

UNITED STATES PATENT OFFICE.

RICHARD L. STONE, OF CHICAGO, ILLINOIS.

FLOOR-ARCH.

SPECIFICATION forming part of Letters Patent No. 475,354, dated May 24, 1892.

Application filed February 8, 1892. Serial No. 420,727. (No model.)

To all whom it may concern:

Be it known that I, RICHARD L. STONE, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented new and useful Improvements in Fire-Proof Floor-Arches, of which the following is a specification, reference being had to the accompanying drawings, illustrating the invention, in which—

Figure 1 is a perspective representation of a portion of my improved ceiling-arch abutting an I-beam. Fig. 2 is an elevation of the key-block removed from the arch and an edge view of the filling-tile employed to complete the arch between I-beams which are irregularly spaced. Fig. 3 is a face view of the filling-tile.

This invention relates to a fire-proof ceiling, which is placed between metal I-beams and serves to support the plaster underneath and the floor above; and the novelty of the ceiling consists in the certain means by which the several sections of the tile arches are braced to sustain a required pressure imposed thereon. It is desirable that a ceiling of this kind be made as light as possible, so that its own weight will not materially detract from its supporting capacity. To attain the greatest supporting-power, I construct each section of the arch, except the key-section and skewback sections, with an upper and lower diagonal brace, so that the lower brace of one section lies in line with the upper brace of the inner adjoining section, whereby each main section is provided with two braces, and the lower brace of one section and the upper of the inner adjoining section in practice serves the purpose of a continuous diagonal brace through two main sections and the key-section. The skewback sections have each but one brace, and that a lower one, and the key-section has two upper diagonal braces crossing each other. The adjoining sections between said upper and lower braces are shouldered onto each other by offsets reverse in contour, whereby the floor-arch can be laid level and not crowned, as is now generally the custom with other forms of arches, and maintain its position, while the I-beams do not spread from each other. Where a given number of sections do not fill the space between two I-beams G, I employ one or more filling-

tiles E F, termed "slims," which are formed with offsets V S, similar to the shoulders on the other sections, so that said spaces may be filled with shouldered tile instead of mortar. The form of these slims is shown at Figs. 2 and 3.

A represents the key-section. H is its top wall, P X its side walls, and W its bottom wall. I I, &c., represent all the other tiles, and B B B C the top walls of those sections at the right of the key-section, and D represents a broken portion of one section at the left of said key-section.

U U, &c., represent the top joints.

J J, &c., represent the bottom walls of all the sections except the key-section.

The adjoining walls of the sections B I, C I, and D I are shown at P P, &c., and the offsets, by means of which one section has a seat upon the other section, is shown at V S.

At the right hand of the key-section H A L L, &c., represent the lower braces, which extend, respectively, from the lower right-hand corners of the sections diagonally to the middle of the sections they are located in and stop opposite the offsets V S, and the upper braces N run from the offset portions to the upper left-hand corners of the sections, the braces in the key-section being in the form of an X, as clearly shown in Figs. 1 and 2. Struts M in Fig. 1 connect with the sides and braces of all the sections except the key-section; but these are only employed where the arch is ten inches or more high. For arches eight inches high the walls and braces will be sufficiently strong if made three-fourths of an inch in thickness each.

The skewback-section C I J is provided at its corner adjoining the lower portion of the I-beam with the ordinary notch K to pass onto the flange as a support, as the art of construction was before my invention.

It will be understood that the sections at the left of the key-section are the reverse counterpart of the sections at the right hand of the said key-section.

The method of setting the sections does not differ, essentially, from that in setting other tile-arches, except that the top of the arch is not crowned or set convex.

I do not claim to be the first to brace the sections of a floor-arch made of tile or burned

clay; and therefore confine my invention to the following specific claim.

I claim as new and desire to secure by Letters Patent of the United States—

- 5 An improvement in floor-arches, consisting of the main sections B I J, formed on their inclined uniting sides with seats V S, and the skewback C I J, formed with one seat S, the key-section formed on each side with one seat
10 V, the sections B I J and the sections C I J being provided with lower diagonal braces extending from their outer lower corners inwardly to the middle portions of the opposite sides, and the sections B I J and A H W pro-

vided with upper braces extending from their 15 middle portions to the opposite upper angles, the seats V S, located between the upper and lower braces, and the sections D I J on the opposite side of the key-section constructed as reverse counterparts of the sections named, 20 the upper and lower braces in line with each other, in combination with two I-beams, as specified and shown.

RICHARD L. STONE.

Witnesses:

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E. R. KIRKWOOD.