

961,722.

Patented June 14, 1910.

2 SHEETS—SHEET 1.

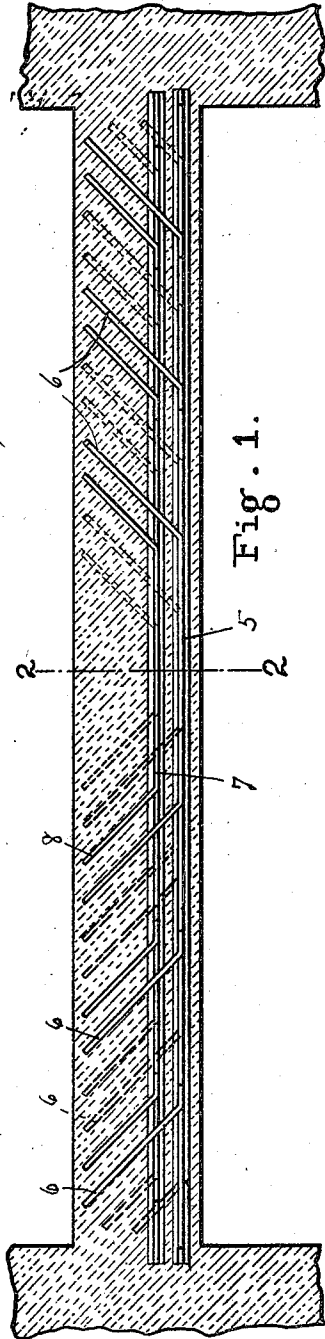


Fig. 1.

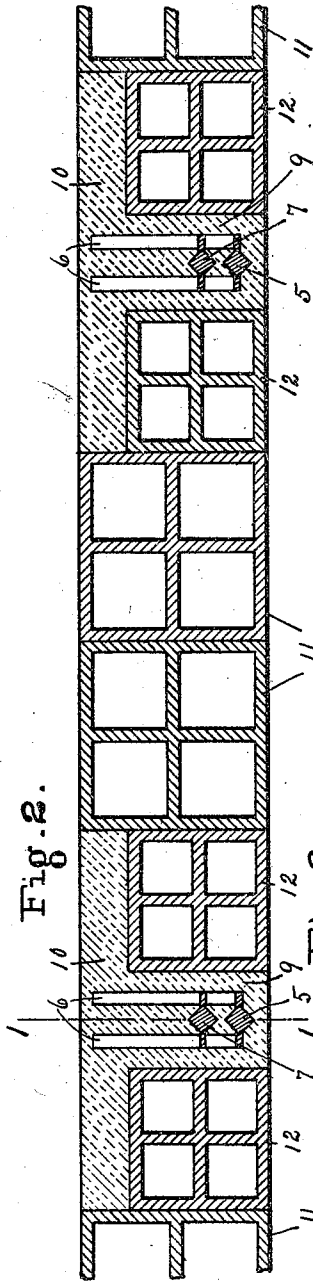


Fig. 2.

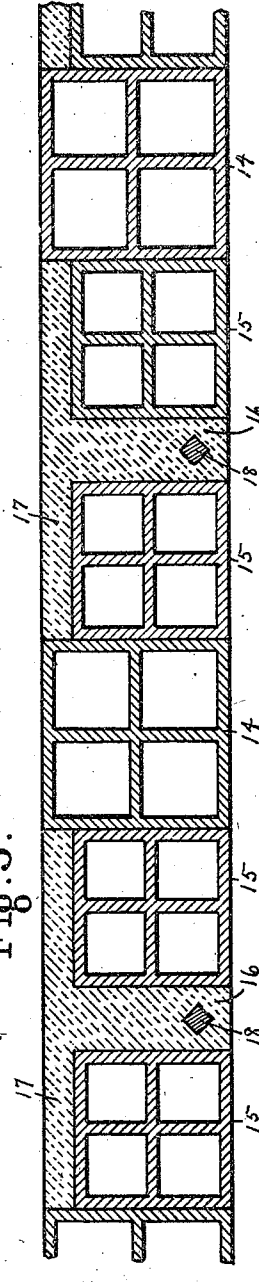


Fig. 3.

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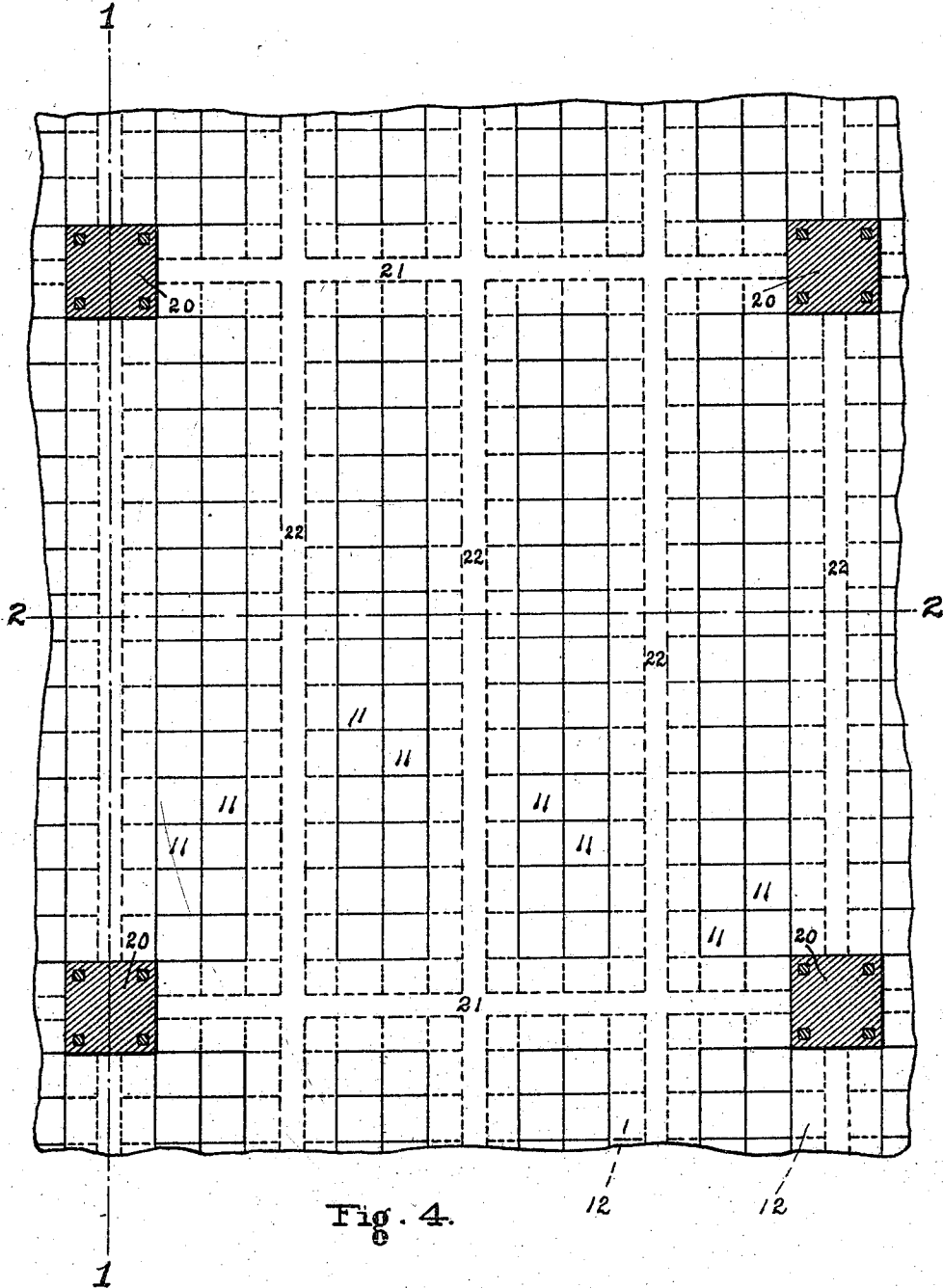
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JULIUS KAHN, OF DETROIT, MICHIGAN, ASSIGNOR TO TRUSSED CONCRETE STEEL COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

FLOOR CONSTRUCTION.

961,722.

Specification of Letters Patent. Patented June 14, 1910.

Application filed April 8, 1909. Serial No. 488,574.

To all whom it may concern:

Be it known that I, JULIUS KAHN, a citizen of the United States, and a resident of Detroit, in the county of Wayne and State of Michigan, have invented a new and Improved Floor Construction, of which the following is a specification.

My invention relates to fire-proof floor construction, consisting of terra-cotta tiles and reinforced concrete beams, and the object of this improvement is to provide a floor in which a minimum amount of concrete will be employed.

In the accompanying drawings, Figure 1 is a vertical cross section of a floor on the line 1—1 of Figs. 2 and 4. Fig. 2 is a vertical cross section on the line 2—2 of Figs. 1 and 4. Fig. 3 is a vertical cross section of a slightly modified type of floor. Fig. 4 is a plan of a floor section, columns being shown in cross section.

Similar reference characters refer to like parts throughout the several views.

In constructing fire-proof buildings it has been found that the net cost of concrete in the floor is very much greater than that of terra-cotta tile, for the same cross section. It is therefore desirable, wherever possible, to substitute terra-cotta tile for concrete and to make the thicknesses for floor slabs as small as possible. It is further desirable to avoid the layer of concrete which usually forms the upper strata of a floor slab and which has been thought necessary to supply the compressive strength.

The construction hereinafter described has been designed to provide a floor of terra-cotta tiles combined with reinforced concrete beams in which the entire lower surface shall be flat and unbroken by beams or girders, and in which a minimum amount of concrete shall be used.

In Figs. 1 and 2 of the drawings, 5 is the lower longitudinal tension member having upwardly inclined arms 6 and between these arms is the upper tension member 7 also provided with inclined arms 8. I prefer the type of tension member shown in my former patent dated Feb. 9th, 1904, No. 751,921, especially in Fig. 10 thereof. These tension members are embedded in a T-shaped beam of concrete formed of a stem 9 and a top cross piece 10. These beams may be separated by tiles of any desired type,

whether of terra-cotta, concrete or other plastic material. The number of these tiles in each span will depend upon the load to be carried. In Figs. 2 and 4, I have shown two large tiles 11 forming the middle portion of the span, and a small tile 12 on each side of the large tiles, the difference in height permitting the top portion of the concrete beam to extend above the smaller tiles. The thicknesses of concrete and the size of the tiles will of course depend upon the load to be carried, and the top portion of concrete is the main compression member of the reinforced beam. The smaller tiles may be of such width that the concrete in the upper portion of the beam will be of the proper amount to resist the compression stresses. These reinforced members may extend from post 20 to post 20 as do the girders 21 in Fig. 4, or they may extend between the girders 21 as do the beams 22. In all cases, the beams and girders are of the same depth as the tiles 11, and the thickness of their top flanges 10 will depend upon the load and therefore on the reinforcing bars.

In Fig. 3 is shown another floor slab made up of reinforced concrete beams and tiles, the large central tile 14 being flanked by smaller tiles 15, and these tiles form the mold for the concrete which is, as before described, in the form of a vertical stem 16 and a longitudinal portion 17 at the top of the stem. The metal reinforcing bar 18 may be square steel, as shown in the drawings, or of any other desirable form.

In constructing a floor slab, a flat false-work is employed with straight boards positioned for the bottoms of the concrete beams and girders. As these bottoms are narrow, the usual expensive water-tight false-work is not necessary. After the tiles have been placed, concrete is filled in between the smaller tiles and the reinforcing members are properly positioned. The concrete for the beams and girders is then entirely filled in and properly rammed and rolled. A cement mortar is desirable between adjacent tiles to lock them together. The tiles will form a flat arch between adjacent reinforced beams and should be of sufficient strength to carry the load without a layer of concrete above them. The expense of this construction is less than that shown in my patent above cited.

Having now explained my improvements, what I claim as my invention and desire to secure by Letters Patent is:—

1. A composite floor comprising a body
5 formed of a plurality of parallel rows of prepared blocks, each block rectangular in transverse cross-section, and the blocks of adjacent rows differing in height, the blocks
10 of the outer rows being of less height than the blocks of the interior rows, and reinforced concrete beams, T shaped in cross section, between adjacent outer rows of blocks, the tops of the beams extending over the
15 lower tiles flush with the tops of the higher tiles.

2. A composite floor slab of even thickness throughout comprising groups of parallel rows of terra-cotta tiles, the top of each tile being parallel to its bottom and the tiles
20 of the outer rows being of less height than those of the inner rows; and reinforced concrete beams between adjacent groups of

rows, the concrete extending over the tops of the lower tiles flush with the tops of the higher tiles so as to form a flat surface with
25 the same.

3. A composite floor comprising a series of reinforced concrete beams parallel to each other, T shaped in cross section, and reinforced concrete girders intersecting the
30 same, and a plurality of rows of hollow blocks of unequal heights between adjacent beams, the lower surfaces of the floor being flat and formed by the lower faces of all
35 the tiles, girders and beams, the top of the beams, girders and higher tiles being flush to form an upper flat surface.

In testimony whereof, I have signed this application in the presence of two subscribing witnesses.

JULIUS KAHN.

Witnesses:

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