H. E. CLOUSER AND E. R. THORNTON.

REINFORCED CONCRETE CONSTRUCTION.

APPLICATION FILED FEB. 9, 1920.

1,374,356. Patented Apr. 12, 1921.

Fig. 1

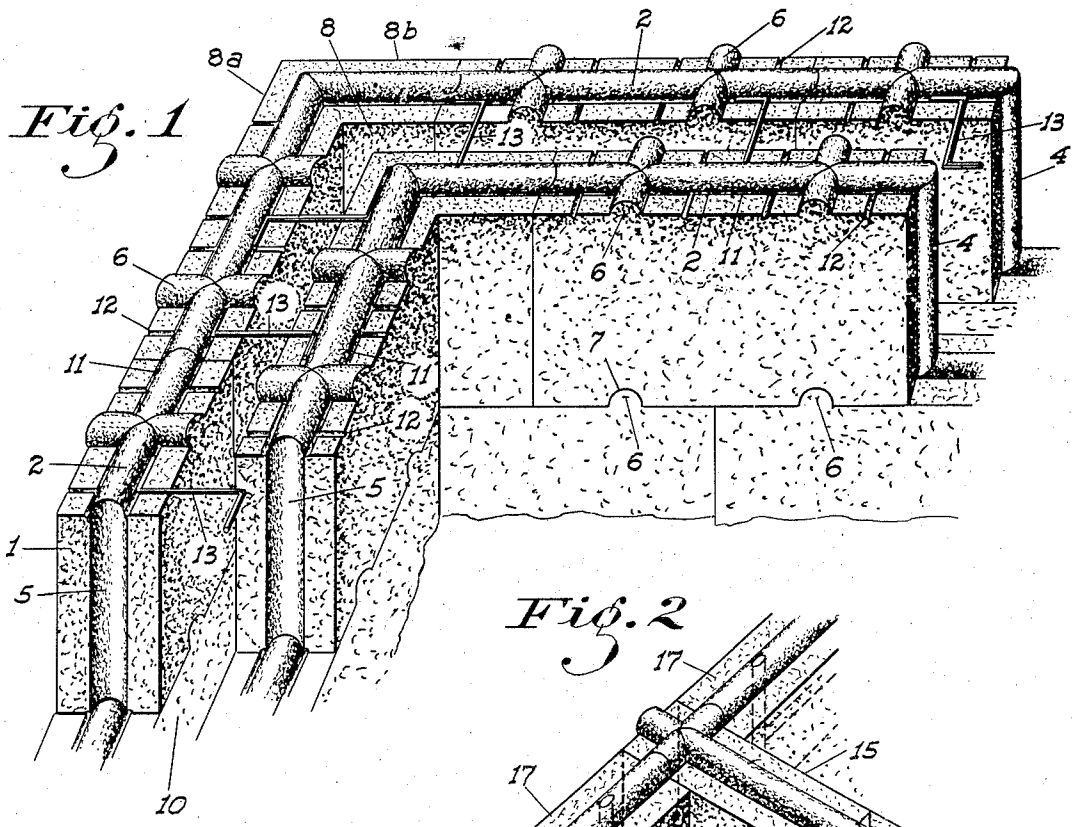


Fig. 2

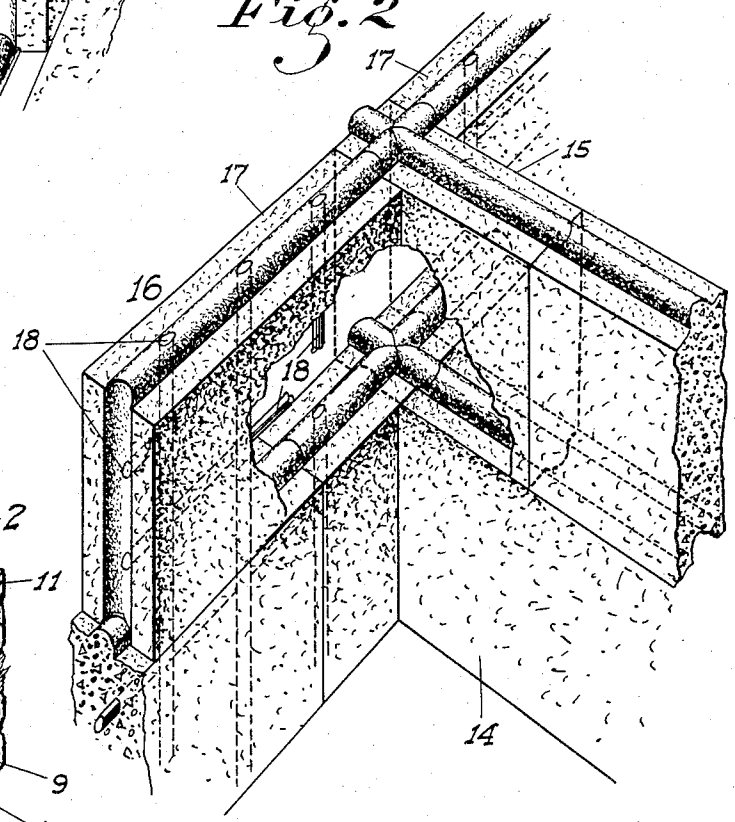
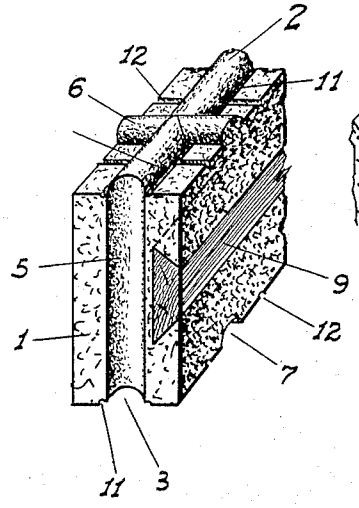


Fig. 3



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REINFORCED CONCRETE CONSTRUCTION.

1,374,356. Specification of Letters Patent. Patented Apr. 12, 1921.

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To all whom it may concern:

Be it known that we, HARRY E. CLOUSER and EDGAR R. THORNTON, citizens of the United States, residing at Stockton, in the county of San Joaquin, State of California, have invented certain new and useful Improvements in Reinforced Concrete Constructions; and we do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this application.

This invention relates to improvements in concrete construction and particularly to an interlocking block structure to be made in suitable sizes and adapted to be used to construct buildings and structures of all kinds.

The principal object of the invention is to provide concrete blocks which when laid together in the right manner will be firmly interlocked against movement in any direction, and hence will form a very rigid structure.

It is also our aim to use our blocks for double wall construction so that an unobstructed air passage will be had therebetween, the advantages of which are well known.

In order to firmly bind the two walls together without obstructing the air space, we have therefore provided separate metal attachments or binders to be held by the two walls and inserted in position when the walls are being built, and have provided means in the blocks for receiving these members without the necessity of building them into the blocks when making the same, or without mutilating the blocks to position the binders. These binders then are in themselves removable, but when the walls are built they cannot be moved in any direction without breaking the blocks.

Our blocks are also adapted to receive a finish surface of plaster directly on either face thereof, without the necessity of employing lath or similar holding background.

In order therefore to adapt these blocks for ordinary house construction, certain of the blocks will have a wooden strip secured therein lengthwise thereof to which a base board, picture molding or similar members may be nailed or otherwise attached, this strip being flush with the surface of the blocks and built into the block by first placing the same in the mold in which the blocks are poured in their making.

The partitions or division walls are also to be interlocked with the main walls and made of a single line of blocks of the same design, thereby further binding and bracing the structure into a rigid whole.

A further object of the invention is to produce a simple and inexpensive device, and yet one which will be exceedingly effective for the purposes for which it is designed.

These objects we accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views.

Figure 1 is a fragmentary perspective view of a double-walled corner built up of our improved blocks.

Fig. 2 is a similar view showing an interlocking partition construction.

Fig. 3 is a perspective view of a portion of a block having a wooden strip formed therein.

Referring now more particularly to the characters of reference on the drawings, the numeral 1 denotes the body of a block having central and longitudinal ridges 2 preferably semicircular in cross section, along one horizontal edge. A corresponding depression or groove 3 extends along the other edge being adapted of course to receive the ridge of the adjacent block.

Similarly one vertical end of each block has a ridge 4 while the other end has a depression 5.

The blocks may also have transverse ridges 6 on the edge having the ridges 2, and corresponding depressions 7 on the opposite edge.

These however may be omitted in the ordinary blocks, as shown in Fig. 2.

The corner blocks 8 are preferably formed as suitably angled units, one side 8^a of each being twice as long, measured along the outside, as the other side 8^b. This is in order to be able to lay the corner blocks so that a staggered effect, not only with them but with the straight blocks following, may be had, as said corner blocks are formed and laid so that each one extends half over the adjacent one on one end, and falls short of it a corresponding amount the other end.

For this reason the transverse ridges and grooves 6 and 7, in order to aline under all conditions, must be placed a quarter of the length of a block from each end, there being two of such ridges and depressions on each block.

Certain blocks would have a wooden strip 9 formed or built therein flush with one face thereof in order to be able to fasten picture moldings, etc., thereto. These strips, as previously stated, are laid into the mold in which the blocks are formed, and are preferably wedge shaped or dove-tailed, so as to prevent their becoming loose and being ripped out.

As stated, it is our intention in certain kinds of construction, to use double walls, each wall being formed of the same kind of blocks suitably spaced apart to leave a continuous air space 10.

Each block has small semicircular channels 11 running lengthwise thereof adjacent the ridges and depressions 2 and 3, and a plurality of similar transverse channels 12 communicating thereof and extending to the sides of the block.

Z-shaped metal binders 13 are adapted to extend between the two walls, resting partly in the transverse channels 12 and partly in the longitudinal channels 11. These members are preferably circular in cross section, and project halfway above each channel, when laid in position. Then when other blocks are laid in position thereover, the corresponding channels therein receive the projecting portion of the binders, and the same are then rigidly held in position and cannot be removed. It will thus be readily seen that they hold the walls rigidly in spaced relation, without interfering with the air space.

In building with our blocks, no trowels are used and only a wash coat of cement of the consistency of paint to be applied with a suitable paint brush, is placed between the blocks, allowing them to fit closely.

On account of the fact that our blocks are to be formed in an accurate mold, they will lay up true without the use of a considerable thickness of mortar such as is usually necessary to not only bind the structure but serve as an aid in truing the wall up.

This wash coat of cement then serves as a sealer rather than as a binder for the blocks, hermetically sealing the same together and making a unit structure, practically as strong and firm as one of solid concrete would be.

When building a partition in conjunction with an inner wall of our block construction, the same is preferably built up by having one partition block as 14 abut against the wall, the next one 15 overlap the wall 16 the thickness thereof, the wall blocks 17 on the plane thereof abutting thereagainst, and so on in staggered relation. This is shown in Fig. 2. Of course the blocks in both wall and partition at their connection would have to be special, so that they may have therein the necessary and properly positioned ridges and grooves to provide the interlocking features which are a vital feature of our block construction.

When employing our blocks in building a very heavy or tall structure, reinforcing irons 18 would be embedded in the blocks, both longitudinally and vertically as shown in Fig. 2. These irons would extend to but not beyond the edges of the blocks, and would be so positioned that they would all aline in the completed structure.

By this means, a reinforcing is had for the blocks, which greatly increases their tensional strength and their ability to resist crushing, this latter factor being a cause of considerable trouble in large heavy buildings, in which the accumulated weight is sufficient to crush or crack the lower blocks. Our blocks, being always arranged in staggered order will be immune from any such trouble, and the reinforcing irons will be as much of value as if actually continuous throughout the structure.

We may also of course form the outside faces of any blocks so that they have any desired design or shape, so as to serve for copings, etc., and be sufficiently ornamental without the necessity of adding on other members to give the desired effect.

From the foregoing description it will be readily seen that we have produced such a device as substantially fulfils the object of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claim.

Having thus described our invention what we claim as new and useful and desire to secure by Letters Patent is:—

In building blocks having each a longitudinally and centrally positioned ridge along one horizontal edge and a corresponding groove along the opposite edge, longitudinal

channels on each side of the ridges and grooves, transverse connecting channels between the longitudinal channels and the faces of the blocks, the latter being adapted to be laid in horizontally spaced rows to form the building, and Z-shaped metal binders arranged to seat in the adjacent transverse channels of spaced blocks and in the corresponding longitudinal channels thereof.

In testimony whereof we affix our signatures.

HARRY E. CLOUSER.
EDGAR R. THORNTON.