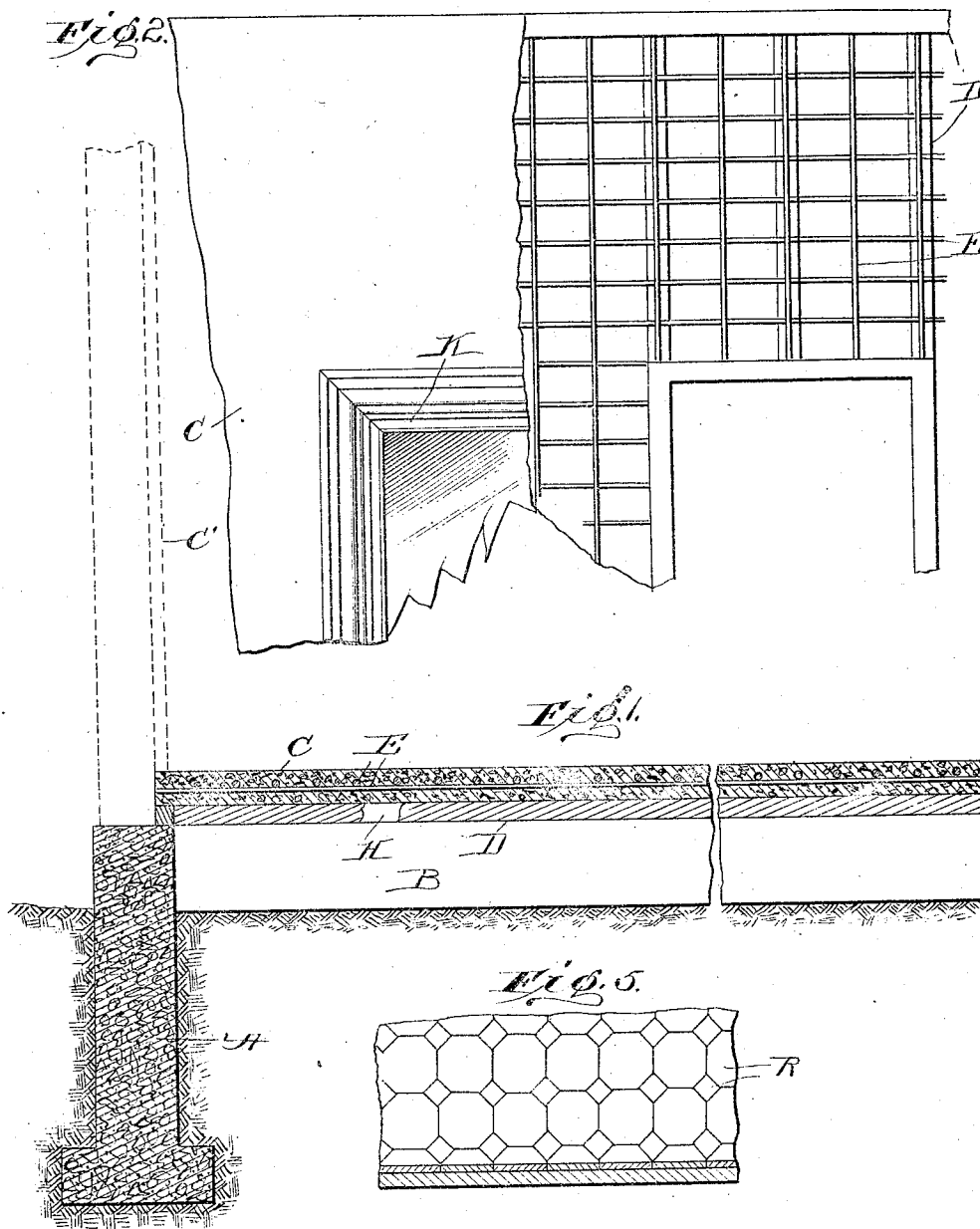


No. 889,083.

PATENTED MAY 26, 1908.

R. H. AIKEN.
REINFORCED CONCRETE CONSTRUCTION.
APPLICATION FILED APR. 29, 1907.

2 SHEETS—SHEET 1.



Witnesses
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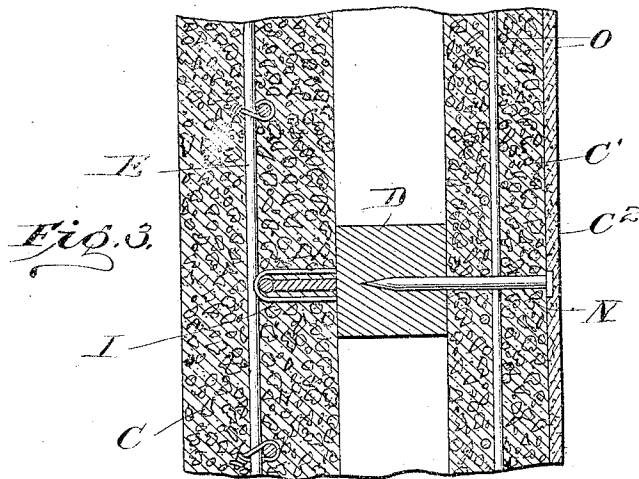
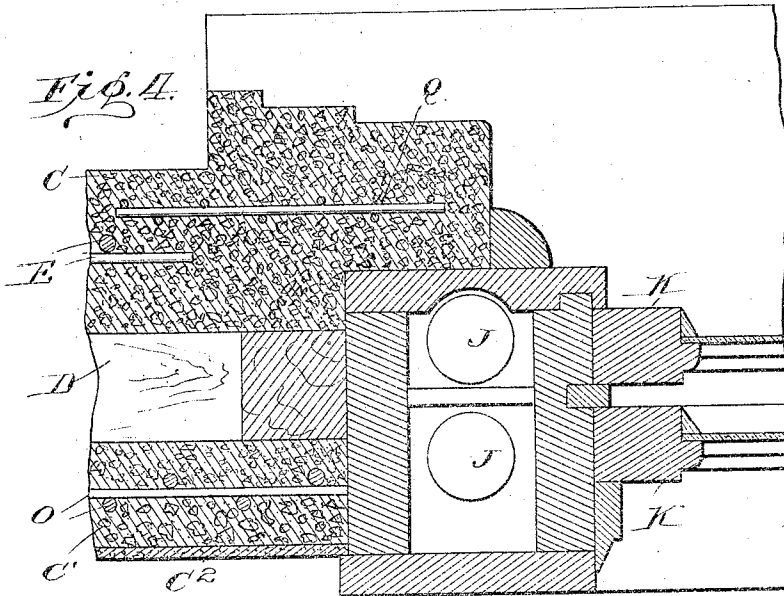
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2 SHEETS—SHEET 2



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UNITED STATES PATENT OFFICE.

ROBERT H. AIKEN, OF WINTHROP HARBOR, ILLINOIS.

REINFORCED CONCRETE CONSTRUCTION.

No. 889,083.

Specification of Letters Patent.

Patented May 26, 1908.

Application filed April 29, 1907. Serial No. 370,970.

To all whom it may concern:

Be it known that I, ROBERT H. AIKEN, a citizen of the United States, residing at Winthrop Harbor, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Reinforced Concrete Construction, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to buildings of reinforced concrete, and its general object is to provide for producing such structures quickly, at a low cost, and at the same time giving them certain other advantages over ordinary structures of the same general kind.

The invention further involves forming each wall of the building in a horizontal position, with all window and door openings, finishing it externally, and then raising it to vertical position, and still further provides for adding to such wall an inner wall, preferably formed in like manner, where it is desired to have a double wall or one with an internal air space.

In the accompanying drawings, Figure 1 shows a view of a foundation and a wall ready to be raised to vertical position thereon—as shown in dotted lines. Fig. 2 is a front elevation of a portion of the erected wall showing part of a window therein and having a part of the concrete omitted to show the reinforcing structure and the "grounds" of a door frame. Fig. 3 is an enlarged section showing the means for connecting inner and outer constituent walls. Fig. 4 shows a horizontal section of a portion of a wall and one side of a window frame. Fig. 5 shows a portion of a wall faced with tiles.

In these views, A represents the foundation of a building and B designates one of a series of parallel joists which may be embedded in the carefully smoothed earth alongside the foundation. Upon these joists are placed light wood furring strips D cut away to receive all desired window and door frames. The spaces between the strips are filled with earth or loose boards H. Upon this frame and at a distance above it preferably equal to half the thickness of the outer constituent wall is secured, by staples, for example, a grille work of steel rods E, Fig. 3, preferably not interwoven but secured together at the crossing points in any suitable way.

The frames which are placed in position

may be of ordinary construction, as shown in Fig. 4, where J represents weights and K window sash, and in some cases the concrete surrounding these frames and commonly provided with projecting heavier portions serving as lintels, sills and the like, is formed in advance in molds and placed in position before the concrete body of the wall is put in place. These frame-like structures of concrete are themselves provided with reinforcing rods Q Fig. 4, which project in position to be embedded in the concrete added to form the body of the wall. Upon this frame work the concrete is now placed to form a wall C having its external surface finished in any desired way, the outer layer being integral with the body and not a distinct layer that may separate therefrom.

When the wall is complete and the cement has set, the whole wall is raised to vertical position as shown in dotted lines in Fig. 1, the earth or loose boards H being left upon the ground or removed later if any fail to fall out. A floor resting upon the foundation may now be added and the inner face of the wall may be covered if desired. Preferably this is done by adding thereto a concrete wall C' shown in Fig. 3, and in dotted lines in Fig. 1. This wall may be formed upon a wire netting O upon the floor and raised into place as a whole, secured to the strips D by nails N, and faced with plaster C².

Partitions may be formed and placed in position in like manner, and it is to be observed that any of the walls are formed much more readily, rapidly and perfectly while lying flat, and that tiles R, Fig. 5, or other ornamental finishing may be very conveniently put in place, while the expensive vertical forms ordinarily used in building concrete walls are eliminated. The chance of leaving in the wall the dangerous "voids" against which, in ordinary construction of concrete buildings, close supervision and constant care do not always protect, is practically absent, and the perfection of finish upon the outer surface of the wall is such as cannot be attained when the wall is formed between vertical boards or the like.

Obviously if additional floors be provided, other outer or inner walls or both may be added in a similar manner for additional stories.

This construction using the light material and proportions shown is very suitable for barracks, storehouses, and other buildings of

moderate height, and it has been used with great success in erecting buildings having walls eighty feet long and fourteen feet high. It is to be observed that the walls are practically impervious to moisture, that they do not therefore become damp from absorbing water from without or from the earth; that they are poor conductors of heat, having a dead air space within; that they can be erected much more rapidly than ordinary brick or wood walls that are lathed and plastered, and at a less cost, that they stand rough usage inside and out and do not deteriorate rapidly.

When desired, the inner constituent walls of the double walls may be omitted, as has been done where a heavy wall was used as a retaining wall having its metal frame or reinforcement suitably anchored.

What I claim is:

1. The method of providing heavy, non-transportable retaining and building walls in upright permanent position, which consists in forming a suitable foundation, forming an approximately horizontal concrete wall with one margin adjacent to the upper surface of said foundation and adapted to fit and rest thereon, and having its long axis approximately parallel to the long axis of said foundation surface, and swinging said wall about an axis parallel to that of said surface, to bring the wall into permanent upright position upon the foundation.

2. The method of constructing concrete buildings which consists in providing a suitable foundation, forming and externally finishing in approximately horizontal position with one margin parallel to one foundation wall or side a concrete wall adapted to support a roof and all other parts usually carried by an ordinary building wall, swinging the concrete wall, about an axis parallel to said margin, to position upon its foundation as a permanent building wall, and adding all the remaining outer walls of the building in like manner.

3. The method of constructing concrete buildings which consists in providing a suitable foundation for all its walls, forming, in approximately horizontal position, and externally finishing, outer side up and with one margin adjacent and parallel to the upper surface of the corresponding part of the foundation, a concrete wall adapted to support all parts usually carried by the walls of brick

houses and the like, swinging the finished wall, about an axis parallel to said margin, to vertical position upon the foundation, and adding successively in like manner upright walls to form the remaining faces of the building.

4. The method of constructing buildings having hollow concrete walls which consists in forming, in horizontal position, outer side up, alongside one face of a foundation a heavy non-transportable concrete wall having one margin adjacent and parallel to the upper surface of the foundation upon which it is to rest, swinging said wall, about an axis parallel to said margin, to vertical position upon its foundation, forming an inner concrete wall in the position vacated by the outer wall, and erecting it in like manner to position alongside and slightly separated from said outer wall, securing the constituent wall together, and adding in like manner the remaining walls of the building.

5. The method of constructing concrete dwellings and the like which consists in forming suitable foundations for each wall, forming, in horizontal position, alongside one face of the foundation, an externally finished concrete wall adapted to support the parts usually carried by brick walls, having its window and door frames in position, and itself in position to be swung about an axis parallel to its foundation to erect position upon the latter, swinging the wall to such position, and adding the remaining walls of the building in like manner.

6. The method of constructing concrete dwellings and the like of more than one story, which consists in providing a suitable foundation, forming in horizontal position alongside one face of the latter one concrete wall, for the first story, adapted to carry its share of the weight of the superstructure, swinging said wall about a horizontal axis to erect position upon its foundation, adding the remaining sides of the first story in like manner, connecting the walls together and adding in like manner the walls of the next story.

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

ROBERT H. AIKEN.

Witnesses:

WALLACE GREENE,
J. JEROME LIGHTFOOT.