J. W. HOYT.

Fire-Proof Floor.

No. 197,781. Patented Dec. 4, 1877.

Fig: 1.

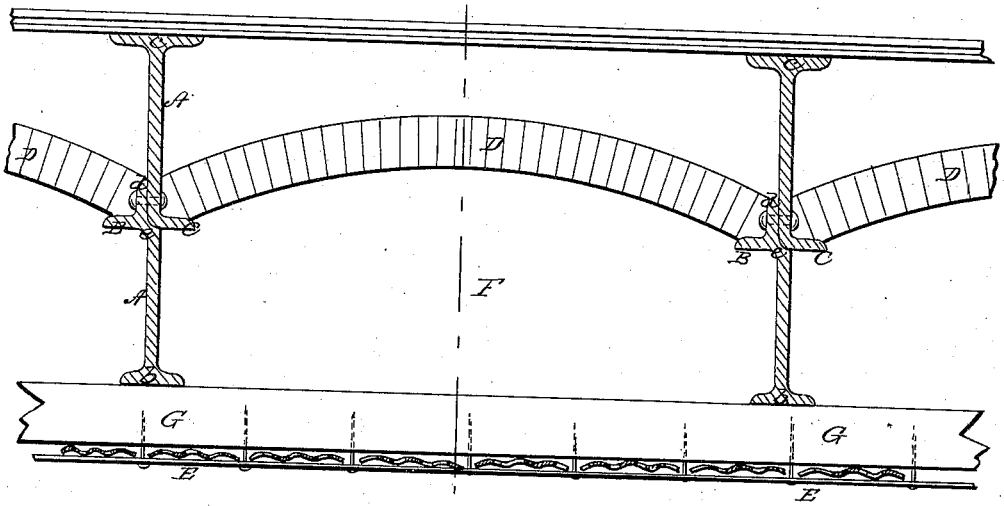
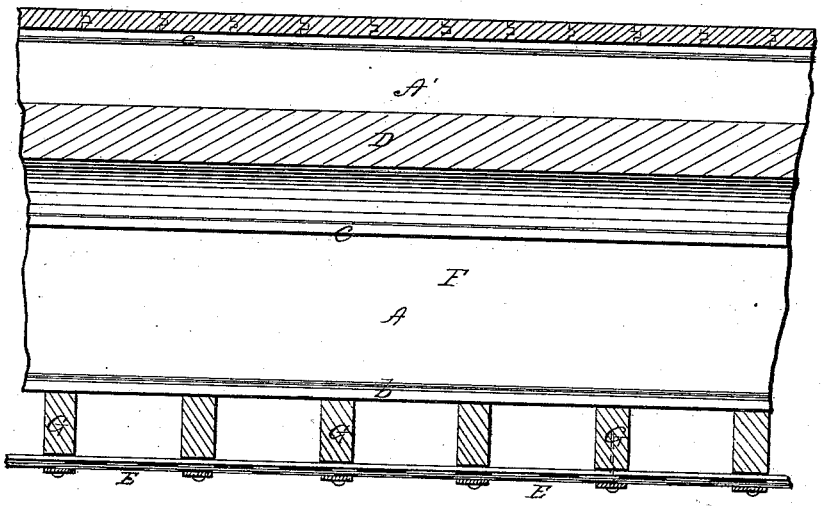


Fig: 2.



Witnesses:

Chas. Nida

H. C. Wattenberg

Inventor:

John W. Hoyt

per

Atty.

UNITED STATES PATENT OFFICE.

JOHN W. HOYT, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR OF ONE-HALF HIS RIGHT TO CAROLINE M. DWIGHT, OF SAME PLACE.

IMPROVEMENT IN FIRE-PROOF FLOORS.

Specification forming part of Letters Patent No. **197,781**, dated December 4, 1877; application filed May 12, 1877.

To all whom it may concern:

Be it known that I, JOHN W. HOYT, of Springfield, in the county of Hampden and State of Massachusetts, have invented a new and Improved Fire-Proof Floor; and that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making part of this specification.

This invention is in the nature of an improvement in fire-proof floors.

The invention consists in a fire-proof floor composed of iron supporting-beams made in two sections, the edge of one section resting upon a seat formed by an offset in the edge of the other section, each section being provided with flanges rolled or otherwise formed at or near the edges of the sections at the place of juncture, the two sections being retained in position by rivets or bolts passing through one section into the other section, the flanges at the place of juncture supporting a brick arched flooring, and the under surface of the beams provided with furring and metallic lathing, the entire structure forming a fire-proof flooring, with a space between the under side of the brick arch and the furring, to which the lathing is attached, this space constituting a ventilating shaft or chamber, and for the reception of water, gas, or steam pipes.

In the accompanying sheet of drawings, Figure 1 is an end view of my improved floor, and Fig. 2 a longitudinal section of same.

Similar letters of reference indicate like parts in both figures.

It frequently happens, in the construction of fire-proof flooring, that it is desirable to provide a chamber over the ceiling and beneath the flooring for the purposes of ventilation, and as passage-ways for the introduction of gas, steam, or water pipes. With the ordinary iron supporting-beams used for fire-proof floors, the space beneath the brick arches of the floors is too contracted to be used for ventilation, and too contracted for the use of steam, water, or gas pipes, excepting for such pipes as could be used for buildings of small size, if at all. If the ordinary compound beam, consisting of riveted sheet-iron web and angle-iron flanges, should be used, the cost and great weight of such beams are serious drawbacks to their general employment; and if the beams should be formed, as is sometimes done, by uniting two ordinary H-beams together, by placing one on top of the other, and riveting them together through the contiguous flanges, the cost is again a material objection to their use, and the intermediate flanges are unnecessarily heavy, and the rivet-heads on the flanges which support the brick arches are objectionable, as the bricks of the arches must necessarily rest on these rivet-heads rather than on the flanges themselves.

To construct a fire-proof floor that shall be comparatively economical and light, and particularly strong, and provided with a space between the under side of the arch of the flooring and the furring for ventilation, or for the reception of water, gas, or steam pipes, I construct my supporting-beams in two sections, A A′. These sections are rolled with flanges *b c* on one of their edges, and with flanges B C at right angles to the surface of their sides, at or near their other edge, the edge *d* of one section, A, extending upward and beyond the flange, B, formed thereon; and this edge *d* is offset, as at *e*, from the surface of the side of the section to an extent equal to the thickness of the web of the section, as shown in Fig. 1, so that when the edge of the section A′ is brought in contact with the edge *d* of the section A, it will rest in the offset *e*, which forms a seat or support for the edge of the adjoining section, and the webs of the two sections be in the same continuous line, the portion or edge *d* of the section A, before referred to, lying closely against the web of the section A′, to which it is riveted, and by means of which the two sections are joined together, forming one beam, with flanges *b c* at their upper and lower edges, and flanges B and C intermediate thereto.

The beams in this way constructed have built between them, in the ordinary manner, brick arches D, resting on and springing between the intermediate flanges B and C, and to the lower flanges *b* of the beams are secured ordinary metal furring G, to which is affixed, in any desirable manner, the metallic lathing E.

Between the under side of the arch D and the metal furring is an inclosed space or chamber, F, extending the entire length of the arch and beams, the arches and beams of a completed floor forming a series of inclosed chambers, well adapted for ventilating shafts or conduits or chambers, within which may be placed the gas, water, and steam pipes, for use in the building. The space over the crown of the arch D, and between it and the under side of the flooring-planks, may be filled with concrete, in the ordinary manner.

From the foregoing description of the construction of my fire-proof flooring, it will be seen that every apartment in the building is provided with ample means for ventilation, and for placing the various service-pipes of the building, which provision necessarily occurs in the ordinary course of constructing the building, and without the special construction generally employed to effect this purpose; and this is produced in the most ample manner, in the most desirable localities, at comparatively little cost, with a great reduction in weight, and with a strength not heretofore attained.

It is hardly necessary to add that for the purposes of ventilation openings may be made from the ceiling into these ventilating flues or chambers in any desirable manner.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A fire-proof floor consisting of compound iron beams, with intermediate flanges, in combination with a brick arch resting on said intermediate flanges, and a chamber formed between the brick arch and the furring and lathing, substantially as and for the purpose described.

JOHN W. HOYT.

Witnesses:
H. L. WATTENBERG,
G. M. PLYMPTON.