G. E. SMALL.

BLOCK OR SLAB FOR REINFORCED HOLLOW WALL CONSTRUCTION.

APPLICATION FILED SEPT. 15, 1915.

1,214,964.

Patented Feb. 6, 1917.

2 SHEETS—SHEET 1.

Fig. 3.

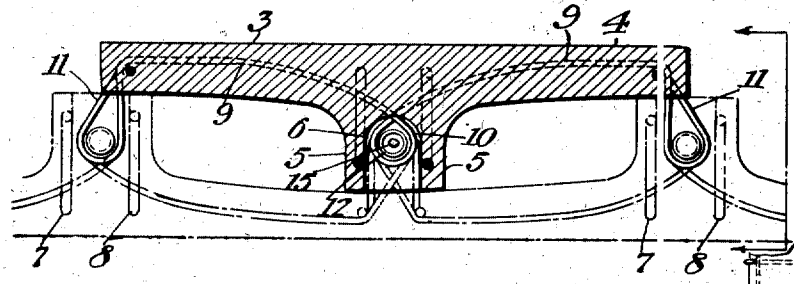


Fig. 2.

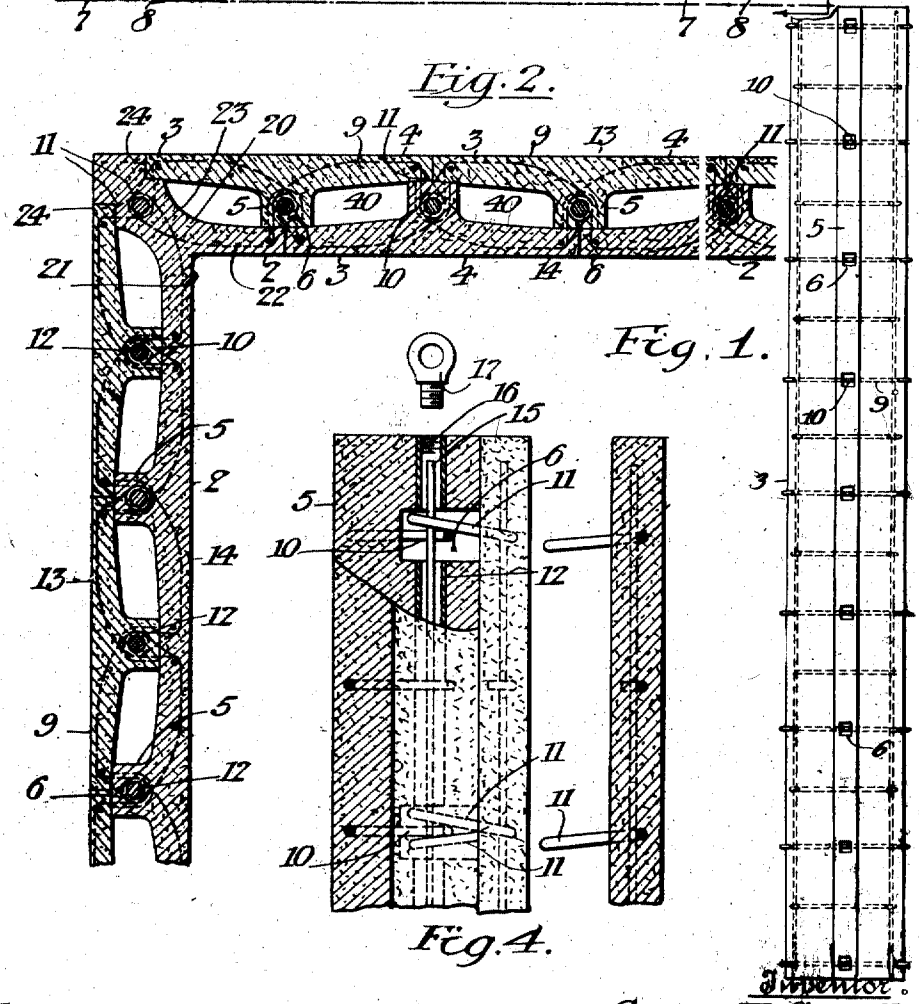


Fig. 1.

Fig. 4.

Witnesses

Titus K. Jones

Minnie Burris Small

George E. Small.

By His Attorney.

C. P. Small

G. E. SMALL.

BLOCK OR SLAB FOR REINFORCED HOLLOW WALL CONSTRUCTION.

APPLICATION FILED SEPT. 15, 1915.

1,214,964. Patented Feb. 6, 1917.

2 SHEETS—SHEET 2.

Fig. 5.

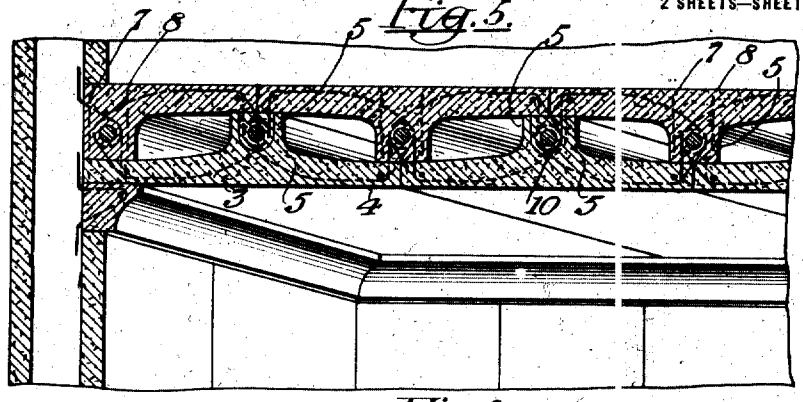


Fig. 6.

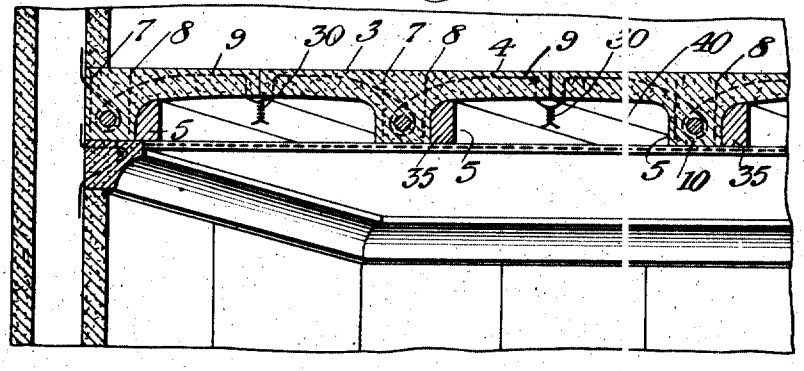
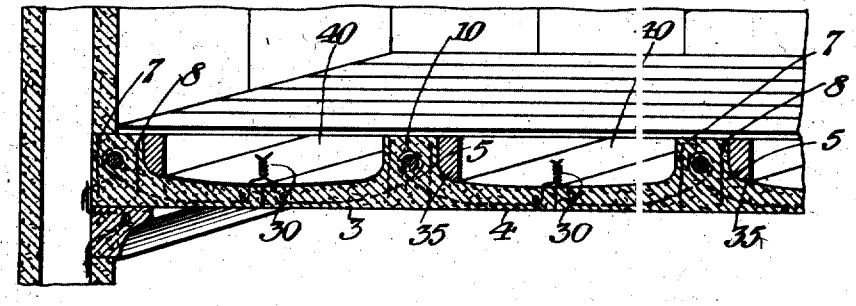


Fig. 7.



Witnesses:
Thos. H. Sims.
Minnie Burns Small.

Inventor.
George E. Small.
By ___ Attorney

UNITED STATES PATENT OFFICE.

GEORGE E. SMALL, OF RICHMOND HILL, NEW YORK.

BLOCK OR SLAB FOR REINFORCED HOLLOW-WALL CONSTRUCTION.

1,214,964. Specification of Letters Patent. Patented Feb. 6, 1917.

Original application filed May 6, 1915, Serial No. 26,209. Divided and this application filed September 15, 1915. Serial No. 50,725.

To all whom it may concern:

Be it known that I, GEORGE E. SMALL, a citizen of the United States, residing at Richmond Hill, in the county of Queens and State of New York, have invented certain new and useful Improvements in Blocks or Slabs for Reinforced Hollow-Wall Construction, of which the following is a specification.

This invention relates to that class of structures in which the several parts thereof comprising the floors, walls, etc., are constructed of hollow concrete or cement blocks, the object of the invention being to provide an improved construction of reinforced concrete or cement hollow walls in which an improved slab or block of this character is utilized in the building of such a structure, the present improvement being a division of my contemporaneously pending application, Serial No. 26,209, filed May 6, 1915.

One of the objects of the invention is the provision of an improved reinforced slab or block which may be manufactured at a very low cost and which, with companion blocks, may be readily assembled and so interlocked one with another that the structure will have the appearance of a monolith.

Another object of the invention is the provision of improved reinforcing means for the slabs or blocks, which reinforcing means may also be utilized as a means for connecting or locking one block with companion blocks, whereby the several blocks when assembled are so bound together that a very solid reinforced structure is obtained, and by reason of the improved formation of the blocks the structure is provided at intervals with hollow spaces which may be readily utilized for the passage of pipes, conduits, etc.

Another object of the invention is the provision of an improved slab or block so constructed and reinforced and provided with improved means for uniting it with companion blocks that such block or slab may be made of great length, so that in many instances it may be of sufficient length to reach the full height of the structure on the outside of the building and the height from floor to ceiling on the inside.

In the drawings accompanying and forming part of this specification, Figure 1 is a view of one side of one of the slabs or blocks which may be utilized with this improved construction; Fig. 2 is a sectional view illustrating the manner of assembling the slabs shown in Fig. 1 to form hollow reinforced walls; Fig. 3 is an enlarged partly sectional view illustrating a portion of the structure shown in Fig. 2; Fig. 4 is a partly vertical sectional view showing a portion of a block interlocked with the beam portion of another block and also separate therefrom, and illustrating the manner in which the blocks are interlocked, and the means for accomplishing this purpose; Fig. 5 illustrates a combined floor and ceiling constructed of these improved slabs; Fig. 6 also illustrates a floor having an attached ceiling in the form of a metal lathing; and Fig. 7 illustrates a ceiling constructed of these improved slabs and having an attached floor.

Similar characters of reference indicate corresponding parts in the several figures of the drawings.

As hereinbefore stated, each of the cement or concrete blocks or slabs 2 will usually be of a length to correspond with the height of the structure, and in Fig. 1 in the present instance the slab is shown of a length about seven and a half times that of its width. It will, of course, be understood, however, that the length of the slab or block will correspond either with the height of the structure or with the distance between the ceiling and the floor and may be made of any length within reasonable limits.

In the preferred form thereof herein shown and described each of the slabs of the form shown in Fig. 1 comprises a pair of oppositely extending wing portions 3 and 4, which may be made, if preferred, of slightly tapered form, which wing portions are united in the present instance centrally thereof by a lengthwise extending body or beam portion 5 serving to reinforce the slab or block, and which beam portion is provided at intervals throughout its length with inwardly extending recesses 6, which recesses communicate one with another and with the ends of the block by sections of pipe 12 located in place during the casting of the slab. These recesses 6 are for the reception of the means for interlocking the several slabs to-

gether. When slabs of this form are used for floor construction they may be further reinforced by reinforcing bars 7, 8, see Figs. 3, 5, 6, and 7. These, however, are not necessary when the slabs are used for the construction of side walls. Each of these slabs is at intervals reinforced by the provision of a metal rod or bar 9 extending through the said wings, and certain of these reinforcing rods are located to have the inner ends thereof adjacent to a recess 6 and are so bent as to form a loop 10 extending into such recess 6. These same looped rods at the ends or sides of the slab project therefrom to form loops 11, which loops are of sufficient length to project into the recesses 6 hereinbefore described of companion slabs.

In assembling the several slabs made in the manner described, it will be observed that in Figs. 2 and 3 the outer and inner rows 13 and 14 of slabs break joint with each other and in such manner that the recesses 6 of each slab receive a pair of loops 11 of a companion pair of slabs into overlapping relation with the loop 10, whereby when assembled a locking rod 15 can be inserted through the several sets of loops lengthwise of the slab and thus interlock the several slabs or blocks together. For the purpose of facilitating the insertion of this rod the sectional portions of pipe 12 hereinbefore referred to are located in the slab during the casting thereof, and the pipe at each end of the slab may be internally threaded, as at 16, for the reception of a lifting eye-plug 17, see Fig. 4, whereby the slab may be readily hoisted into position. As stated, the reinforcing rods 9 are provided with loops at intervals, these intervals corresponding to the position of the recesses 6. At other intervals reinforcing rods may be used, which, however, it is unnecessary to provide with loops. When the walls are assembled at right angles to each other a corner slab 20 of substantially the form shown in Fig. 3 may be used, this corner slab likewise having a pair of wing portions 21 and 22 meeting in a body portion 23 having rabbeted portions 24 for the reception of the side edges of a pair of outer wall blocks. This corner block is likewise provided with recesses at intervals by means of which the loops of companion blocks may be interlocked with the loop of the reinforcing rod of the corner block in the manner hereinbefore described.

From the foregoing it will be observed that the blocks are so interlocked together that they practically form a unitary structure and also provide hollow spaces between them for the reception of pipes or conduits or any suitable filling material which it may be desired to insert therein. By means of the pipes hereinbefore referred to, after the slabs are assembled grouting may be run into the several recesses, thus making a solid reinforced concrete connection and joint, such grouting when in position closing any opening that may exist.

The blocks may be assembled in the manner described to form a floor or ceiling, but, as hereinbefore stated, when utilized as a floor reinforcing bars 7 and 8 are preferably used. In Fig. 6 the blocks are shown assembled in the manner hereinbefore described, to form a combined floor and ceiling. In Fig. 6, however, an outer row of blocks only is used to form a floor, to which is attached a ceiling, such blocks being connected in the same way as shown in Fig. 7, where they form a ceiling to which is attached a floor and have their reinforcing rods twisted together, as at 30, to hold such blocks in position. In both of these instances nailing strips 35 are secured to the concrete or cement blocks by suitable bolts located at intervals, and to these strips may be secured metal lathing, as in Fig. 6, or a wooden floor, as in Fig. 7, the hollow spaces 40 being utilized, as hereinbefore stated, either for the location of gas piping, conduit for electric light wiring, or for the carrying of hot water air ducts or steam heating appliances if so desired, and these spaces, when the structure is utilized as a floor, may be filled with sand, sawdust, asbestos or any other sound resisting material, thereby providing a soundproof floor, which is especially desirable in apartments.

In assembling the several slabs to form a wall structure, molding pieces of cement or concrete, such as 50, 60 and 70 may be used, and each of these is likewise reinforced by metal rods 71 having projecting ends 72 so located as to overlap companion blocks, as at 73. In some instances these rods may be twisted together, as at 74.

The height of one floor having been constructed in the manner hereinbefore described, this is repeated throughout the height of the building.

Of course it will be understood that the outer faces of the walls and faces of the ceilings may be provided with a cement coating or stucco, or the slabs may be pebble dashed when they are first removed from the molds, as may be preferred.

It will also be observed that in each instance the preferable way to maintain and secure the reinforcing rods in position is to provide such reinforcing rods with loops or eyes through which may extend a rod or bar. It will also be understood that the various details may be more or less modified without departing from the spirit and scope of this improvement, which consists mainly in the improved form of cement or concrete block or slab which permits it to be made of great length as compared with its width, and the improved manner of interlocking one slab with companion slabs, whereby a

unitary structure is provided and an improved hollow reinforced wall construction obtained.

I claim as my invention:

1. A construction block or slab having a pair of projecting wing portions and on the inner side thereof a lengthwise extending centrally located beam portion, the beam portion of each block having a face adapted to abut against the wing portions of a pair of companion blocks, said beam having at intervals in its length recesses therein located in the abutting face thereof and reinforcing means located in said slab at intervals and having loops or eyes projecting into said recesses.

2. A construction block or slab having a pair of projecting wing portions and on the inner side thereof a lengthwise extending centrally located beam portion, the beam portion of each block having a face adapted to abut against the wing portions of a pair of companion blocks, said beam having at intervals in its length recesses therein located in the abutting face thereof and reinforcing means located in said slab at intervals and having loops or eyes projecting into said recesses and also having loops or eyes projecting at the edges of said block.

3. A construction block or slab comprising a pair of wing portions and a reinforcing beam portion, said slab having one of its dimensions of materially greater length than another and said beam portion extending in the direction of the greatest dimension of the slab and having recesses at intervals throughout its length, said recesses being located in the rear face of the beam portion, and reinforcing means located in the slab and having eyes or loops extending into said recesses and also having eyes or loops projecting from the edges of said slab.

4. A construction block or slab comprising a pair of wing portions and a reinforcing beam portion, said slab having one of its dimensions of materially greater length than another and said beam portion extending in the direction of the greatest dimension of the slab and of equal length therewith and having recesses at intervals throughout its length, said recesses being located in the rear face of the beam portion, and reinforcing means located in the slab and having eyes or loops extending into said recesses and also having eyes or loops projecting from the edges of said slab.

Signed at Richmond Hill, in the county of Queens and State of New York, this 4th day of September, 1915.

GEORGE E. SMALL.