No. 750,066. PATENTED JAN. 19, 1904.

J. SCHALL.

FIREPROOF FLOOR CONSTRUCTION.

APPLICATION FILED FEB. 16, 1903.

NO MODEL.

Fig. 1.

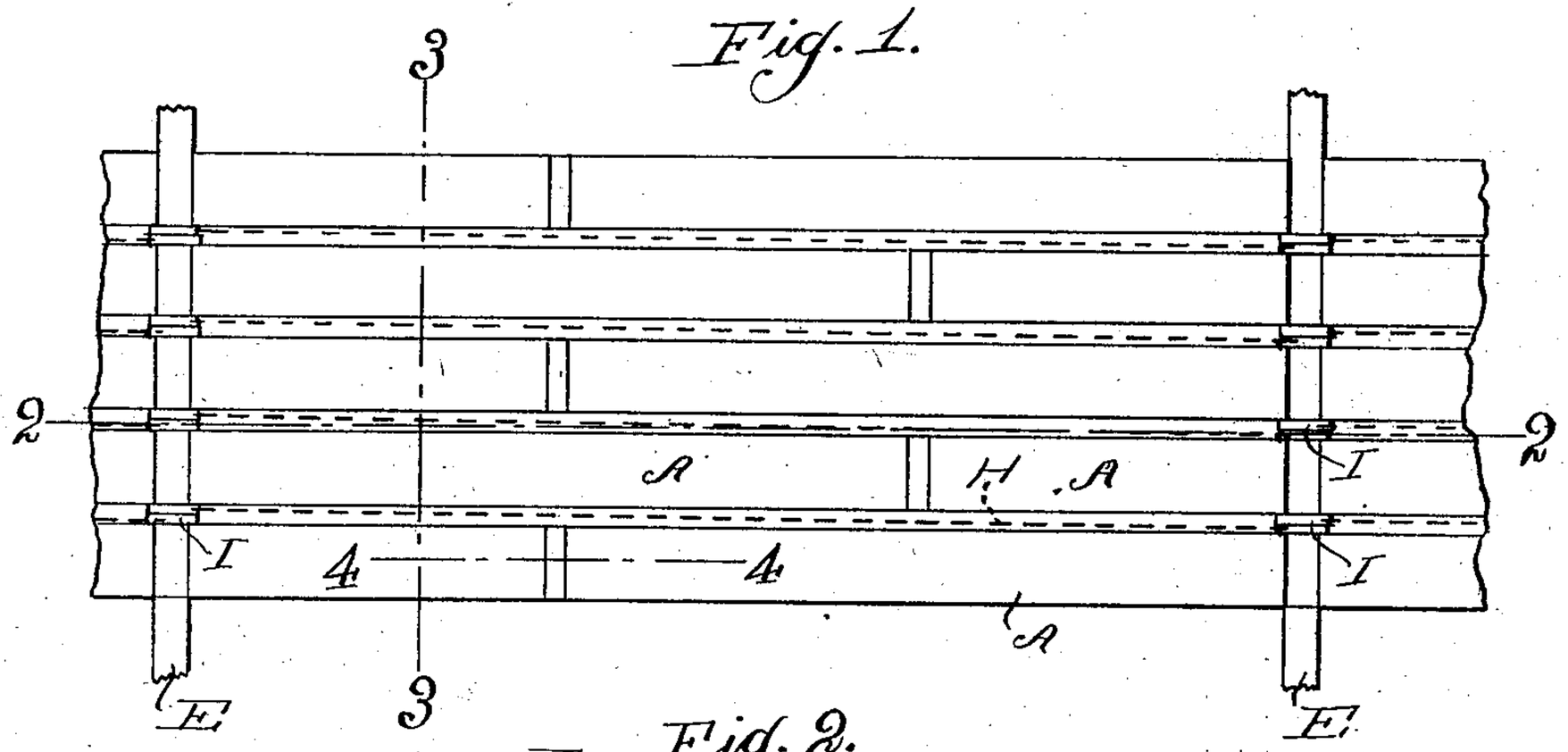


Fig. 2.

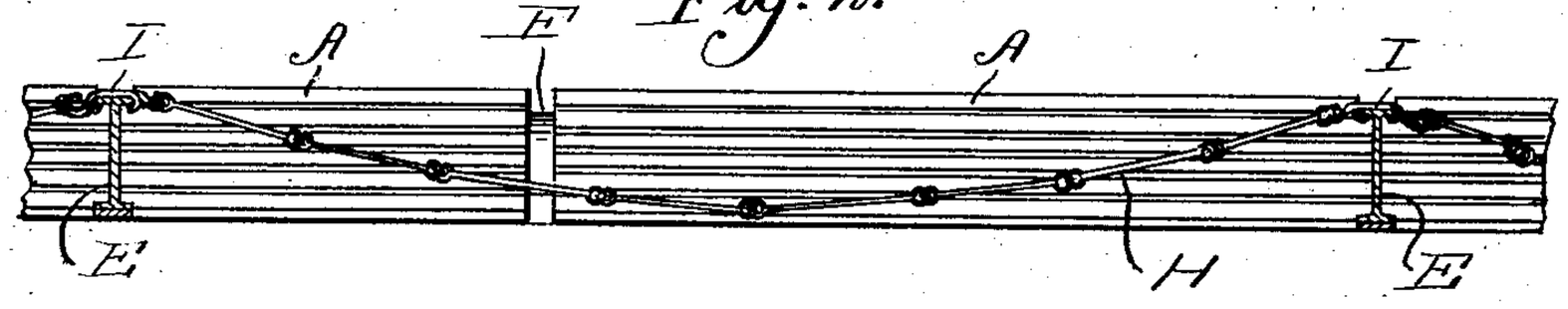


Fig. 3.

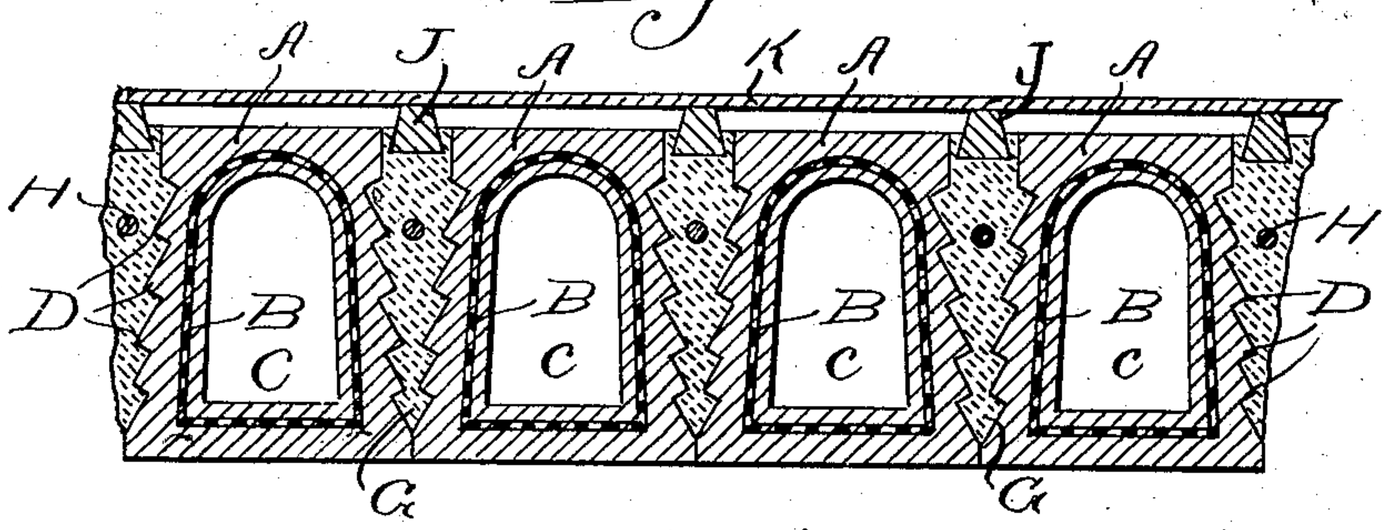
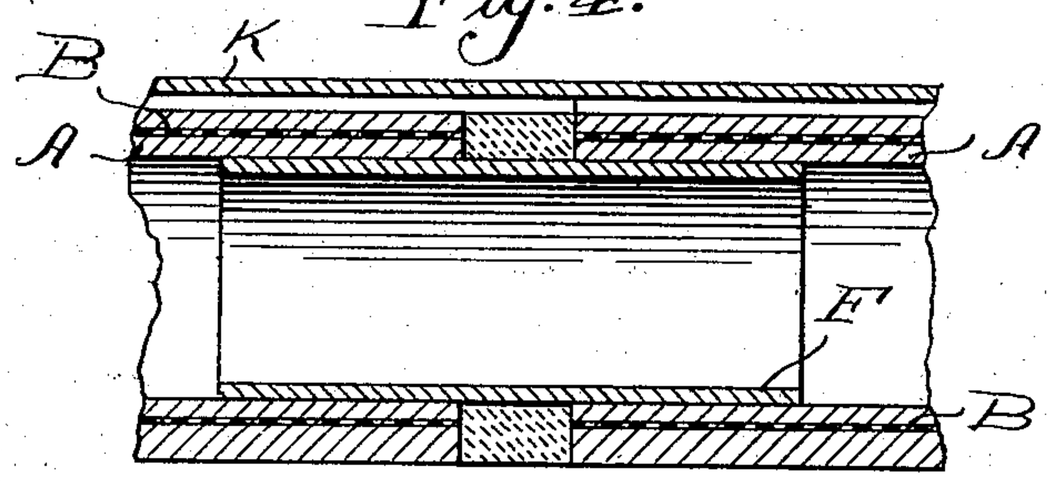


Fig. 4.



Witnesses:

E. F. Wilson

Erwin J. Lotz

Inventor:

Joseph Schall

By Rudolph Im. Lotz

Attorney.

No. 750,066. Patented January 19, 1904.

UNITED STATES PATENT OFFICE.

JOSEPH SCHALL, OF EVERGREEN PARK, ILLINOIS.

FIREPROOF FLOOR CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 750,066, dated January 19, 1904.

Application filed February 16, 1903. Serial No. 143,644. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH SCHALL, a citizen of the United States, residing at Evergreen Park, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Fireproof Floor Constructions; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a novel construction in a fireproof floor, ceiling, or flat arch, the object being to provide a construction which is easily installed, comparatively cheap, extremely strong and durable, and entirely impervious to fire; and it consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a top plan view of a floor or flat arch constructed in accordance with my invention. Fig. 2 is a section of same on the line 2 2 of Fig. 1, the cement filling being omitted. Fig. 3 is a section on the line 3 3 of Fig. 1. Fig. 4 is a section on the line 4 4 of Fig. 1.

My invention comprises tiles A, preferably composed of a suitable cement, which are practically rectangular in cross-section, but somewhat narrower at their upper than at their lower ends. The said tiles are preferably hollow and reinforced by means of intermolded tubes B, of perforated or expanded metal, the said tubes B being preferably made to conform in shape with the openings C of said tiles and surround the latter, the said openings serving as conduits for electric wires, gas and water pipes, &c. The side walls of said tiles are preferably corrugated or provided with a plurality of parallel longitudinal ribs D, the lower faces of which are of less width than the upper faces and form shoulders projecting from the sides of the tiles.

As steel is used almost exclusively in fireproof constructions at the present time and the floor-beams E generally consist of **I**-beams which are relatively arranged to form rectangles in which the flat arches are built, I have illustrated such construction, though my invention may be modified to suit any departure from the usual method.

My said tiles are preferably arranged in pairs, each consisting of a long and a short tile connected together by means of a sleeve F, on which said tiles are longitudinally movable. The combined length of both tiles is practically equal to the distance between the edge of the inner flange of one and the inner face of the web of the other of two adjacent beams E, the free or outer ends of said tiles being formed to fit the channels between the flanges of the beams. In placing said tiles in position they are supported on suitable scaffolding, the end of one tile being inserted in the channel of one beam, then lowered to horizontal position, and the other tile then moved longitudinally until its free end rests in the channel of the other beam. Alternate pairs of tiles are laid to break joint with each other and so that the lower edges of the tiles lie in contact with each other.

After all tiles to fill a rectangular space have been laid the flaring interstices between such tiles are filled or partially filled with cement in practically fluid condition, which also fills the recesses formed between the ends of the tiles of each pair and by adhesion to the tiles and sleeves F renders the entire structure contiguous and integral, leaving no vertical openings anywhere in the entire construction. After the cement has set the scaffolding is removed.

The cement fillings G between the tiles may be said to form intervening tiles practically **V** shape in cross-section and which by their depth alone, independently of their adhesion to said tile A, would so reinforce and support the latter as to render the entire structure exceedingly strong.

In order to further reinforce the entire structure, however, and render collapse by reason of any fracture impossible, I prefer to hang chains H in the interstices between the tiles, which become embedded in the fillings G. The said chains H are hung on suitable hooks I, engaging the upper flanges of the beams E, and are preferably slack, so as to sag almost to the bottom of each of said interstices, thereby obviously attaining the best

hold in the fillings G and rendering such chains capable of supporting the greatest weight. The said chains are preferably composed of long links, for the reason that such chains are cheaper and lighter than the short-link chains; but any kind of chain may obviously be used.

In order to provide suitable means for laying wood floors over the cement structure, strips J of wood of any suitable shape are partially embedded in the cement fillings G and the floor K secured thereto.

I claim as my invention—

1. In a fireproof floor construction, the combination with the floor-beams, of parallel rows of tiles supported at their end thereon, said tiles being narrower on their upper than at their lower edges to form V-shaped interstices between said rows, the side walls of said tiles being stepped to laterally contract said interstices at intervals between their upper and lower ends, chains suspended at their ends from the upper edges of said beams and depending freely into said interstices, and concrete fillings in said interstices introduced in a plastic condition and embedding said chains, said fillings when set forming intermediate interlocking tiles between said rows of tiles.

2. In a fireproof floor construction, the combination with the floor-beams, of parallel rows of tiles supported at their end thereon, said tiles being narrower on their upper than at their lower edges to form V-shaped interstices between said rows, the side walls of said tiles being stepped to laterally contract said interstices at intervals between their upper and lower ends, hooks secured to the upper edges of said beams, chains suspended at their ends from said hooks depending freely into said interstices, and concrete fillings in said interstices introduced in a plastic condition and embedding said chains, said fillings when set forming intermediate interlocking tiles between said rows of tiles.

3. In a fireproof floor construction, the combination with a plurality of rows of tiles contracted from their lower to their upper ends and having perforated metallic reinforcing devices intermolded therein, of plastic cement fillings in the interstices between said tiles, said fillings when set being integral with said tiles.

4. In a fireproof floor construction, the combination with the floor-beams, of a plurality of rows of hollow tiles supported thereon, said tiles being narrower at their upper than at their lower ends, sleeves in the tiles of each row spanning the joints, projections on the outer inclined side faces of said tiles, and cement fillings in the interstices between said tiles, said fillings being introduced in a plastic state and, when set, becoming integral with said tiles.

5. In a fireproof floor construction, the combination with the floor-beams, of a plurality of rows of hollow tiles supported thereon, said tiles being narrower at their upper than at their lower ends, reinforcing devices intermolded in said tiles, sleeves in the openings in the tiles of each row spanning the joints, projections on the outer inclined side faces of said tiles, and cement fillings in the interstices between said tiles, said fillings being introduced in a plastic state and, when set, becoming integral with said tiles.

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

JOSEPH SCHALL.

Witnesses:

RUDOLPH WM. LOTZ,

ERWIN J. LOTZ.