J. J. EGAN & H. W. HILL.
Fire-Proof Floors for Buildings.

No. 195,996. Patented Oct. 9, 1877.

Fig: 1.

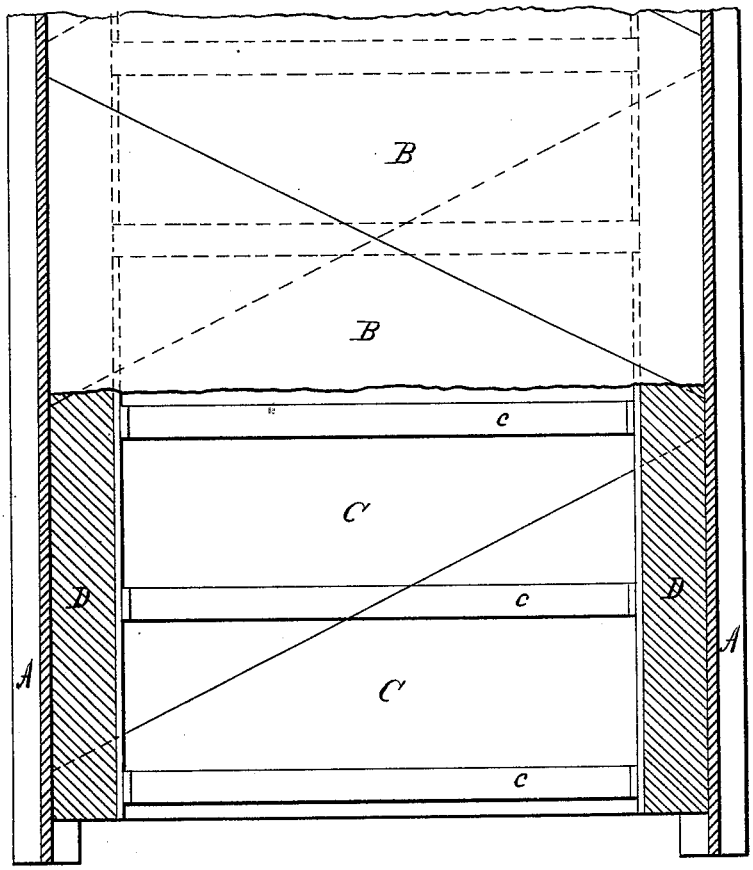
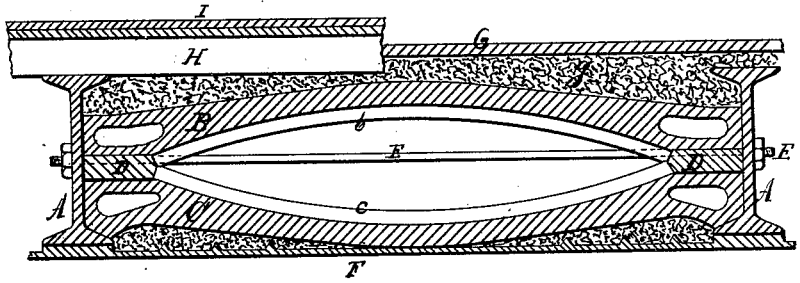


Fig: 2.



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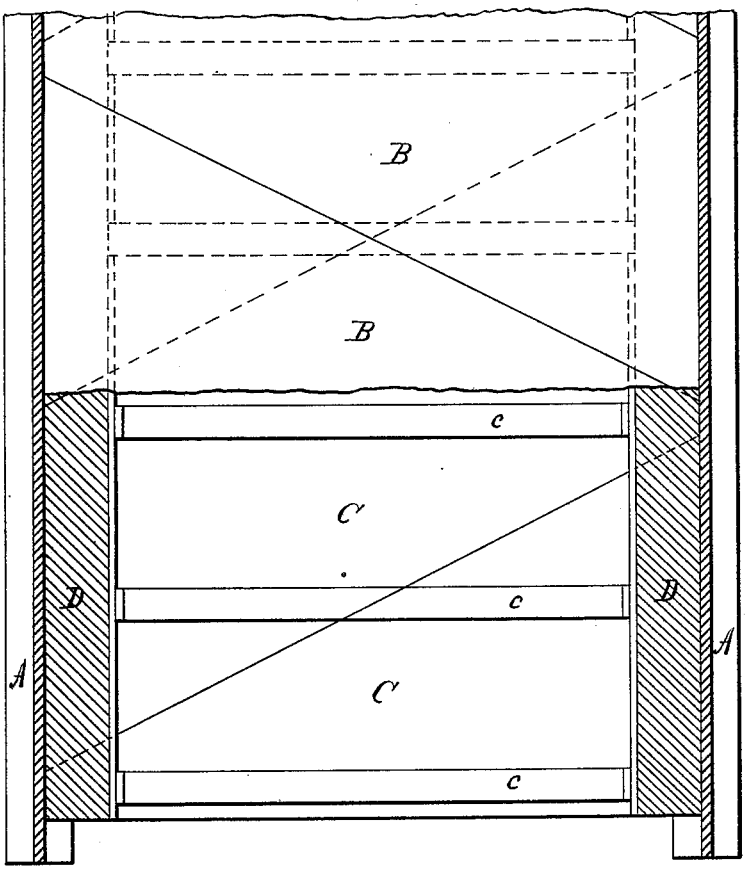
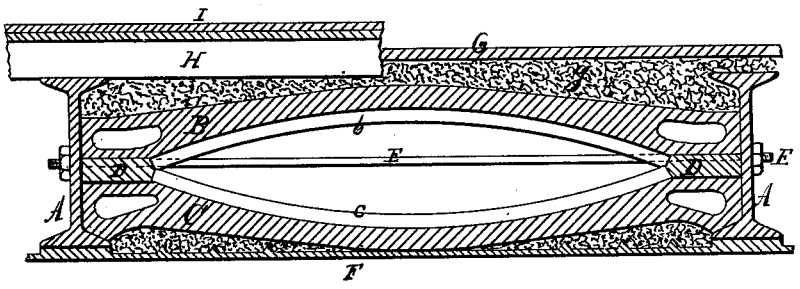


Fig: 2.



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UNITED STATES PATENT OFFICE.

JAMES J. EGAN AND HENRY W. HILL, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN FIRE-PROOF FLOORS FOR BUILDINGS.

Specification forming part of Letters Patent No. **195,996**, dated October 9, 1877; application filed September 4, 1877.

To all whom it may concern:

Be it known that we, JAMES J. EGAN and HENRY W. HILL, both of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Construction of Fire-Proof Floors for Buildings, of which the following is a specification:

Our invention has for its object to apply arched and inverted arched tiles between the floor-beams in such a manner that a continuous tunnel or air-space is formed between; and it consists in the peculiar construction and arrangement of said tiles, as more fully hereinafter described.

Figure 1 is a sectional plan of the floor, and Fig. 2 is a vertical cross-section of the same.

In the drawing, A A are the floor-beams, being the ordinary rolled iron **I**-beams. B B are arched, and C C are inverted arched, tiles of clay, cement, plaster-of-paris, or other suitable material, extending lengthwise between each pair of floor-beams. Each of these tiles, in its ground plan, forms an acute or obtuse angled parallelogram, and in transverse section a segmental or elliptic arch with perforated spandrels. These tiles are laid between the floor-beams, with their joints raking at acute or obtuse angles with the lines of the floor-beams, and correspond with the longer sides of the parallelogram forming the plan of each tile, in order to admit of the insertion of said tiles between the webs of the beams.

The raking joints of the upper and lower arches are laid with opposing angles, so that the joints of the upper tiles, if projected downward on their plan, would intersect those of the lower tiles, thereby increasing and strengthening the bond between the upper and lower arches.

The tiles are cast or molded with projecting arched ribs *b* and *c* on the intrados of the arch, these ribs being at right angles with the lines of the floor-beams. Spacing-pieces D are inserted between the spandrels for convenience of adjustment to floor-beams of different cross-sections.

E is one of a series of tension-rods placed crosswise through each pair of floor-beams for sustaining the thrust of the arches.

F shows the ceiling-plaster. G is a terra-cotta or stone floor, tiles, flags, or slabs being bedded in a layer of concrete or mortar, *g*. H is a wooden floor-joist, and I the flooring upon it.

By the combination of arched and inverted arched tiles this floor forms continuous air-spaces the whole length of the floor-beams, thereby making it more fire-proof than where single arches only are employed; besides that they will insure a more consistent strutting or bracing to the floor-beams.

What we claim as our invention is—

1. A bridging-tile, B or C, forming in its plan an acute or obtuse angled parallelogram, and in transverse section a segmental or elliptic arch, substantially as herein described, for the purpose specified.

2. A bridging-tile, B or C, the plan of which forms an acute or obtuse angled parallelogram, and its transverse section a segmental or elliptic arch, with perforated spandrels, and with projecting arched ribs *b* or *c* on the intrados of said arch, these ribs being at right angles with the spandrels, substantially as and for the purpose set forth.

3. A fire-proof floor consisting of floor-beams A A, arched tiles B, and inverted arched tiles C, substantially as described, and for the purpose specified.

4. A fire-proof floor consisting of floor-beams A A, arched tiles B, inverted arched tiles C, and spacing-pieces D, constructed and arranged substantially as and for the purpose specified.

5. A fire-proof floor consisting of iron floor-beams A A, arched tiles B, and inverted arched tiles C, having their joints raking at obtuse angles with the spandrels and in opposite directions, and spacing-pieces D, all constructed and arranged substantially in the manner described and shown.

JAMES J. EGAN.
HENRY W. HILL.

Witnesses:
WM. H. LOTZ,
EMIL H. FROMMANN.