

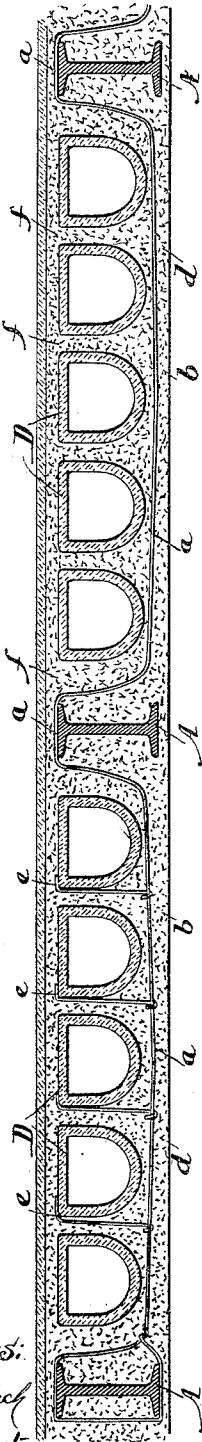
(No Model.)

F. P. MEYENBERG.
FIRE PROOF STRUCTURE.

No. 460,209.

Patented Sept. 29, 1891.

Fig. 1.



Witnesses:
Fred Gerlach
J. B. Carpenter

Fig. 2.

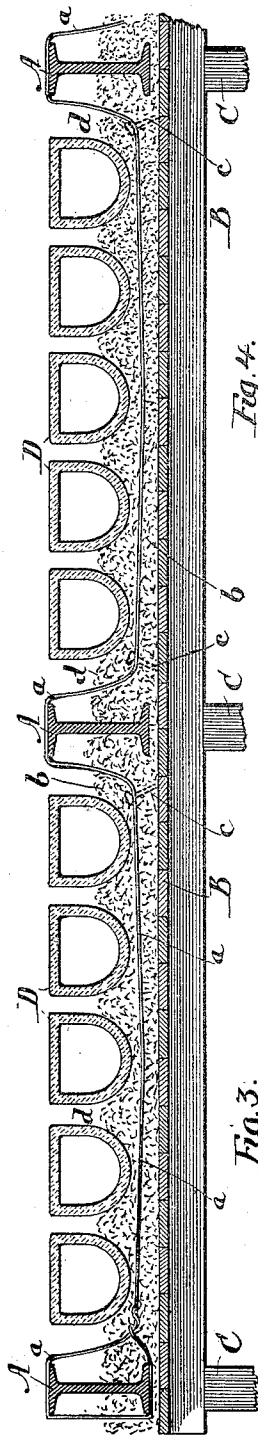
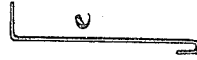
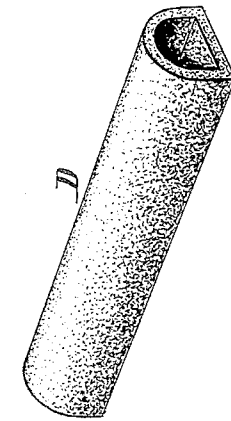


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

FRANZ P. MEYENBERG, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE UNITED STATES FIRE PROOFING COMPANY, OF SAME PLACE

FIRE-PROOF STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 460,209, dated September 29, 1891.

Application filed April 13, 1891. Serial No. 388,798. (No model.)

To all whom it may concern:

Be it known that I, FRANZ P. MEYENBERG, a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Fire-Proof Structures, of which the following is hereby declared to be a full, clear, and exact description, sufficient to enable others skilled in the art to which such invention appertains to make and use the same.

The invention relates to fire-proof structures wherein a series of wire strands or a mesh fabric is extended over and between contiguous beams of the floor to serve as a support for the intermediate fire-resistant filling. A slight droop or curve is usually given to the support, notably when a plastic cement or composition is used to fill the beam-pocket; but such droop is ordinarily of greatest descent about the center of the pocket-span, and proceeds thence with gradually - lessening depth toward the tops of the beams. So situated the support for the filling is not well adapted for use in connection with hollow tile unless these be widely varied in size and shape (according to the length of span, the depth of beam, and the incline of the strand or fabric support) to neatly and accurately fill the varying spaces due to the pitch or droop of the support. Even then, if the pocket-spaces below the incline of the support be set with tile, these cannot be directly sustained on such support simply and easily, as oftentimes desired. To avoid the multiplicity in size and shape of tile-sections and to enable a series of these (nearly uniform in character) to be used as a filling, while yet preserving the distinctive benefits of the strand or fabric support for such filling, is the main object of the invention. To this end the improvement designs to depress the pocket-support abruptly and deeply near the beams and to extend the same substantially across the span of the pocket at such depth. Sufficient margin is allowed for embedding the lower level and the ends of the support in plastic cement. The cement furnishes a yielding bed before setting, in which the tile-sections above can be mounted, and these latter are finally secured by an upper cement slip that covers and incases the tile and unites the support

and various filling parts thoroughly together to close the pocket-space between the beams.

The exact nature of the improvements will appear from the description following, and be precisely pointed out by claims at the conclusion thereof.

In the accompanying drawings, which form part of this specification, like parts are denoted by like designation throughout.

Figure 1 is a sectional view of a floor, showing the usual beams with intermediate pocket-fillings constructed according to the invention. Fig. 2 is a similar view exhibiting the fillings in course of construction. Fig. 3 is a perspective view of one of the tile-pieces; Fig. 4, a detail of one of the hook-loops.

The floor-beams A, which in the example shown are of the familiar I form, are set in position, as usual, in readiness to receive the filling in the pocket-spaces between them. Extending over the tops of the beams A are a series of stout wire strands *a*, arranged at suitable distance apart to properly sustain the loads or strains to which the finished floor will be subjected. Ordinarily the several strands *a* of the series are secured together by cross-wires or interlocks, so as to produce in effect a compact netting or fabric, which embeds itself thoroughly in the surrounding plastic composition *b*. The strand or fabric support *a* is abruptly bent or dropped downwardly in close relation to the I-beams A, and extends thence in nearly a horizontal plane along the lower level of the pocket or span between the beams. The temporary platform B, supported upon the post C, is erected beneath the series of beams and serves to sustain the pocket-fillings until these have become sufficiently set and hardened. Nails or spikes *c* may engage with the support *a* and staging B, to better hold the depressed portion of the support in desired position. A bed of cement slip or plastic composition *d* is then thrown into the pocket between the beams until the depressed part of the wire support *a* is well covered thereby. While the composition is yet plastic, a series of tile D are embedded therein, and, if desired, a set of hooks *e*, secured to the support *a* beneath and overlapping the tiles at the top, may be used to better retain the tile-sections in place. When

the tile are properly arranged, an upper cement slip *f*, in plastic condition, is filled into the spaces between the tile-support and beams, completely closing the pocket-space and furnishing a fire-proof floor, which, by reason of the support *a*, can withstand very heavy strains. The upper and lower cement or composition slips *d f* are preferably of the same general character, and the two are united with the tile-sections while the composition is yet plastic and "green." A surface finish at the ceiling and upon the floor above may be applied, if desired.

The tile-sections *D* are ordinarily cast in form previous to being used. These can be of baked clay or terra-cotta, although in preferred practice it is usual to make such casts from a plastic composition of like character with that which is employed for the filling slips or mortars *d f*. By preference the composition should be such as sets or hardens quickly upon exposure, and which is not only fire-resisting, but light and tenacious and capable of withstanding unusual blows. A compound consisting of fibrous material—such as asbestos, sawdust, or cork—incorporated with plaster-of-paris, caustic lime, and hydraulic cement, is quite satisfactory for the purpose. The ingredients named may be variously combined as follows: fibrous material, twenty-five to eighty per cent.; hydraulic cement, three to ten per cent.; caustic lime, two to five per cent.; plaster-of-paris, fifteen to twenty per cent.

Obviously the shape and size of the tile *D* can be varied at will, according to the extent of span and the depth of the pocket to be filled. Instead of a number of tile arranged in series, it is clear that a compound tile divided into several compartments or sections can be used, although such structure is inferior in strength and is otherwise objectionable.

The tile *D*, being hollow from end to end, affords free air-spaces for circulation, so that the filling dries out rapidly, and by reason of the quick set thus obtained permits the floor to be used much sooner than if the filling were in solid mass.

Changes in detail within the skill of the mechanic to effect may be made without departing from the invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In fire-proof structures, the combination, with the beams, of the series of strands or a fabric support extending over said beams and abruptly depressed between and near the same, and a hollow-tile filling sustained by said strands or fabric, substantially as described.

2. In fire-proof structures, the combination, with the beams, of the series of strands or a fabric support extending over said beams and abruptly depressed between and near the same, a series of hollow tiles mounted above said strands or fabric, and a cement slip embedding said tiles and support, substantially as described.

3. In fire-proof structures, the combination, with the beams, of the series of strands or a fabric support extending over said beams and abruptly depressed between and near the same, a lower cement slip embedding the depressed part of said support, a hollow-tile filling set in said slip above the support, and an upper cement slip extending between and about said tiles, whereby the various filling parts and support are united together and to the beams, substantially as described.

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Witnesses:

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