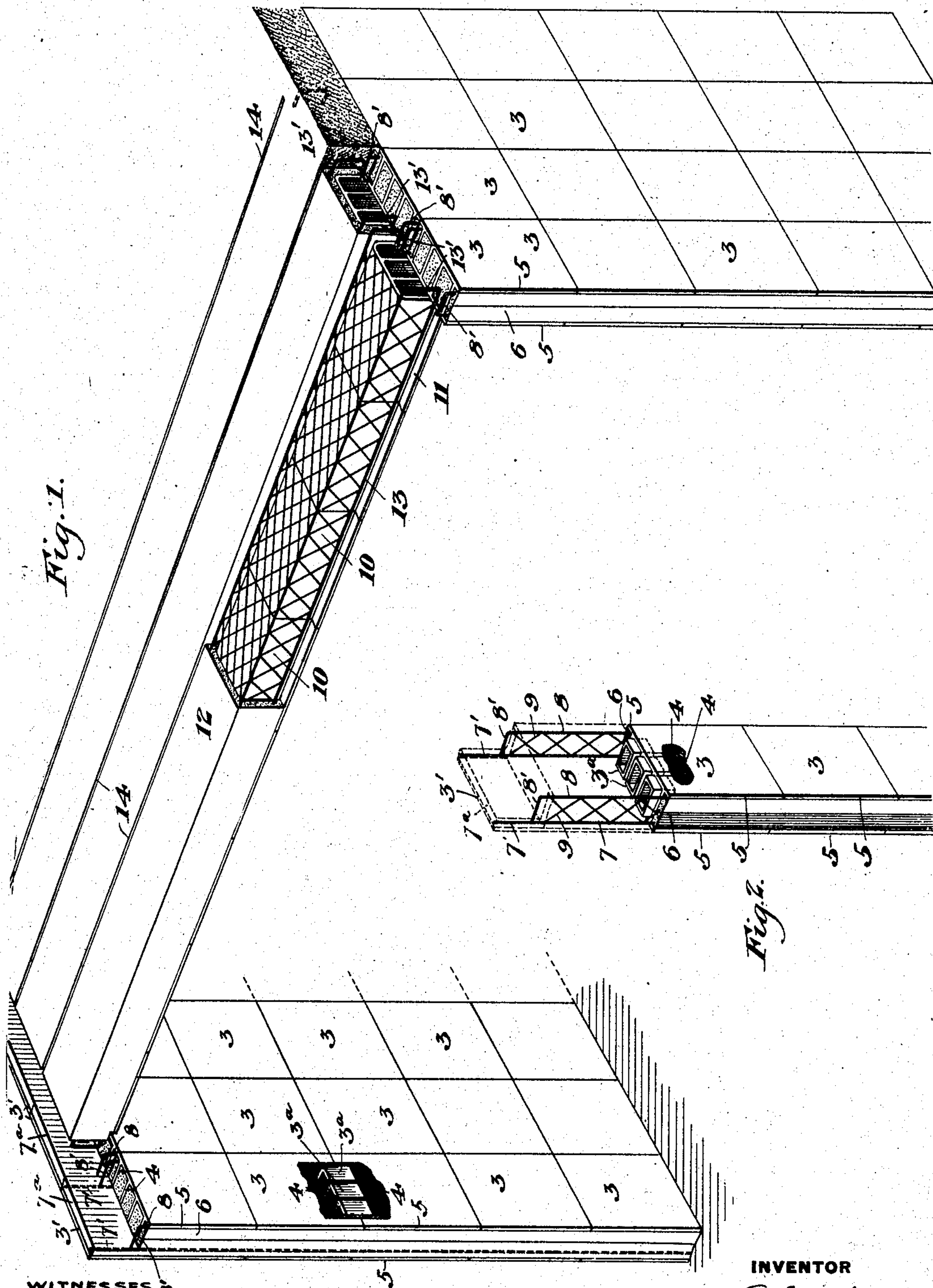


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PATENTED JUNE 6, 1905.

C. F. BUENTE.
BUILDING CONSTRUCTION.
APPLICATION FILED JUNE 30, 1904.



WITNESSES
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UNITED STATES PATENT OFFICE.

CHARLES F. BUENTE, OF ALLEGHENY, PENNSYLVANIA.

BUILDING CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 791,875, dated June 6, 1905.

Application filed June 30, 1904. Serial No. 214,767.

To all whom it may concern:

Be it known that I, CHARLES F. BUENTE, of Allegheny, Allegheny county, Pennsylvania, have invented a new and useful Building Construction, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view, partly broken away, showing a portion of a building constructed with my improved compound sections; and Fig. 2 is a perspective view, partly broken away, showing the construction of one of the wall-columns.

My invention relates to the use of concrete and tile construction in the building of walls and floors and is designed to provide a cheap, light, and strong section which may be used for either the wall or floor, or both.

The invention consists in a concrete section having a permanent hollow tile-core. It also consists in such a section wherein the concrete portion of the column or section is provided, at least in part, with a metal reinforce embedded therein.

In the drawings, in which I show a preferred form of my invention, referring to Fig. 2, I show a wall-column composed of hollow tiles 3, arranged end to end and preferably having longitudinal open-ended cells separated by transverse partitions 4. Each tile is preferably provided with molded edge flanges 5, projecting from its opposite sides. These tiles are arranged end to end in sufficient number to give the desired length and are then secured together and formed into an integral section by means of reinforced concrete 6, which is filled in between the flanges on each side, preferably flush with the edge of the flanges, but with a slight depression along the center.

In order to center the tiles end to end and better connect them, I preferably slip small hollow connecting-tiles 3^a into the ends of the cells of one tile, the next tile then being pushed over them, so that they extend across the joint between two tiles. These small tiles may take the form of projections molded integrally at one end of each tile. In this case the top tile

of the section would be formed without these projections.

In forming the section the tiles are preferably laid in a mold. The metal reinforce, which preferably consists of iron or steel rods 7 and 8, connected by expanded metal 9, having a large or coarse mesh, is supported in place, and the concrete is then pressed in around the skeleton of steel and left to harden. An integral molded section is thus produced which may be transported and set up in place. As the sections are set edge to edge vertically, the recessed central portions of the concrete allow a small diamond-shaped gap into which grouting may be poured to seal the joint.

In forming the wall-sections for the exterior wall I preferably extend the rods 7 above the top of the upper tile, as shown at 7', and bend over the upper portions of the rods 8, as shown at 8', these ends, together with the rods 7', being embedded in a layer of concrete 7^a, which is formed upon the inner face of the extension 3' of the front wall of the uppermost tile. The upper ends of the top tiles of the wall-sections are closed by concrete, as shown, or in any other suitable manner. This portion 3' may be formed either by cutting away a part of the tile or by forming special tiles with this portion extending beyond the body. The complete wall-section thus formed is illustrated at the left hand of Fig. 1. At the right hand of Fig. 1 I show the sections for an inner wall of the building, these being the same as the outer wall-section, except that the rod 7 is cut off above the point where the portion 8' joins it and the tile extension is done away with, this extension being used merely to form a channel into which concrete is filled to form the bond or anchor between the wall and the floor-beam.

In forming the floor-sections I preferably employ tiles 10, which are similar to tiles 3, except that the flanges 11 are used only along the lower opposite edges of the tile, as shown in Fig. 1. In this case the concrete 12 is filled in to cover three sides of the tiles, and the rods 13, lying along the bottom flanges, are connected by expanded metal, which extends along the sides and over the tops of the tiles,

the entire metal being embedded in the concrete. The ends of the rods 13 are bent back into U form, these U's projecting beyond the ends of the tiles and the concrete. The compound beam thus formed is preferably notched along the bottoms of its ends, as shown, by cutting away the end portions of the end tiles or molding special tiles, these notches guiding the ends of the beams to place on the wall-sections. These ends of the floor-beams are spaced apart from the ends of the next row on the intermediate wall and also from the extension on the top of the outer wall-sections, thus leaving channels to receive the concrete. This concrete is tamped in after the sections are assembled and is filled around the projections 8' and 13', thus locking the projecting rods of the expanded-metal structure and joining the beams and wall-sections together as an integral whole. After the series of floor-beams are put in position grouting is poured into the longitudinal joints 14 between them, this joint being preferably formed by slightly inclining the side faces of the concrete upwardly and inwardly, and the joints between the beams are thus sealed. The wall-sections and beams for the next story may be assembled in the same manner and the building thus quickly and easily completed.

The exterior of the building may be finished either by veneering it with brick, stone, or other suitable material or by a finish of cement applied directly to the wall-sections.

The advantages of my invention result from the use of the compound sections, which may be cheaply and rapidly made in quantity at the central factory and shipped to the place of use. I thus avoid the necessity for any molding operation at the place of use, as the sections are strong enough to stand shipping and can be used without change. The necessity for expensive centerings to temporarily support the floor-beams is done away with, the use of highly-skilled labor is avoided, and the columns may be cheaply made, since a large amount of their bulk consists of hollow tiles. By the use of metal reinforce in the wall-columns a resistance is afforded against deflection, which gives a light structure with the same strength as the present method of brick construction. This metal reinforce also prevents breaking of the sections during transit and erection, and by suitably proportioning its reinforce its resistance may be proportioned to the strains throughout the beam. For this reason I prefer to make the reinforce heavier at the central part of the floor-beams by doubling the rods through this portion or in any other suitable manner.

The reticulated structure of the expanded metal, which may be replaced by woven-wire fabric or other reticulated material, holds the concrete during transportation and increases the strength of the section in the building.

The reinforced concrete portions form a sufficient part of the section to bind the tiles together and hold them in place both during transportation and when in position.

Many variations may be made in the form and shape of the tiles, the metal reinforcing, the manner of applying the concrete, &c., without departing from my invention.

I claim—

1. As an article of manufacture, an independently-molded building-section comprising a series of tiles at least partially inclosed in molded concrete, and metallic reinforcing embedded in said concrete, said section being previously molded independently of the wall or floor of which it is to form a part; substantially as described.

2. A building-wall composed of a series of independently-molded sections arranged side by side, each of said sections comprising a series of tiles at least partly inclosed in concrete, and metallic reinforcing embedded in said concrete; substantially as described.

3. A floor consisting of separately and previously molded sections arranged side by side, each section comprising a series of hollow tiles at least partially inclosed in molded concrete, and metallic reinforcing embedded in said concrete; substantially as described.

4. A vertical building-wall consisting of a series of vertically-extending previously-molded independent sections, each section consisting of hollow tiles with the cells extending vertically, partially inclosed in concrete, and metallic reinforcing in the previously-molded concrete; substantially as described.

5. As a new article of manufacture, a previously-molded floor-beam comprising permanent hollow tile-cores, at least partially surrounded in hardened concrete, and metallic reinforcing embedded in the concrete; substantially as described.

6. As a new article of manufacture, a previously-molded floor-beam comprising permanent hollow tile-cores, at least partially surrounded in hardened concrete, and metallic reinforcing embedded in the concrete, the metallic reinforcing members projecting beyond the ends of the concrete; substantially as described.

7. In building construction a wall composed of cement and tile sections, floor-beams resting thereon and composed at least in part of cement, the wall-columns having outer extensions, and concrete filled in along the top and wall sections at the ends of the floor-beams; substantially as described.

8. In building construction, a wall composed of tile and concrete sections with metallic reinforcing projecting above their upper ends, a concrete filled in around the projecting reinforcing and at the ends of the floor-beams; substantially as described.

9. In building construction, a floor made up of a series of independently and previously molded sections arranged side by side, each comprising hollow tile-cores, concrete, and metallic reinforcing, the reinforcing projecting beyond the ends of the separately-molded sections, and a body of concrete inclosing said projecting end portions; substantially as described.

10. In building construction, a wall and floor each composed of separately and previously molded sections arranged side by side, each section containing hollow tiles and metallic reinforcing members projecting beyond the ends of the concrete, and a body of concrete inclosing the projecting members of the walls and floor-sections; substantially as described.

11. In building construction, a wall formed of separately and previously molded sections, each section containing hollow tiles and metallic reinforcing, and grouting or similar material in the joints between the sections; substantially as described.

12. An outer wall-section comprising a concrete column having a core consisting in hollow tiles, said column having an upward extension at its outer side to form a channel between it and the ends of the floor-beams; substantially as described.

13. In building construction, a wall formed of separately and previously molded vertically-extending sections, each section containing hollow tiles and metallic reinforcing, and grouting or similar material in the joints between the sections; substantially as described.

In testimony whereof I have hereunto set my hand.

CHARLES F. BUENTE.

Witnesses:

G. B. BLEMING,

L. A. CONNER, Jr.