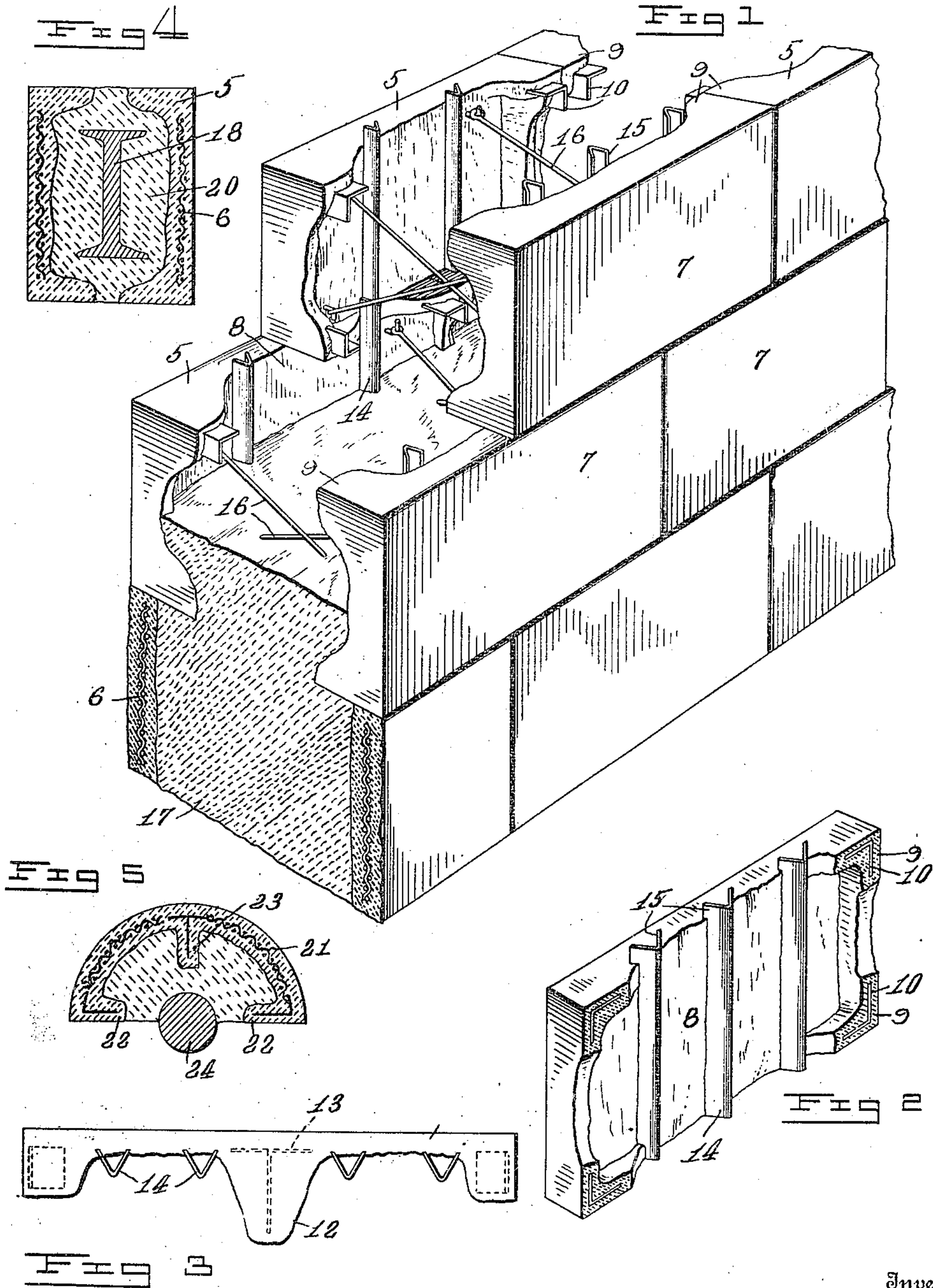


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 CONCRETE BLOCK AND WALL CONSTRUCTION.
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959,629.

Patented May 31, 1910.



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To all whom it may concern:

Be it known that I, JOSEPH J. SLEEPER, a citizen of the United States, residing at Moore, in the county of Delaware and State of Pennsylvania, have invented new and useful Improvements in Concrete Block and Wall Construction, of which the following is a specification.

My present invention relates to certain new and useful improvements in concrete wall constructions and has for its objects to provide a novel form of facing block and a novel manner of arranging said blocks in conjunction with a concrete filling whereby to provide a solid or homogeneous wall structure, without the employment of molds such as are now commonly used.

One purpose of the invention is to provide a novel and a simple construction of concrete facing block, suitably reinforced and having a finished outer face, and, what may be termed a rough or unfinished inner face, the construction being such that when the blocks are arranged in parallel tiers with an intermediate filling, a solid or homogeneous wall structure will be formed.

Another purpose of the invention is to form, in a simple and expeditious manner, air spaces in the wall structure, adjacent the outer and inner wall-faces in order to provide a comparatively dry wall, which is a feature of no small importance in concrete constructions.

Other features and objects will appear in the detailed description of the invention now to follow, and which may be read in conjunction with the accompanying drawing, wherein:—

Figure 1 is a part perspective and part sectional view of a wall structure built according to the present invention. Fig. 2 is a perspective view looking at the inner or unfinished side of one of my improved concrete facing blocks, the corner projections being cut away to show the corner reinforcing means. Fig. 3 is a top plan view of one of my improved blocks having an additional or central rib or projection and reinforce. Fig. 4 is a transverse sectional view of a concrete girder made from facing blocks constructed according to this invention. Fig. 5 is a transverse sectional view of a facing block made according to my invention and designed for use in building concrete columns.

Referring to the drawing, the reference

numeral 5 designates a facing block constructed according to the present invention and which is made of concrete in a suitable mold, preferably rectangular in shape and strengthened by some suitable reinforcing material as shown at 6, Fig. 1. The outer face 7, of the block may be finished as desired to represent cut or dressed stone while the inner face 8 is rough or unfinished (irregularly surfaced) in order that a better and stronger union may be had with the concrete filling hereinafter to be described. Each block is provided on its inner face, at the four corners, with corner-projections 9, each of which corner-projections is rough or unfinished as shown and suitably reinforced by means of angle-pieces 10, which may or may not be exposed through the ends of the projections, but having, however, their angle faces extending in approximate parallelism with the faces of the corner projections.

Blocks constructed as shown and described and built up in a wall structure, will unite closely and solidly with the concrete filling to form a solid and homogeneous wall.

As will be seen by an inspection of Figs. 1, 2 and 3, the block has the general appearance of a block the periphery of which is in the form of a rearwardly extending peripheral flange recessed intermediate the intersecting points of the planes of the peripheral faces, thereby forming the corner projections heretofore referred to. The recesses for the top and bottom walls of the block are of a depth to cause the recessed portions of the flanges or walls to be in approximate alinement with the remainder of the inner face of the block, while the recesses at the ends are not as deep, thus providing that the end walls or flanges form a barrier against a connection of the filling material between adjacent blocks equal in cross sectional area to that between the recessed portions of opposing blocks, the recesses also being irregularly surfaced as indicated. By this construction the blocks may be arranged in superposed rows without placing in a vertical plane of the inner face any overhanging ledges or projecting faces excepting those of the corner pieces and the portions leading from the corner projections to the recessed portions, with the result that the filling material may be placed in position without the requirement of a tamping of the material throughout the length of the block,

such tamping being required only at the corner projections, and the recesses providing for an extended space within which to operate during the tamping operation, so that where the thickness of the wall formed by the opposing blocks and the filling is such as to provide but little space between the opposite facing blocks, no difficulty will be had in causing the filling material to be properly tamped within the corner projections, the tamping tool being operable in a direction in approximate parallelism with the face of the block. Furthermore, the irregularly-surfaced end recesses practically form keys against a raising movement of the block when the filling material is in position, the blocks being laid with break joints so that the corner projection is embedded in the filling material in the manner shown in Fig. 1.

In cases where the blocks are of unusual dimensions, I contemplate providing them with a central transverse projection 12 as shown in Fig. 3, said projection having embedded therein a T-shaped reinforce 13, of "slashed" or other expanded metal. The central projection will be made rough or unfinished on its inner face as is the case with the corner projections.

If desired each block may have embedded therein one or more channel-irons or pieces 14, as shown, in order to provide air-spaces in the finished wall. The channel pieces preferably project beyond one edge of the block as at 15, in order that the end of one of such channel pieces may enter the end of a similar piece carried by a superposed block whereby to provide continuous air spaces throughout as much of the wall as is desired. Or, instead of forming or embedding the channel-pieces 15, directly in the facing blocks, they may be removably arranged during the construction of the wall and used as molds. It will be obvious that the channel-pieces in either instance may be positioned as desired and any number may be used depending upon the air-spaces required.

In building up a wall structure with my improved facing blocks, the latter are first laid in parallel tiers as shown in Fig. 1, and if desired they may be connected by crossing or otherwise arranged tie-wires 16, and the concrete filling 17 is then run or tamped in the space between the two tiers of blocks. Owing to the fact that the inner faces of the blocks are rough or unfinished and by reason of the reinforced corner projections on the blocks, it will be apparent that the concrete filling, finding its way into all the crevices and interstices, as it does, will form a close union with the facing blocks and a solid and homogeneous concrete wall structure will be provided. By the employment of facing-blocks, which in themselves serve as the confining molds for the concrete fill-

ing, I am able to dispense with the wooden molds now ordinarily employed in constructing concrete walls thus reducing the cost and greatly facilitating and expediting this class of work.

As before stated, the air-spaces may be formed by channel pieces 14, embedded directly in the facing-blocks, or these channel-pieces may be placed in position during the building of the wall and then withdrawn or simply drawn up step-by-step as the wall progresses and the filling sets sufficiently to enable this to be done.

In Fig. 4 of the accompanying drawing, I show a transverse sectional view of a concrete reinforced girder made according to my invention. The concrete facing blocks 5 are constructed precisely like those employed in building a wall, the blocks being arranged end to end in parallel rows as shown and between the two rows of blocks is supported, in any suitable manner, an iron girder or beam 18, preferably, but not necessarily, of I-shape in cross-section. The soft concrete filling 20, is then run or tamped in the spaces between the beam or girder and inner faces of the facing blocks and allowed to set or harden, it being understood that the I-beam is preferably entirely covered with the concrete, not only upon opposite sides but upon the top and bottom as shown. During construction the iron girder or beam may be supported by blocks or otherwise to bring it to the proper elevated position between the facing blocks 5, and the said supporting blocks may afterward be left embedded in the concrete filling or removed and the spaces filled with concrete. These girders may be conveniently constructed on the floor and then hoisted and set in position instead of building a scaffold where the girder is to be placed.

In building columns according to my invention, the facing blocks are made semi-cylindrical in cross-section as shown at 21, Fig. 5, each block being provided with end-projections 22, and one or more central ribs 23. The outer face of the block is finished or dressed while the inner face is rough or unfinished, and any suitable reinforcing material is used to strengthen the thin walls of the block as well as the ribs and projections. These blocks are arranged in pairs to make a cylindrical column and built up to the desired height. If desired, a metal or other reinforcing core 24 may be set vertically in the column and the space between the blocks filled in with concrete. The core 24 may or may not be used as desired. In making semi-cylindrical columns, the blocks are set one upon the other end to end, as in building a cylindrical column. Of course, the outer face of the blocks may be grooved or ornamented as desired.

It will be manifest that walls or columns

built according to my invention may be plumbed and finished when set, which is a decided advantage over such prior constructions wherein the wall must remain unfinished until the lumber forming the built-up mold is removed.

I wish it understood that I do not limit myself to the use of any particular reinforcing material, as any of the known forms may be employed. Neither do I wish to be understood as limiting myself to the precise construction or location of the diagonal wires employed in the wall construction, or as to how they are fastened to the facing blocks. I reserve to myself the right to such changes or additions as come fairly within the scope of the appended claims.

What I claim is:—

1. A facing block for concrete wall construction comprising a block provided with peripheral flanges or walls having faces extending in planes angular with respect to and intersecting each other, said flanges or walls being recessed intermediate the points of intersection to provide separated angular corners projecting inwardly and each having its outer faces angular with respect to each other, the recessed portions being of less length than the distance between the faces of opposing flanges, the block being of substantially equal thickness throughout the length of a vertical cross section thereof taken through the recesses at a point spaced from the intersecting points, whereby a horizontally extending projecting portion of the upper and lower flanges will be provided at each corner of the block.

2. A facing block for concrete wall construction comprising a block provided with peripheral flanges or walls having faces extending in planes angular with respect to and intersecting each other, said flanges or walls being recessed intermediate the points of intersection to provide separated angular corners projecting inwardly and each having its outer faces angular with respect to each other, the recessed portions being of less length than the distance between the faces of opposing flanges, the block being of substantially equal thickness throughout the length of a vertical cross section thereof taken through the recesses at a point spaced from the intersecting points, whereby a horizontally extending projecting portion of the upper and lower flanges will be provided at each corner of the block, said block having an inwardly projecting rib extending vertically intermediate the ends of the block.

3. A facing block for concrete wall construction, having inwardly projecting corners, each corner having its faces extending angular with respect to each other, and a reinforcing member for each corner, each member being angular in cross section, and having its direction of length corresponding

with the direction of projection of the corner, the angle faces of the member being in approximate parallelism with the faces of the corner.

4. A facing block for concrete wall construction, having inwardly projecting corners, each corner having its faces extending angular with respect to each other, and a reinforcing member for each corner, each member being angular in cross section and having its direction of length corresponding with the direction of projection of the corner, the angle faces of the member being in approximate parallelism with the faces of the corner, said member being of a length to project beyond the inner end of the corner to provide an exposed metallic portion embedded within the corner and extending in a direction corresponding with the direction of length of the corner.

5. A concrete wall structure comprising parallel tiers of facing blocks, each block embodying a block provided with peripheral flanges or walls having faces extending in planes angular with respect to and intersecting each other, said flanges or walls being recessed intermediate the points of intersection to provide separated angular corners projecting inwardly and each having its outer faces angular with respect to each other, the recessed portions being of less length than the distance between the faces of opposing flanges, the block being of substantially equal thickness throughout the length of a vertical cross section thereof taken through the recesses at a point spaced from the intersecting points, whereby a horizontally extending projecting portion of the upper and lower flanges will be provided at each corner of the block, and a filling of concrete material between the tiers of blocks, said filling embedding faces of the corner projections.

6. A concrete wall structure comprising parallel courses or tiers of facing blocks, a filling of concrete material between the blocks, and means for forming an air space extending vertically of the wall on the plane of the inner face of the blocks, said means cooperating separately with each block facing, and being spaced from the opposing block to permit of the presence of concrete filling between the means and such opposing block, the separate cooperating portion of the means being of a length approximately equal to the height of the block.

7. A concrete wall structure comprising parallel courses or tiers of facing blocks, a filling of concrete material between the blocks, and means carried by the blocks for providing an air space or spaces in the wall structure, the means of one block being out of contact with the opposed block to permit of a concrete filling therebetween.

8. A concrete wall structure comprising

parallel tiers of facing blocks with corner projections, a filling of concrete material between the tiers of blocks in which the corner projections are embedded, and separate channel strips for each row of blocks of the wall embedded in the wall to provide air spaces, the strips of one row registering with the strips of the succeeding row.

9. A facing block for concrete walls, comprising a concrete shell, and a channel iron having longitudinal edges arranged transversely of the block and having said edges partially embedded in the inner face thereof.

10. A facing block for concrete walls, com-

prising a concrete shell, and a channel iron having longitudinal edges arranged transversely of the shell and extending across said shell and having said edges partially embedded in the inner face of the shell, one end of the channel iron projecting beyond the edge of the shell.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOSEPH J. SLEEPER.

Witnesses:

URSULA C. McMANUS,
HENRY J. WALTER.