No. 681,969. Patented Sept. 3, 1901.

J. O'NEIL.

FIREPROOF FLOOR AND CEILING.

(Application filed May 13, 1901.)

(No Model.)

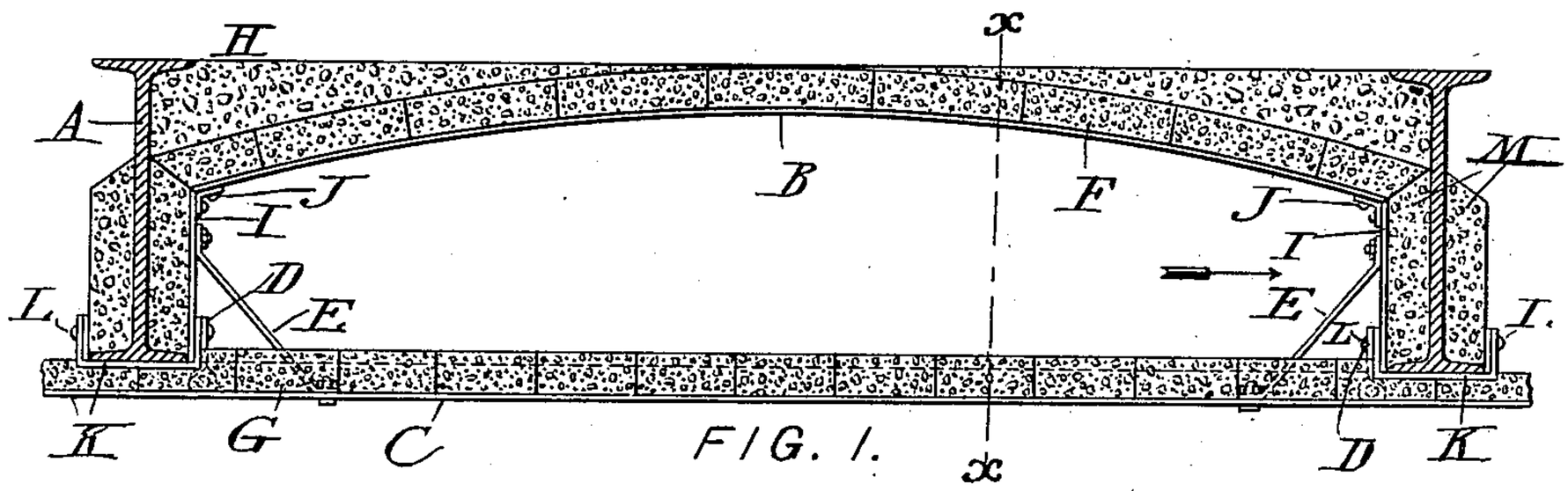

FIG. 1.

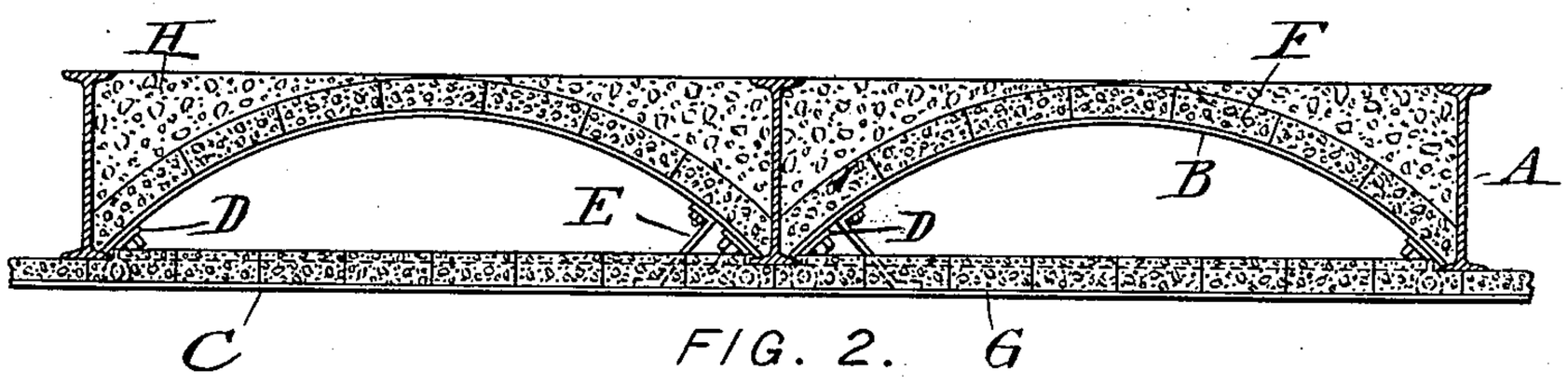

FIG. 2.

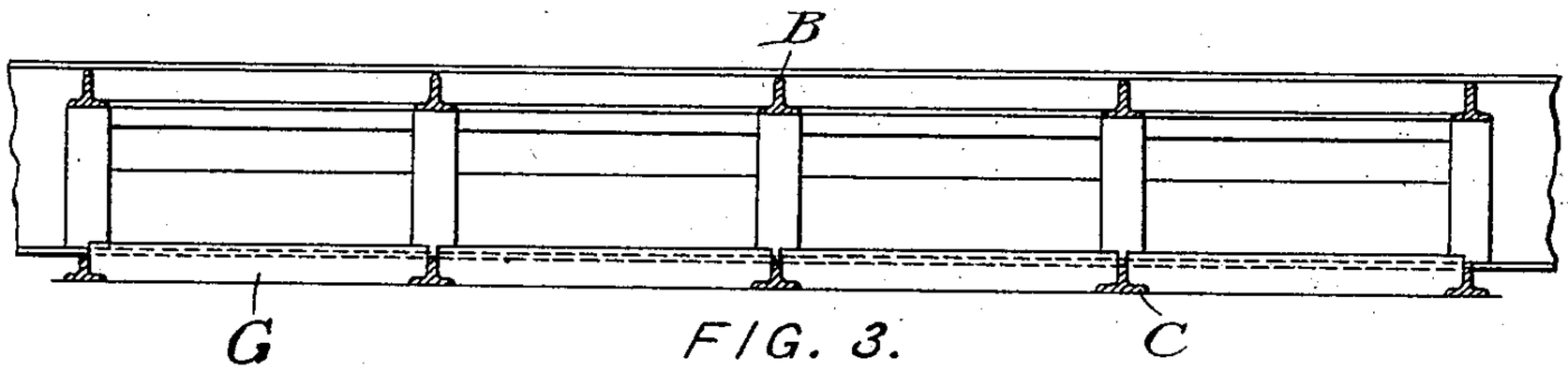

FIG. 3.

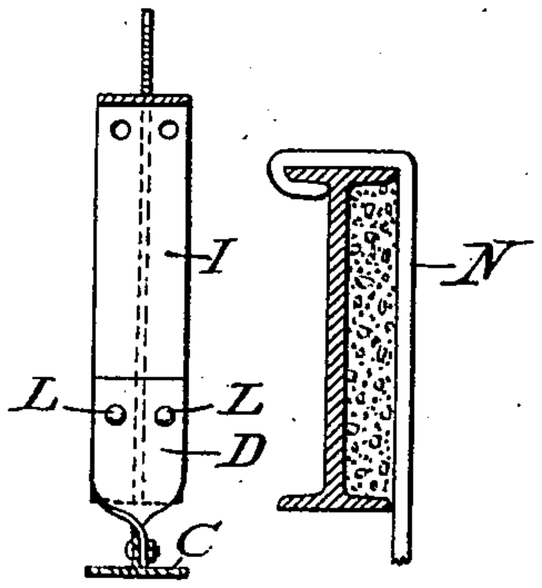

FIG. 8.

FIG. 4.

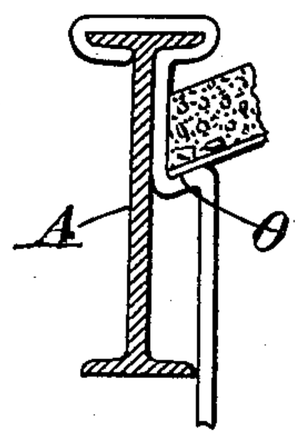

FIG. 5.

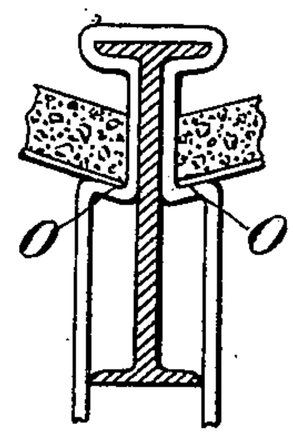

FIG. 6.

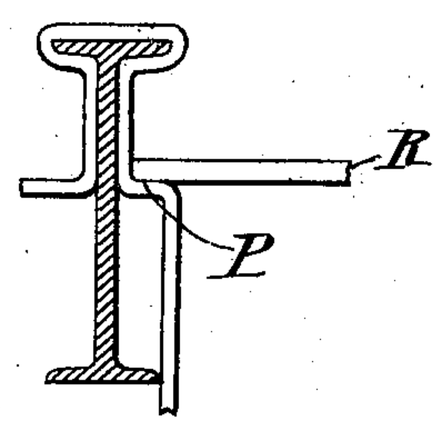

FIG. 7.

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UNITED STATES PATENT OFFICE.

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FIREPROOF FLOOR AND CEILING.

SPECIFICATION forming part of Letters Patent No. 681,969, dated September 3, 1901.

Application filed May 13, 1901. Serial No. 59,929. (No model.)

To all whom it may concern:

Be it known that I, JOHN O'NEIL, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Fireproof Floors and Ceilings, of which the following is a specification.

The object of my invention is the provision of a fireproof floor and ceiling which shall be comparatively simple in construction, light in weight, strong and securely anchored to the girders, which in application shall not impair the strength of the flanges of the girders by bolt or rivet holes, which shall isolate the girders from direct contact of the flames in case of fire, which in construction shall obviate the necessity of using scaffolding or centering devices, and which finally shall possess additional desirable and characteristic features constituting the same superior means for the purposes intended.

With these ends in view my invention consists in certain novelties in construction and combinations of parts hereinafter set forth and claimed.

The accompanying drawings illustrate two complete examples of the physical embodiments of my invention and four modified forms of hangers for the ceiling, which are constructed according to the best modes I have so far devised for the application of the principles.

Figure 1 is a section of two girders and a floor and ceiling, showing the construction of one example. Fig. 2 is a section of three girders and a floor and ceiling, disclosing the second example. Fig. 3 is a section on line *x x* of Fig. 1. Figs. 4, 5, 6, and 7 illustrate modified forms of hangers for the ceiling and supports for the floor-tiles. Fig. 8 is a view of the T-iron support as seen when looking in the direction of the arrow in Fig. 1, also showing the hanger secured to the T-iron and the ceiling T-iron in section.

Referring to the several figures, the letter A designates I-beam girders, such as are commonly used in steel-frame buildings.

B represents the T-irons for the floor-arches, bent as shown, and supported at the ends adjacent the girders.

C represents the transverse T-irons for the ceiling, located beneath the girders.

D represents the hangers which support the T-irons.

E represents braces which are bolted or riveted to the T-irons C at one end and at the other end similarly secured to the flanges of the T-irons I and B for the floor-arches.

F represents fireproof tiles made of any suitable material, supported by the flanges of the T-irons B, the edges of the tiles being beveled or fashioned to fit and bear against the flanges and fillets of the T-irons.

G represents the tiles which are located upon the T-irons C of the ceiling, an edge view of the same and the bevels at the ends being shown in Fig. 3 of the drawings; and H designates concrete or ashes or other material filled in between the tiles F and the girders.

In Fig. 1 the ends of the T-irons B are supported some distance above the lower flanges of the girders upon the ends of the T-irons, and tile or concrete placed between their flanges and the webs of the girders. The letter I designates the T-irons, located in perpendicular positions upon the flanges of the girders.

J represents connecting-angles riveted to the flanges of the T-irons I and B at their junctions.

K represents ⌊⌋-shaped irons or clips located beneath the flanges of the girders and riveted or bolted at their ends to the T-irons I, as indicated by the letter L at the right and left; and M is the tiling or blocks of concrete or the like located in contact with the webs of the girders. It will be observed that the hangers in Fig. 1 are riveted or bolted to the T-irons C at one end and at the other end to the clips K and that in Fig. 2 the hangers are secured at their upper ends directly to the flanges of the T-irons B, which latter at their ends abut the webs and lower flanges of the girders.

In Figs. 4, 5, 6, and 7 are shown modifications of constructions which may be introduced. The hanger in Fig. 4 (designated by N) is bent at one end and extended over the flange of the girder and hooked beneath the flange. In Fig. 5 the hanger is bent to form a seat O for the T-iron of a floor-arch. Fig. 6 shows a double form of the hanger on opposite sides of the girder and with seats O O for

the T-irons. In Fig. 7 a double hanger is supported from the top flange of the girder and seats P, formed for the ends of bars R, upon which the ends of the tile are located in a manner similar to the arrangement of the same upon the T-irons, though in this latter instance the ends of the tile may abut, whereas in the case described they have beveled ends which rest upon the flanges of the T-irons.

From the foregoing description it becomes obvious that I have produced a fireproof floor and ceiling which fulfils all the conditions set forth as the purpose of my invention.

While I have illustrated only two examples of the physical embodiment of my invention and several modified types of hangers, I do not thereby intend to limit the scope of the same to the details of construction shown, inasmuch as minor changes may be introduced at will. The tiling may be of any material desired and properly shaped, as with a camber or otherwise, the attachment of the hangers varied, the bracing differently disposed, and many other variations introduced which will not constitute substantial departures.

What I claim is—

1. The combination in a fireproof floor and ceiling, of the girders; the T-irons C supported beneath the girders; the tiling G located upon the T-irons C; metallic floor-supports spanning the space between the webs of the adjacent girders; tiling B; and suitable filling material above the tiling B and between the girders; whereby a dead-air space is formed between the ceiling and floor, and the lower flanges of the girders insulated.

2. The combination in a fireproof floor and ceiling, of girders; the T-irons for the ceiling located beneath the girders; the arched T-irons for supporting the floor; and tiling located upon the ceiling and floor T-irons.

3. The combination in a fireproof floor and ceiling, of girders; T-irons for the ceiling located beneath the girders; arched T-irons spanning the space between the girders; hangers for the ceiling T-irons; braces; and suitable tiling.

4. The combination in a fireproof floor and ceiling, of girders; supporting-irons for the ceiling located below the girders; metallic floor-supports spanning the space intermediate the webs of the girders; supports for the ends of the said floor-supports resting upon the flanges of the girders; and suitable tiling.

5. The combination in a fireproof floor and ceiling, of girders; T-irons for the ceiling located below the girders; hangers; arched T-irons for the floor supported by the flanges of the girders; and suitable tiling upon the T-irons.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN O'NEIL.

Witnesses:
FRANK R. JOHNSON,
HENRY A. YOUNGS.