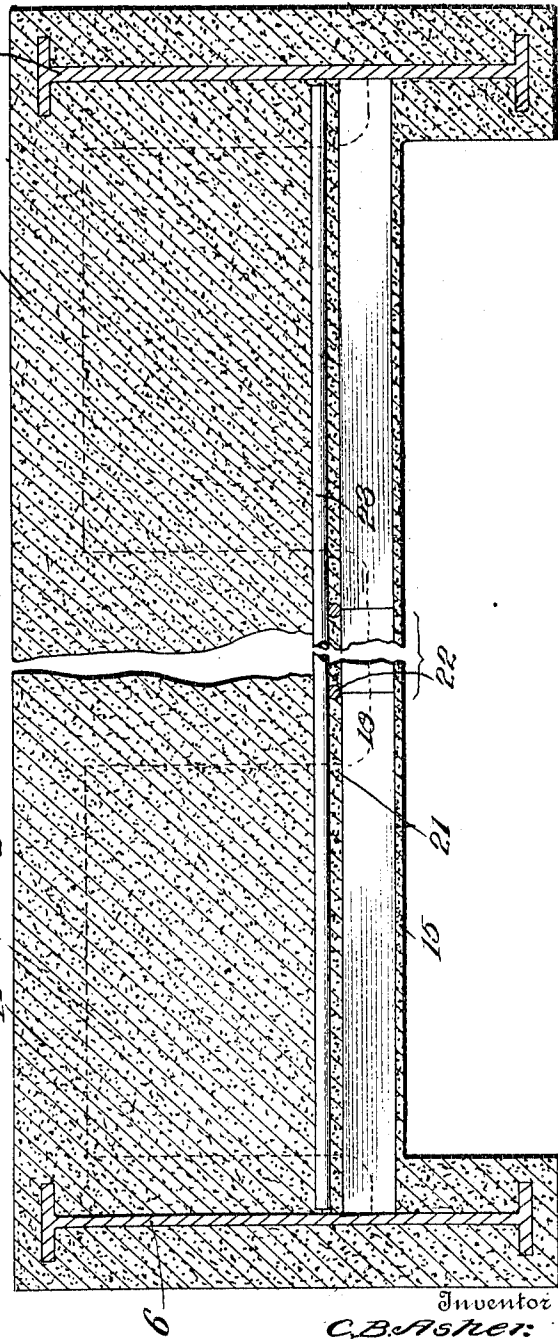
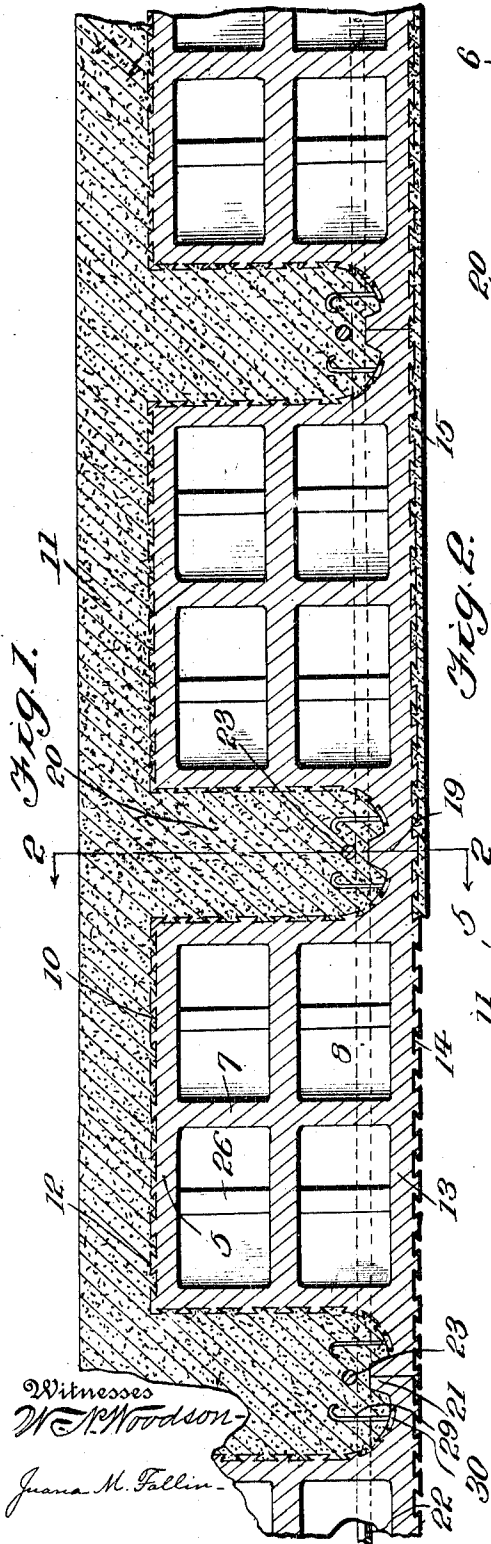


C. B. ASHER.
CONCRETE FLOOR CONSTRUCTION.
APPLICATION FILED MAR. 28, 1911.

1,006,423.

Patented Oct. 17, 1911.

2 SHEETS—SHEET 1.



By *W. A. Macy*

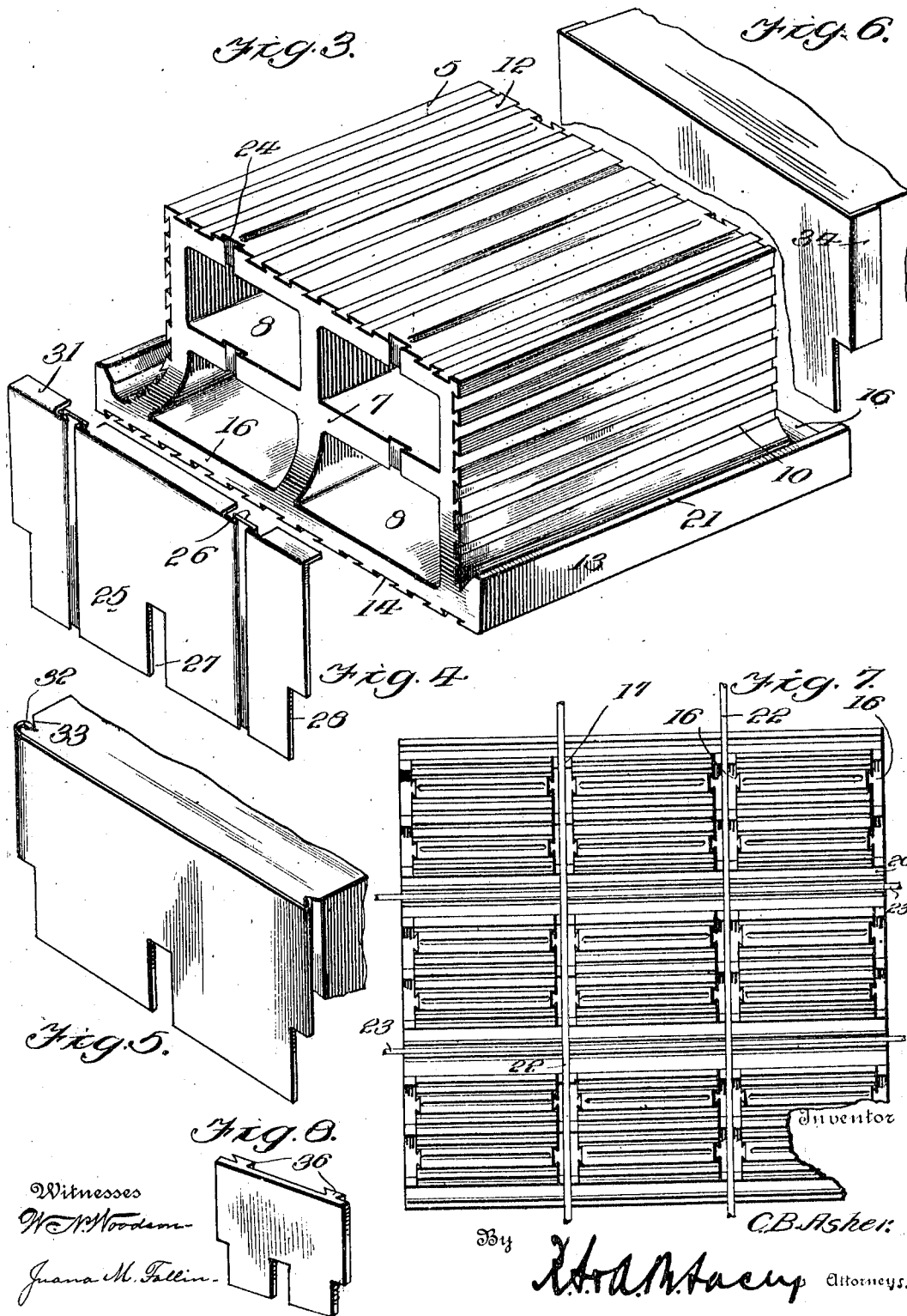
Attorneys.

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UNITED STATES PATENT OFFICE.

CLYDE B. ASHER, OF WASHINGTON, DISTRICT OF COLUMBIA.

CONCRETE-FLOOR CONSTRUCTION.

1,006,423.

Specification of Letters Patent.

Patented Oct. 17, 1911.

Application filed March 28, 1911. Serial No. 617,386

To all whom it may concern:

Be it known that I, CLYDE B. ASHER, citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Concrete-Floor Construction, of which the following is a specification.

This invention relates to reinforced concrete floor construction for fire proof buildings and the like.

The object of the invention is to provide a reinforced concrete floor having a plurality of hollow tiles embedded therein and each provided with a lateral flange or lip adapted to engage the lip of an adjacent tile, thereby to evenly space said tiles and also to produce intermediate passages for the reception of a concrete filling.

A further object of the invention is to reinforce and strengthen the floor by the provision of intersecting rods or bars, which latter rest on ribs formed on the lateral lips or flanges of the tiles and serve to elevate the rods above the base of said tiles.

A further object is to provide a hollow tile having a solid bottom or base constituting a ceiling slab and provided with independent horizontal passages opening through the opposite ends thereof so as to lighten the tile and consequently reduce the dead weight of the floor.

A further object is to provide the tiles with removable plates, which latter form closures for the open ends thereof and serve to prevent the entrance of concrete or other plastic material when forming the floor surface.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

For a full understanding of the invention and the merits thereof, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a vertical sectional view of a reinforced concrete floor constructed in accordance with my invention; Fig. 2 is a similar view taken on the line 2-2 of Fig. 1

and looking in the direction of the arrow; Fig. 3 is a perspective view of one of the hollow blocks or tiles detached; Fig. 4 is a perspective view of one of the end plates or closures for the tile, detached; Fig. 5 is a perspective view illustrating a modified form of closure; Fig. 6 is a similar view, illustrating a further modification. Fig. 7 is a top plan view of a portion of a floor with the concrete filling removed, showing the manner of arranging the tiles between the supporting girders; Fig. 8 is a perspective view, illustrating another form of closure for the tile.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

In constructing a reinforced concrete floor in accordance with the present invention, I provide a plurality of hollow tiles, preferably substantially rectangular in shape, and formed of terra-cotta, concrete or other material, said tiles being arranged in parallel rows between suitable supporting girders or beams 6, as best shown in Fig. 2 of the drawings.

The tiles 5 are provided with intersecting partitions 7 defining independent compartments 8 opening through the opposite ends thereof, the exterior walls of the tiles being provided with dove-tail recesses or grooves 10 adapted to receive concrete or other filling material, indicated at 11 so as to form a bond between the tiles and concrete and thus assist in preventing accidental displacement of said tiles.

Each tile is provided with a solid top 12 and an integral bottom or base 13, which latter constitutes a ceiling slab so that when said tiles are assembled to form a floor, the lower faces 13 of the tiles will present a continuous uninterrupted surface from one girder to the other.

The lower face of the base of each tile is provided with dove-tail grooves or recesses 14, similar in construction to the grooves 10 and which serve to receive the surface plaster 15 of the ceiling, the peculiar shape of the grooves 14 forming a bond for the plaster and preventing displacement thereof.

The ends of each tile, at the base thereof, are preferably extended longitudinally to form flanges or lips 16 adapted to abut against the flange of an adjacent tile, there-

by to form an intermediate cement receiving passage 17. The side walls of the tiles are also preferably curved or bent laterally at the base thereof to form similar lips or flanges 18, which abut against corresponding flanges on the tiles of an adjacent row, as indicated at 19, thereby to form auxiliary passages 20. If desired however, the lips 16 and 18 may be straight instead of curved and in some cases either or both sets of lips may be omitted.

Secured to or formed integral with the flanges 18 of the tiles, are upstanding ribs 21 which extend to the ends of the flanges 16 and form supports for reinforcing rods 22, the latter being embedded in the concrete between the passages 17, as shown. Embedded in the concrete in the passages 20, are auxiliary rods 23 which intersect the rods 22 at the joints 19 and bear against said rods so as to form a reinforcement between the tiles.

The outer ends of the partitions 7 are preferably curved to conform to and gradually merge into the flanges 16 so as not to obstruct the cement receiving passages 17, there being spaced dove-tail recesses 24 formed in the ends of the tiles for engagement with suitable plates or closures 25. The plates or closures 25 are each preferably formed of a single sheet of metal having the intermediate portions thereof pressed laterally to form vertically disposed dove-tail ribs or tongues 26 adapted to enter the recesses 24, the lower edge of each plate or closure 25 being provided with a recess 27 adapted to receive the central partition of the tile and the opposite ends of said plate being notched at 28 to accommodate the side walls of the tile so that the plates or closures, when placed on the tiles, will assume a position in a plane at substantially right angles to the flat tops 12 thereof and thus effectually prevent the entrance of cement or concrete into the compartments or chambers 8 when applying the filling material.

In constructing a floor, a suitable form is first located between the girders or beams 6, after which the tongues 26 of the end plates or closures are introduced in the recesses 24 and said plates moved downwardly in the direction of the base of the tiles so as to close the opposite ends thereof. The tiles are then arranged in parallel rows on the form with the end flanges 16 of the tiles abutting and with the side flanges 18 disposed in contact with each other so as to form the intermediate cement receiving passages 17 and 20, the reinforcing rods 22 being subsequently extended through the passages 17 with their lower edges in contact with or above the ribs 21 and the auxiliary rods 23 positioned in the passages 20 and allowed to rest on the reinforcing rods 22.

After the tiles have been assembled in this manner, the concrete or other plastic material 11 is introduced within the passages 17 and 20 and spread over the top of the tiles to the desired depth.

If desired, suitable anchoring members 29 may be seated in dove-tail recesses 30 formed in the side flanges 18 with their upper ends extended within the adjacent cement receiving passages 17. When the anchoring members 29 are employed, the upper ends thereof will be preferably extended above and bent over the adjacent auxiliary reinforcing rods 23.

The upper edge of the metal constituting each plate or closure 25, is preferably bent laterally to form a horizontally disposed flange 31 adapted to bear against the top of the adjacent tile to assist in holding the plates in position thereon.

In Fig. 5 of the drawings, there is illustrated a modified form of plate or closure, in which the tongues 26 are dispensed with, the opposite vertical edges of the plates being bent laterally and inwardly to form flanges 32 adapted to enter recesses 33 formed in the opposite side walls of the tile, the construction and operation of the closure being otherwise similar to that shown in Fig. 4 of the drawings.

A further modification is shown in Fig. 6 of the drawings, in which the opposite vertical edges of the plates or closures are bent to produce angularly disposed spring lips 34 adapted to frictionally engage the adjacent side walls of the tiles, thus holding the plates in position thereon without the necessity of forming seating grooves or other recesses in said tiles.

In Fig. 8, there is shown a closure 35 formed of terra-cotta, concrete or other plastic material, said closure being provided with ribs or tongues 36 adapted to fit in correspondingly shaped grooves in the ends of the adjacent tiles. If desired however, the ribs 36 may be dispensed with and the closure supported on the tile by wires or other fastening devices, and if necessary, said terra-cotta or concrete closures may be reinforced in any suitable manner.

While the tiles are shown supported between iron girders, it will of course be understood that the floor may be supported on concrete girders or attached directly to the side walls or partitions of a building, without departing from the spirit of the invention. It will also be understood that tiles may be made in different sizes and shapes and provided with a single chamber or compartment, or a plurality thereof, so that in some cases, the floor may be constructed without the concrete filling material covering the tops of the tiles.

Particular attention is here called to the fact that the bottoms of the tiles form

effect ceiling slabs, thus dispensing with separate ceiling slabs in the formation or construction of a floor.

Having thus described the invention, what is claimed as new is:

1. In concrete floor construction, a plurality of tiles each including an integral body portion having side and end flanges, there being continuous upstanding ribs formed on the side flanges and intersecting the end flanges, concrete interposed between the tiles, reinforcing rods resting on the ribs, and auxiliary reinforcing rods resting upon and intersecting the first mentioned rods.

2. In concrete floor construction, a plurality of hollow tiles, each including an integral body portion having a flat base constituting a ceiling slab and provided with longitudinal chambers opening through the opposite ends thereof, there being vertical recesses formed in the end walls of the tiles at said chambers, end plates having tongues slidably mounted in the recesses in the end walls of the tiles and forming closures for the chambers, concrete interposed between the tiles, and reinforcing rods arranged between the tiles and embedded in the concrete.

3. In concrete floor construction, a plurality of substantially rectangular hollow tiles, each including an integral body portion having laterally extending side and end flanges adapted to abut against corresponding flanges formed on adjacent tiles to produce intermediate passages, said tiles being provided with horizontally disposed chambers opening through the opposite ends of the tiles at said end flanges, the side flanges of the tiles being formed with continuous upstanding ribs, plates forming closures for the open ends of the tiles, concrete seated in the passages and extending over the tops of the tiles, and intersecting reinforcing rods seated in the passages and embedded in the concrete, some of said reinforcing rods resting directly on the upstanding ribs.

4. In concrete floor construction, a plurality of substantially rectangular tiles each including an integral body portion having laterally extending side and end flanges adapted to bear against corresponding flanges formed on an adjacent tile to produce intermediate cement receiving passages, continuous upstanding ribs formed on

the side flanges and intersecting the end flanges, concrete filling said passages, reinforcing rods embedded in the concrete in some of the passages and resting directly on the ribs, and auxiliary reinforcing rods embedded in the concrete in other of said passages and resting on the first mentioned rods.

5. In concrete floor construction, a plurality of hollow tiles having laterally extending end and side flanges and provided with horizontal chambers opening through the opposite ends of the tiles, there being vertically disposed dove-tail recesses formed in the ends of said tiles, end plates having correspondingly shaped tongues seated in the dove tail recesses in the tiles and having their upper ends provided with laterally extending flanges for engagement with the tops of the tiles and their lower ends provided with recesses to accommodate the side walls of the tiles, concrete interposed between the tiles, and reinforcing rods arranged between the tiles and intersecting at the abutting edges of the side flanges.

6. In concrete floor construction, a plurality of substantially rectangular hollow tiles, each including an integral body portion having a solid base constituting a ceiling slab and provided with laterally extending end and side flanges, the bottom, side and top walls of the tiles being provided with cement receiving grooves, said tiles being formed with intersecting partitions defining independent chambers opening through the opposite ends thereof, continuous upstanding longitudinal ribs formed on the side flanges of the tiles, concrete interposed between the tiles, reinforcing rods resting on the ribs, and auxiliary reinforcing rods resting on the first mentioned rods and embedded in the concrete.

7. A tile including an integral body portion provided with side and end flanges, there being continuous upstanding ribs formed on the side flanges and intersecting the end flanges of the tile.

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

CLYDE B. ASHER. [L. s.]

Witnesses:

F. CLYDE GIDEON,
A. M. BIGELOW.