(No Model.)

M. F. McCARTHY.

HOLLOW TILE FLOORING.

No. 461,960. Patented Oct. 27, 1891.

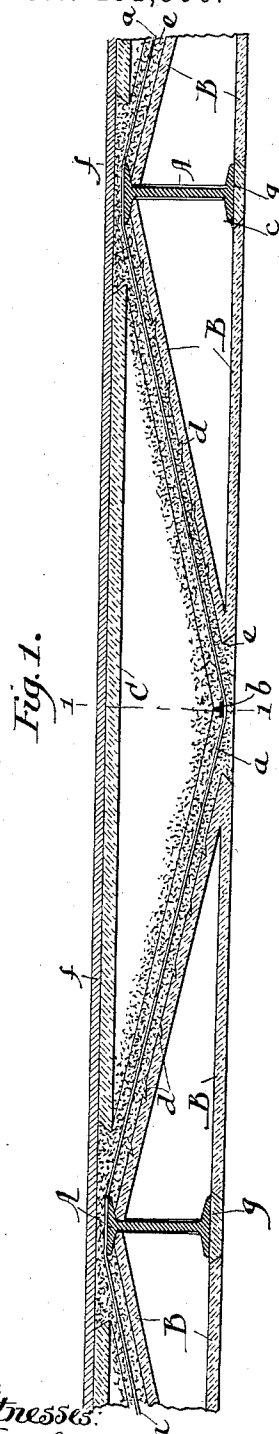

Fig. 1.

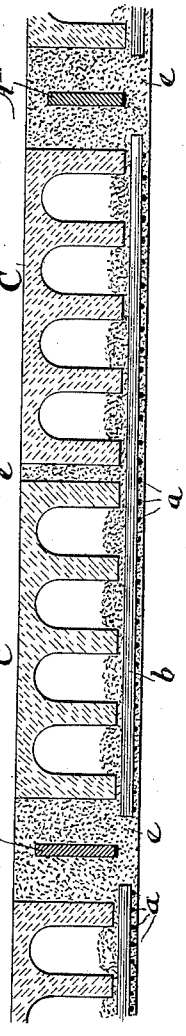

Fig. 2.

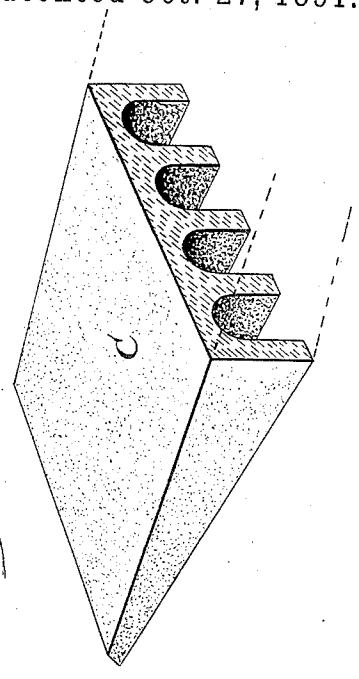

Fig. 4.

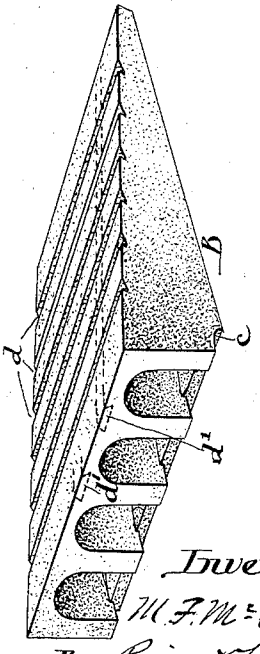

Fig. 3.

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UNITED STATES PATENT OFFICE.

MITCHELL F. McCARTHY, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE UNITED STATES FIRE PROOFING COMPANY, OF SAME PLACE.

HOLLOW-TILE FLOORING.

SPECIFICATION forming part of Letters Patent No. 461,960, dated October 27, 1891.

Application filed April 22, 1891. Serial No. 389,899. (No model.)

To all whom it may concern:

Be it known that I, MITCHELL F. McCARTHY, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hollow-Tile Flooring, 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 hollow-tile flooring, and refers more especially to that class of fire-proof structures wherein a series of strands or a wire-mesh fabric is extended over the beams which constitute the skeleton floor of a building, the strands of fabric serving as a support to efficiently aid in carrying the filling, which is set within the pockets or span-spaces between contiguous beams.

The present improvement designs to employ a hollow-tile or like cast form previously prepared for the main part of the pocket-filling and is directed to certain peculiarities in structure, whereby the tile form can be placed below the drooping support and yet be sustained therefrom, so that in conjunction with the upper filling, (usually a tile shape,) to which it is united by plastic composition, the pocket is compactly closed, the several parts being joined together and to the support and beams to produce a firm fire-proof floor, which is comparatively light in body because of the hollow tile employed. Owing to the peculiarities in shape and the plan adopted for sustaining the tile-sections from the beams it is possible (on small spans, for example) to secure the tile shapes directly together by means of the intermediate plastic slip or composition, thus dispensing entirely with the fabric or strand support, although the latter is ordinarily used.

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 view of a floor-section, showing the beams with drooping support and tile-filling united together according to my invention. Fig. 2 is a transverse section on the line 1 1 of Fig. 1. Fig. 3 is a view in perspective of one of the lower tile-sections. Fig. 4 is a perspective view, in half-section, of one of the upper tile shapes or partial fillings.

Beneath the series of floor-beams A is arranged a temporary staging, (not shown,) which serves to close the bottom of the pocket or span space between contiguous beams, and thus retains the filling until the same has set and hardened. Extending over the tops of the beams A and drooped (usually under tension) between them is a strand or fabric support *a*, embedded in the filling, and which, by reason of its position, serves to sustain the same and to afford a stout compact flooring, carried, practically, over the tops of the beams A. A metal cross-bar *b* may be laid with advantage at the apex of the drooping support *a*, and in such situation acts to receive and distribute the tension of the screw-jacks applied thereto, so that the supporter *a* is held taut and trim in suspension from the beams A.

Before applying the supporter *a* in manner described it is necessary to first adjust the lower tile-shapes B in place, these resting at their bases directly upon the staging and being secured at their ends by soffit-joint *c* to the flanges of the beams A. The tile-sections B are usually cast in shape and hardened at the factory, and are brought to the building in readiness to set in position. The upper faces of the tile-sections are inclined, as shown, and at various points along the same are furnished with dovetail insets *d*, which receive a portion of the plastic filling, or slip to firmly lock the tile together with the superposed parts of the filling. Instead of the transverse grooves *d*, the tile-sections may be furnished with the longitudinal grooves *d'*, which perform a like function in receiving the plastic key or bond. The lower tiles B being arranged in place with their soffit-joints *c* resting against the flanges of the beams A, the supporter *a* is then properly extended to position, and a filling *e* of plastic concrete or composition thrown into the pocket until the supporter *a* is thoroughly embedded therein. At the center or key of the span the plastic filling will penetrate beyond the supporter and the beveled ends of the lower tile B rest snugly

against the temporary staging, whereby when the composition sets the lower tile will be firmly keyed in place, and through the medium of the dovetailed groove *d* be united throughout to the supporter *a*. A sufficient quantity of the plastic slip *e* having been thrown into the pocket to insure the embedding of the supporter *a*, as desired, it is now merely necessary to insert above the same the upper tile or hollow forms C. As shown by the drawings, Fig. 2, these may be two in number, each occupying one-half of the space left in the pocket above the supporter *a* and between contiguous braces or cross-beams A′. It is obvious, however, that the number of such upper tile can be varied, so as to render them less cumbrous and more easily made and handled.

The tiles C are substantially triangular in longest section to correspond with the shape of the space in the pocket which they are designed to fill. The lower faces of the tiles C are left open, as shown, to permit the ready access of the plastic composition *e*, which penetrates therein and on setting serves to bind the tile C firmly in place. In common practice it is usual to leave side spaces between the upper tiles C and also between them and the adjacent braces or cross-beams A′, which spaces can be filled with the plastic cement or composition *e* to completely close the pocket and compactly join the various parts of the filling together and to the adjacent beams. Having thus closed the pocket span, it is merely necessary to apply a surface finish *f* and to key the places *g* beneath the base flange of the beams when the floor is completed, and the operator can advance to the next section or compartment.

By the practice of the invention it will be seen that both upper and lower tile-sections can be prepared in suitable shape beforehand, and by reason of their hollow character these afford a filling of comparatively little weight, at the same time that it is strong, and especially so in connection with the supporters *a*.

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 strand or fabric support extending over and depressed between them, the lower tile-sections resting at their bases against the beams, and the plastic slip uniting said sections to the drooping support, substantially as described.

2. In fire-proof structures, the combination, with the beams, of the strand or fabric support extending over and depressed between them, the lower tile-sections soffited to said beams, the upper tile-section resting above said support, and the intermediate plastic slip uniting the several tiles to the support, substantially as described.

3. In fire-proof structures, the combination, with the beams, of the strand or fabric support extending over and depressed between them, the lower tile-sections soffited to said beams and having dovetailed grooves on the upper faces thereof, the upper tile-sections arranged above the fabric support, and the intermediate plastic slip uniting the upper and lower tiles and the support together, substantially as described.

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