Feb. 27, 1934. J. A. FERGUSON 1,949,045

FIREPROOF BUILDING CONSTRUCTION

Filed Sept. 27, 1928

Fig. 1.

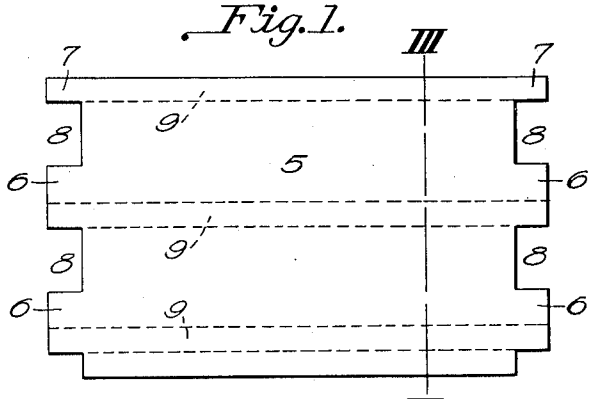


Fig. 2.

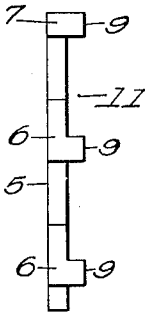


Fig. 4.

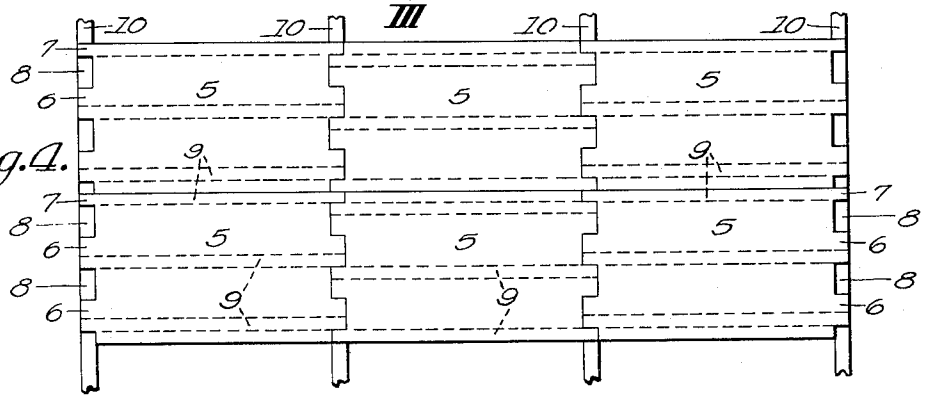


Fig. 3.

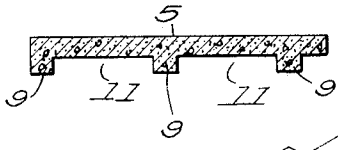


Fig. 5.

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Patented Feb. 27, 1934 1,949,045

UNITED STATES PATENT OFFICE

1,949,045

FIREPROOF BUILDING CONSTRUCTION

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Application September 27, 1928
Serial No. 308,830

4 Claims. (Cl. 72—68)

My invention relates to fireproof building constructions, and more particularly to building structures of the type embodying structural metal supporting members and pre-formed slabs, tiles, or the like, employed in conjunction with said members for constructing floors, roofs, and other enclosing units in building structures.

The present invention is primarily directed to a new and improved pre-formed or pre-cast unit, slab, or tile, preferably made of hydraulic cement and sand and stone aggregates, reinforced to enable the units or slabs to carry superimposed loads and resist applied forces, according to engineering calculations and experience, and also provided with interlocking load-supporting ends in the form of projecting and re-entrant portions arranged in predetermined order, so that when the slabs are laid in succession in the construction, the said portions fit into and engage with each other in a manner to contribute to and materially increase the rigidity and stiffness of the construction.

My invention further contemplates providing the body of the slab, etc., with parallel reinforcing elements of such a character that the said elements or portions thereof are utilized as bearing surfaces designed to have direct contact with the structural members, and provide adequate means for the bearing or support of the slabs upon wide or narrow structural members and, at the same time, provide spaces between the supporting surfaces of the structural members and the slabs, which spaces may be employed for receiving pipes, wires, etc. therein.

In the preferred embodiment of my invention, the reinforcing elements project from the ends of the slab, and extend under a portion of the interlocking projections, and are arranged on the respective slabs in a manner to provide, when the slabs are assembled on the structural members end to end and side to side and in close contact, pairs of parallel overlapping reinforcing elements so arranged that each element of a pair has a vertical side for such overlapping contact with the other element of the same pair.

In the accompanying drawing, which illustrates an application of my invention:

Fig. 1 is a top plan view of a slab or tile embodying my invention;

Fig. 2, an end view;

Fig. 3, a transverse sectional view taken on line III—III of Fig. 1;

Fig. 4, a plan view of a floor construction embodying my invention; and

Fig. 5, a perspective view of the said floor construction.

Referring to the drawing, 5 designates the body of a pre-formed slab, tile, or the like, made up of suitable incombustible and insulating materials. As illustrated and as preferred, the body 5 is provided at each of its load supporting ends with a plurality of alined projecting portions 6 and complementary projections 7, the projecting portions 6 being considerably wider than the projections 7. In addition to said projections, the ends of the slab are each formed with complementary re-entrant portions or recesses 8 located between the said projections.

Extending longitudinally of the slab and projecting from the under face of the body, I provide a plurality of reinforcing or strengthening elements in the form of projecting ribs 9. It will be noted that these reinforcing elements, at the ends of the slab, project therefrom under a portion of each of the projections 6, and under the entire width of each of the projections 7, thus reinforcing the said projections and providing bearing surfaces for the slabs, said bearing surfaces being designed to make direct contact with the structural supporting members of the building structure.

It will be further noted that the reinforcing elements are so spaced apart that the elements of successive units arrange themselves in pairs at their bearing or supporting end, and that each element of a pair is provided with a surface at one of its sides for contact with a similar surface on one of the sides of the other element of the same pair.

With my form of slab and its interlocking load-supporting ends and reinforcing elements, I am enabled to employ various shapes of structural supporting members, such as channel members or I-beams and other shapes having either narrow or wide floor supporting flanges. In the drawing, I have illustrated junior I-beams 10 for receiving and supporting the interlocked ends of adjacent slabs.

When the slabs are placed on members 10 in end-to-end and side-to-side relation, as shown by Figs. 4 and 5, the adjacent and load-carrying projections and their reinforcing elements of each slab may extend the full width of the flange of member 10, and thus provide a very considerable bearing surface for the slabs. The reinforcing elements, as shown by the said figures, when the slabs are laid, extend past each other or overlap on the supporting members 10, and also function to provide spaces 11 adapted to receive

pipes, conduits, and other necessary appurtenances of a building structure.

In assembling the slabs, tiles, or the like on the supporting members 10, they may be laid on said members with each alternate slab turned in the opposite direction from its adjacent succeeding slab. This method of positioning the slabs is clearly shown by Fig. 4; and in this connection attention is called to the fact that adjacent to the side edges of the slabs, the slabs are reinforced throughout their lengths by two longitudinally extending reinforcing elements 9. If found desirable, the slabs, etc. may be assembled in staggered relationship, so that the longitudinal joints between adjacent tiles, laid side by side, are broken.

I claim:

1. A building construction embodying a plurality of spaced structural members, a plurality of load-supporting slabs each comprising a body formed with longitudinally extending reinforcing elements and load-supporting ends having projecting and re-entrant portions, said reinforcing elements constituting the bearing surfaces of the slabs and resting directly upon the structural members, said elements each having a side face in contact with a corresponding face of another slab.

2. A building slab comprising a body formed with projecting and re-entrant portions at its load-supporting ends and with integral longitudinally extending reinforcing elements extending under the body and said projecting portions, said elements constituting the sole load-bearing surfaces of the slab.

3. A building slab comprising a body formed at opposite load-supporting ends with alined projections and with alined recesses located between the projections, said body also having integral longitudinally extending reinforcing elements constituting the sole load-bearing surfaces of the slab.

4. A building slab comprising a body provided with depending reinforcing elements, the ends of the slab being load-supporting and having projecting and reentrant portions, said elements extending under adjacent projecting portions, and said elements at a side thereof being adapted to overlap and contact with corresponding elements of an adjacent slab.

JOHN A. FERGUSON.