inner and outer wall sections, a plurality of recesses in the ends of each section, dowel pins disposed in said recesses and held therein by cementitious material, said dowel pins extending from one section to another to form a continuous stud, a clamping plate having apertures therein disposed between adjacent ends of the studding section, the dowel pins extending through the apertures in the plate, and turned-over ear portions on the ends of the plate adapted to engage the edges of adjacent slabs of the wall sections to hold them in their proper relative position.

GEORGE LOUIS RACKLE.