E. GLEASON.

Fire-Proof Floor.

No. 196,750. Patented Nov. 6, 1877.

Fig. 1

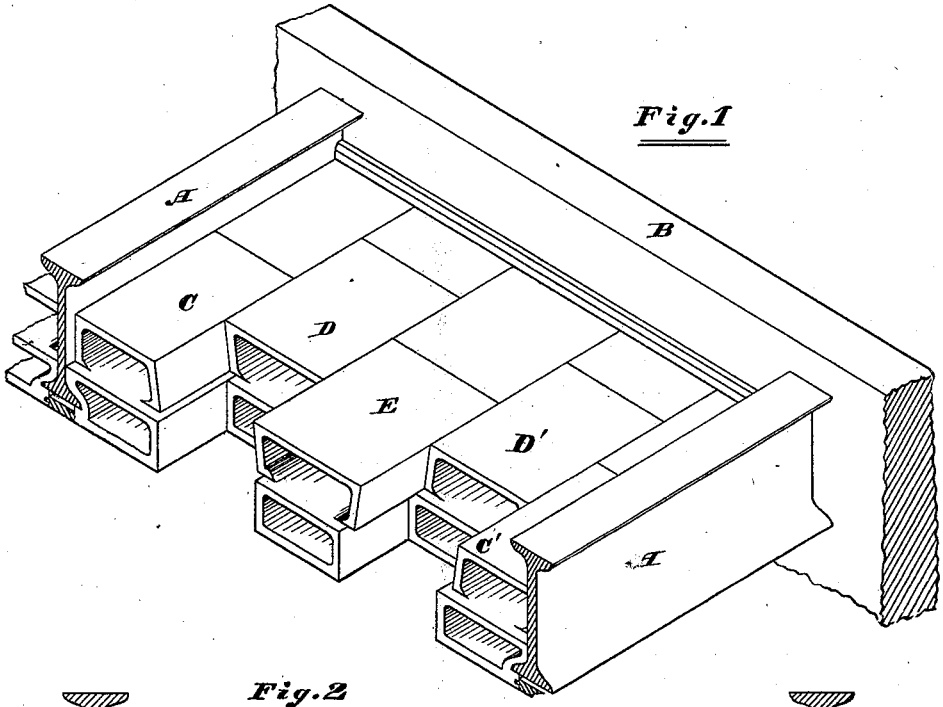
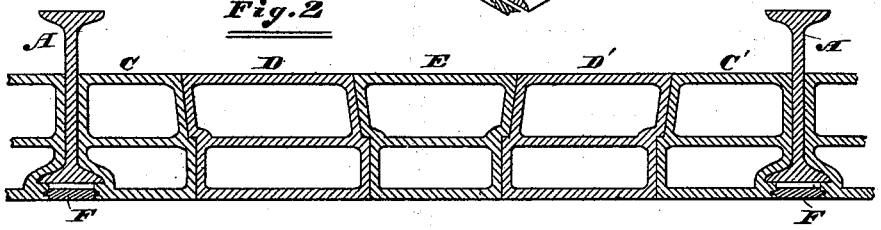


Fig. 2



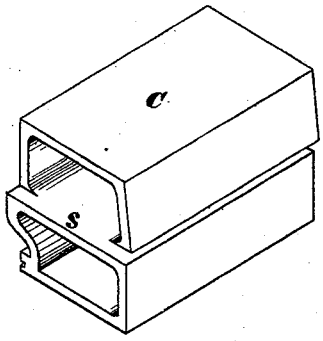


Fig. 3

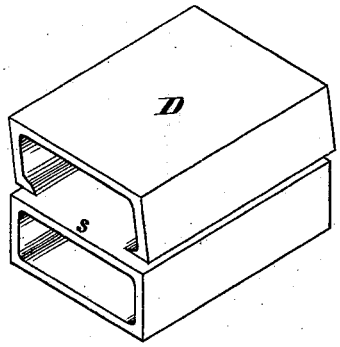


Fig. 4

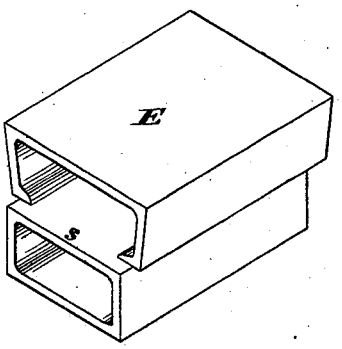


Fig. 5

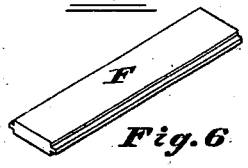


Fig. 6

Attest:

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UNITED STATES PATENT OFFICE.

EDWARD GLEASON, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN FIRE-PROOF FLOORS.

Specification forming part of Letters Patent No. **196,750**, dated November 6, 1877; application filed September 28, 1877.

To all whom it may concern:

Be it known that I, EDWARD GLEASON, of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Fire-Proof Hollow-Tile Floors; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, of which—

Figure 1 is a perspective view of a portion of a floor, showing my tiles in proper position; Fig. 2, a cross-section of the same; Figs. 3, 4, and 5, the three separate constructions of tile required; and Fig. 6, a detached view of the tile-plate which shields the girder.

My invention relates to the laying of hollow tiles between the girders in the form of a flat arch; and it consists in the specific construction of the said tiles, whereby they are rendered mutually sustaining when in position, and perfectly safe under any weight which may be imposed upon them, save only that such weight is sufficient to break them, and whereby the joints, instead of being straight, as in ordinary tile floors, are broken and irregular, thus effectually obstructing the passage through them of fire and heat; and it consists, also, in a separate device, in combination with certain of the tiles, for the protection of the bases of the girders from the action of heat, all as hereinafter more fully set forth.

In the drawings, A A are the girders, either iron or wood; and B, the wall. C, D, and E represent the three forms of tile used as to their general configuration, though as to the ledges and shoulders at the ends a reversal is obviously required, as indicated in Fig. 1, for those marked C′ D′, which lie on the opposite side of the central tile. Each tile is divided centrally by a horizontal web, *s*, and the whole is molded in one piece.

The forms of the several tiles in cross-section, as shown in Fig. 2, are as follows: The lower part of each is rectangular, except in the case of the outer tiles C C′, where it is made re-entrant on one side to conform to the flange of the girder on which it rests. E is the central tile or key, and its upper part has the form of a trapezoid, in which the non-parallel sides form like angles with the parallel sides, respectively. The shorter of the parallel sides forms the base, and is long enough to project beyond the rectangle below it, so as to form a shoulder at each side. The upper part of the tile D is rhomboidal in form, with its bases of the same breadth as the rectangle below it; but it so stands upon the lower part as to project beyond it on one side, and fall correspondingly short on the other. The upper part of the tile C is trapezoidal, that side which comes in juxtaposition to the girder being vertical, and the opposite one oblique, and it falls short in width of the lower part, so as to form a ledge, on which the shoulder of the next one rests. Thus, when set in position, all the side joints are beveled in the case of the upper parts, and straight in that of the lower, with a break-joint between, formed by the shoulders and ledges. The upper part of each tile is so superposed upon the lower, moreover, as to project beyond it at one end, forming a shoulder, and fall correspondingly short at the other, forming a ledge. They should terminate coincidently, however, where they come in contact with the walls B. The ends of both the upper and lower parts are vertical, so that no bevel-joints are formed at these points; but when the tiles are in position a break-joint is formed by the shoulders and ledges, as well here as at the sides.

As hereinbefore stated, the tiles which are designed for corresponding positions on opposite sides of the key-tile must be of reverse construction as to the shoulders and ledges at the ends, and this necessitates their being cast in separate molds. In all other respects, of course, their forms are identical.

The tiles are so constructed that when placed in position their bases fall below those of the girders. This is in order that the tile plates F may be fitted, as shown, by means of tongues and grooves, to the lower outer edges of the tiles C and C′, whereby the girder itself is shielded from the action of heat; and I prefer that the hollow tiles sit sufficiently low to permit an air-space to intervene between the tile plate and the base of the girder, since the effectiveness is hereby enhanced.

In laying the tiles I recommend that of those which are in contact with the walls, and thus form the beginning or end of a set, each alternate one be of half-length, as shown in Fig. 1,

this method presenting advantages well known in the art.

The construction or configuration of the tiles hereinbefore described applies, to all intents and purposes, equally to solid tiles, and also to hollow tiles without a web through the center. I employ hollow tiles solely for the manifest reason that they are lighter and cheaper than solid ones; and I employ the web *s* not only to increase the strength and heat-resisting properties, but, also, and chiefly, that in the event of the breaking of either an upper or an under shell, two others, with an intervening air-chamber, may still remain to withstand the action of the heat.

I am aware, however, that there is nothing new in the mere laying of hollow tiles, either with or without a web, in the form of a flat arch, this having been done for many years, and in various countries; but

What I claim as new, and desire to secure by Letters Patent, is—

1. A flat arch composed of tiles C D E C′ D′, constructed with shouldered sides and ends, substantially in the manner described and shown, and arranged in combination with the girders A A, as set forth.

2. The tiles herein described, either hollow or solid, provided with shouldered sides and ends, substantially as shown and herein described.

3. The separate tile plates F, under the bases of the girders, rabbeted into the lower edges of the tiles C and C′, substantially as described and shown, for the purpose set forth.

EDWARD GLEASON.

In presence of—
JOSEPH HOGAN,
H. V. TABEY.