I. B. HILL.

BUILDING CONSTRUCTION.

APPLICATION FILED APR. 26, 1913.

1,101,183.

Patented June 23, 1914.

2 SHEETS—SHEET 1.

Fig. 1

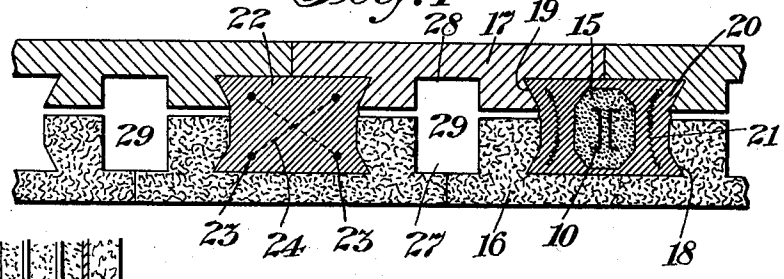


Fig. 2

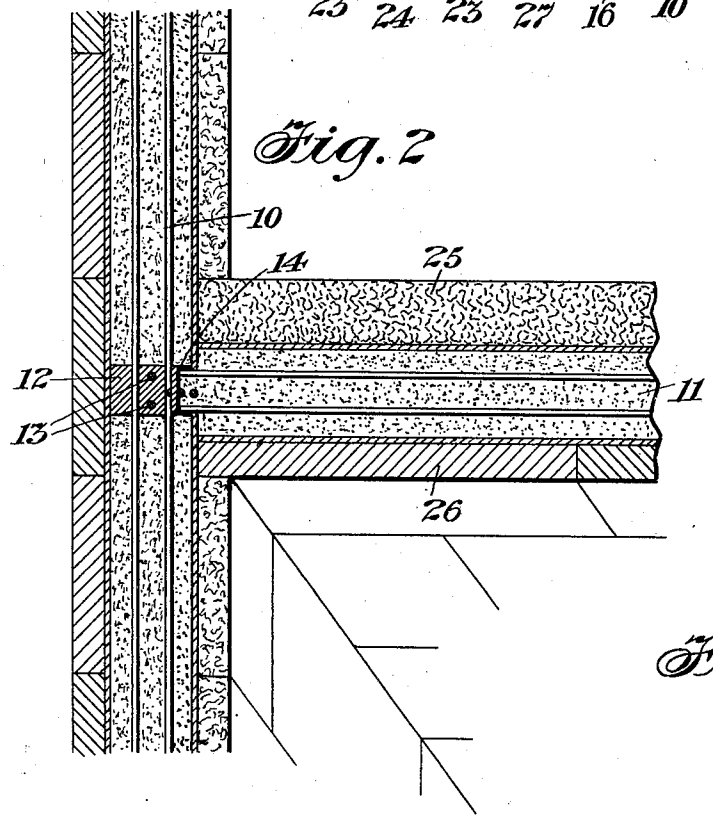
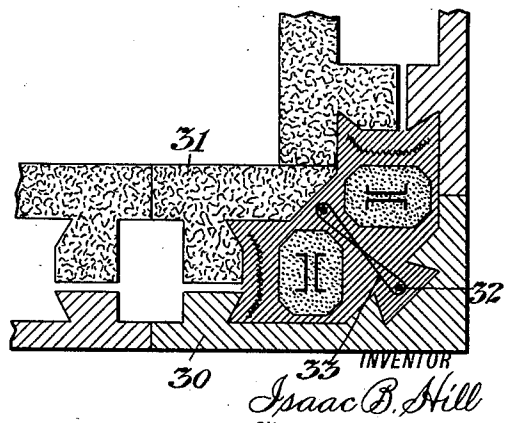


Fig. 3



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 4

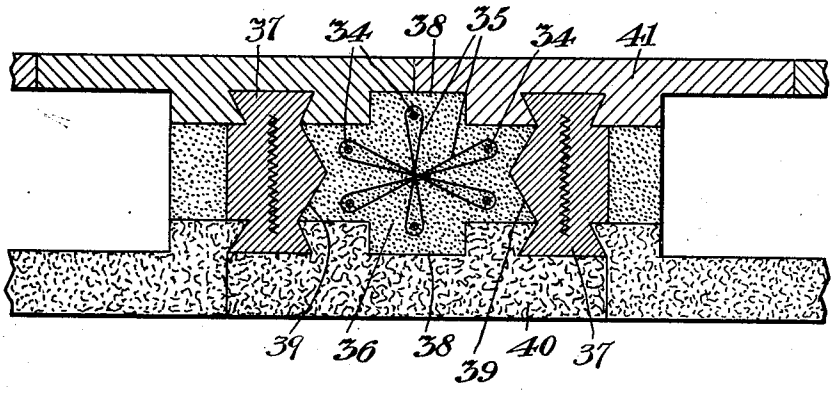
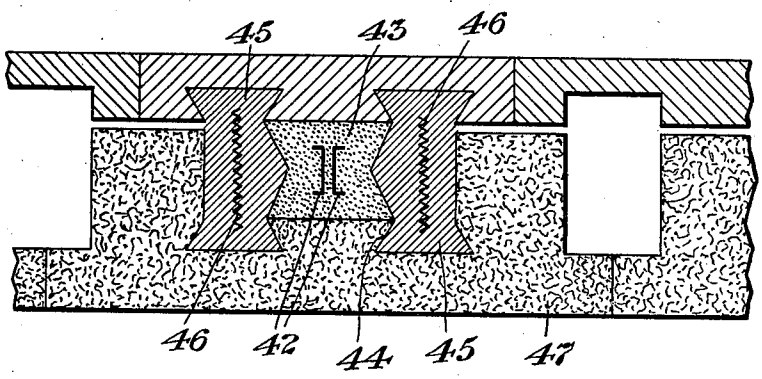


Fig. 5



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BUILDING CONSTRUCTION.

1,101,183. Specification of Letters Patent. Patented June 23, 1914.

Application filed April 26, 1913. Serial No. 763,737.

To all whom it may concern:

Be it known that I, ISAAC B. HILL, a citizen of the United States, residing in Plainfield, in the county of Union and State of New Jersey, have invented an Improvement in Building Construction, of which the following is a specification.

I am aware that heretofore walls and similar parts of buildings have been formed of inner and outer facing blocks suitably keyed together, but so far as I am aware, the walls so constructed have not been connected or secured to the frame work of the building except in the usual manner, and the object of my invention is to so construct a building that the frame work and walls thereof are so united as to constitute a practical and substantial monolith structure.

In carrying out my invention, I preferably provide a frame work made of suitably constructed uprights or risers, and cross pieces or girders, forming what I am pleased to term key-cores, to which, after having been suitably placed, the slabs or blocks forming the inner and outer faces of the walls, floors and ceilings are connected by being keyed to intermediate members which are also keyed to the said key-cores, as will be hereinafter more particularly described.

In the drawing, Figure 1 is a cross section showing a portion of a wall constructed in accordance with my invention. Fig. 2 is a sectional elevation illustrating a wall and floor constructed as shown in Fig. 1, and also illustrating the manner in which the cross pieces or girders are secured to the uprights or risers. Fig. 3 is a view similar to Fig. 1 illustrating one manner in which the corner of a building may be constructed, and Figs. 4 and 5 are also views similar to Fig. 1, illustrating modified forms of the invention.

Referring to the drawing, and particularly to Figs. 1 and 2, in carrying out my invention, the frame or skeleton of the building is preferably made of a series of uprights or risers, indicated at 10, and also series of cross pieces or girders indicated at 11. These parts, as indicated in these figures, are preferably formed of a pair of U-bars, which are surrounded and connected by a body of cement 15, or other suitable material, and these parts are preferably preformed. The upright members 10, as shown in Fig. 2, are placed one above the other, and connected by suitable straps 12 and rivets 13, and the ends of the girders 11 are connected to and secured in suitable brackets 14, as is also indicated in this figure. After these uprights and cross pieces have been connected to form the frame and skeleton of the building, the blocks or slabs forming the outer and inner faces of the walls, floors and ceilings are suitably placed in position.

As shown in Figs. 1 and 2, the inner walls may be composed of a plurality of blocks or slabs 16, made of artificial stone or other material, and the outer faces may be made of a plurality of blocks or slabs 17, made of terra cotta or other similar material. The blocks 16, forming the inner wall, are suitably provided in their inner faces with undercut recesses, indicated at 18, and similarly and in suitable positions in their inner faces the outer slabs forming the outer wall are provided with undercut recesses 19, and when these slabs, forming the inner and outer faces of the wall, are placed in position, the undercut recesses in the adjacent faces thereof assume corresponding positions relatively to the uprights 10 and cross pieces 11. After the slabs forming the walls and floors and ceilings have been placed in position, the uprights and cross pieces are completely surrounded by a concrete key, indicated at 20, which also completely fills the said undercut recesses in all the slabs forming the inner and outer walls, so that these slabs are not only connected to each other, to form the wall, but are also secured to the key-cores, binding the whole structure together. As is also indicated in Fig. 1, the concrete keys 20 will be suitably reinforced by bands of corrugated material indicated at 21. Intermediate of the risers or cross pieces, I may also employ auxiliary concrete keys, indicated at 22. This, as plainly indicated, also extends between and fills the undercut recesses in the slabs forming the inner and outer faces of the wall, and may be suitably reinforced by a plurality of rods 23 connected by suitable binding wires 24 or otherwise.

Referring particularly to Fig. 2, it will be seen that the floor or series of slabs placed above the cross pieces 11, may be made of concrete 25 and the ceiling or slabs 26 secured to the under side of the cross pieces 11 may be made of terra cotta or other similar material.

Each of the slabs or blocks forming the

wall, floor and ceiling facings may be provided with recesses, indicated at 27 and 28, respectively, forming, when the blocks or slabs are in place, an aperture 29 between the facings of the wall or floor and ceilings. These recesses effect a saving of material in constructing a wall, lessen the weight thereof, and also provide means for ventilation, when necessary, without decreasing the strength of the structure.

As shown in Fig. 3, the blocks 30 forming the outer facings may be made of terra cotta and the blocks 31 forming the inner facings may be made of artificial stone. The concrete key, as shown in this figure, locking together the blocks forming the corner, may be further reinforced by the use of the rods 32 and connecting wires 33.

In reference to Figs. 4 and 5, in which modifications of the invention are illustrated as adaptable to walls of relatively great thickness, the key-cores, as shown in Fig. 4, may be composed of a plurality of rods 34 suitably connected by the wires 35, and the whole surrounded by a suitable concrete body 36, forming the key-cores, which on opposite sides is provided with ribs 38, adapted to be received in recesses provided therefor in the blocks 40 and 41 forming the outer and inner faces of the wall, and the key-core 36, on its other sides, is provided with angular recesses 39, into which portions of the concrete keys 37 extend and fit after the same have been poured. These concrete keys also extend into the undercut recesses of the blocks forming the inner and outer facings of the wall, as is hereinbefore described, and as will also be understood, these concrete keys may be suitably reinforced, as indicated in this figure.

By reference to Fig. 5, the key-core may be made of U-bars 42, secured in position and forming an upright or cross piece, by having a suitable cement covering 43 or otherwise in a manner similar to that described in connection with the structure shown in Figs. 1 and 2. The opposite sides of this form of key-core is also provided with angular recesses 44, adapted to receive a portion of the concrete keys 45 in a manner similar to that described in connection with the construction shown in Fig. 4, and, as is also shown in Fig. 5, the concrete keys 45 are suitably reinforced by corrugated bars or rods 46. These concrete keys 45, also extend into suitable undercut recesses in the blocks 47 and 48, and form respectively the inner and outer facings of the wall or floor and ceiling of a building.

I claim as my invention:

1. In a building construction, a plurality of concrete key cores which are pre-formed and set in place to comprise a frame, a plurality of face plates or blocks, in portions of the inner faces of which there are under-cut grooves pre-arranged in position to be adjacent the key cores when the plates are set in place, and a plurality of concrete binding keys, each filling the corresponding under-cut grooves in oppositely disposed face plates and extending between the same and in contact with the adjacent portion of a key core, which parts comprise a form into which the binding key is poured.

2. In a building construction, a plurality of reinforced concrete key cores which are pre-formed and set in place to comprise a frame, a plurality of face plates or blocks, in portions of the inner faces of which there are under-cut grooves pre-arranged in position to be adjacent the key cores when the plates are set in place, a plurality of concrete binding keys, each filling the corresponding under-cut grooves in oppositely disposed face plates and extending between the same and in contact with the adjacent portion of a key core, which parts comprise a form into which the binding key is poured, and reinforcing members extending transversely between the face plates in each of the binding keys.

3. In a building construction, a corner structure comprising a pair of pre-formed reinforced concrete key cores, a plurality of blocks forming the inner and outer corner face plates and provided in their adjacent surfaces with under-cut grooves in pre-determined positions, an angular binding key surrounding the said key cores filling the under-cut grooves in the said blocks and extending between the same to connect the blocks to the key cores and to each other, a reinforcing member in the binding key extending longitudinally thereof, and also transversely between the said key cores, and other reinforcing members in the said binding key extending transversely thereof at the distant sides of the said key cores.

Signed by me this 14th day of April, 1913.

ISAAC B. HILL.

Witnesses:
BERTHA M. ALLEN,
J. B. LE BLANC.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."