

(No Model.)

2 Sheets—Sheet 1.

A. G. EASTMAN.
FIREPROOF FLOOR OR ROOF.

No. 564,783.

Patented July 28, 1896.

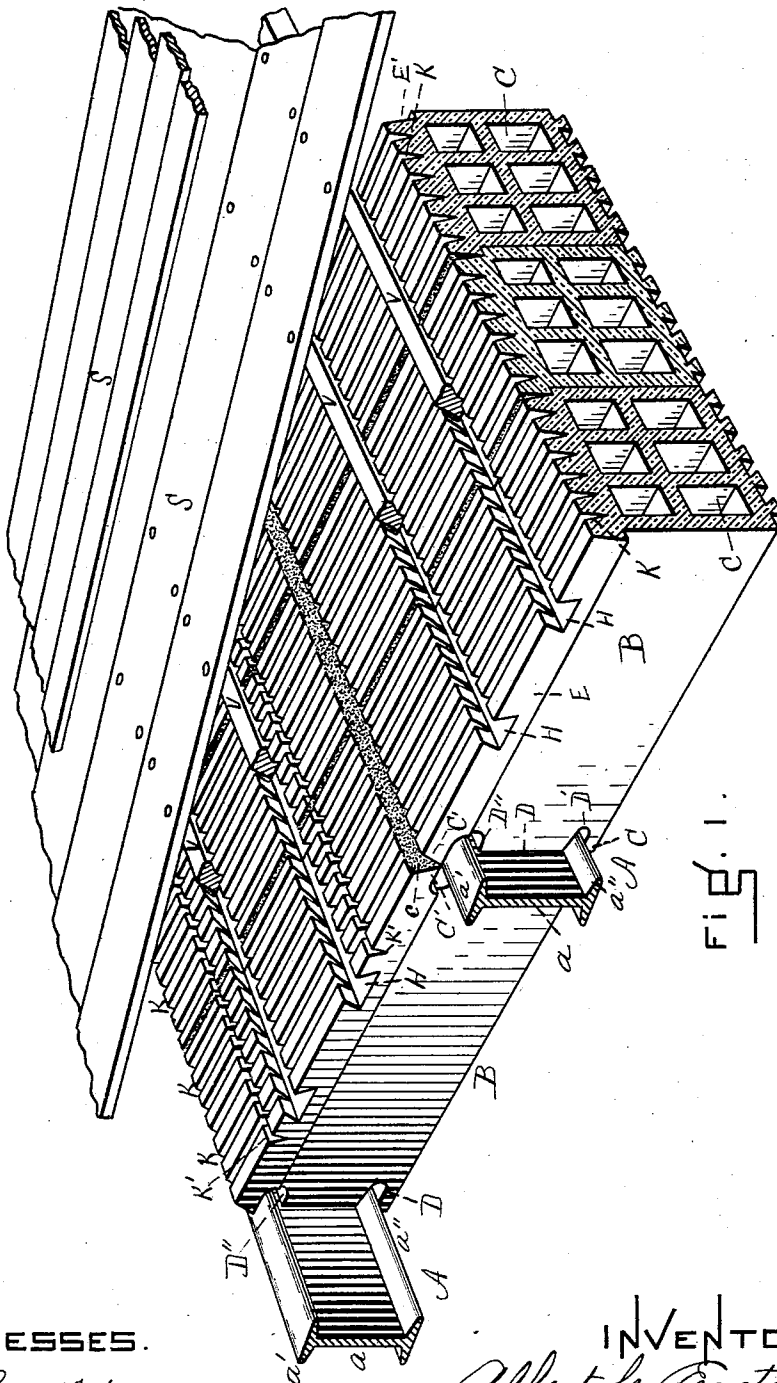


FIG. 1.

WITNESSES.

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By his Atty.

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(No Model.)

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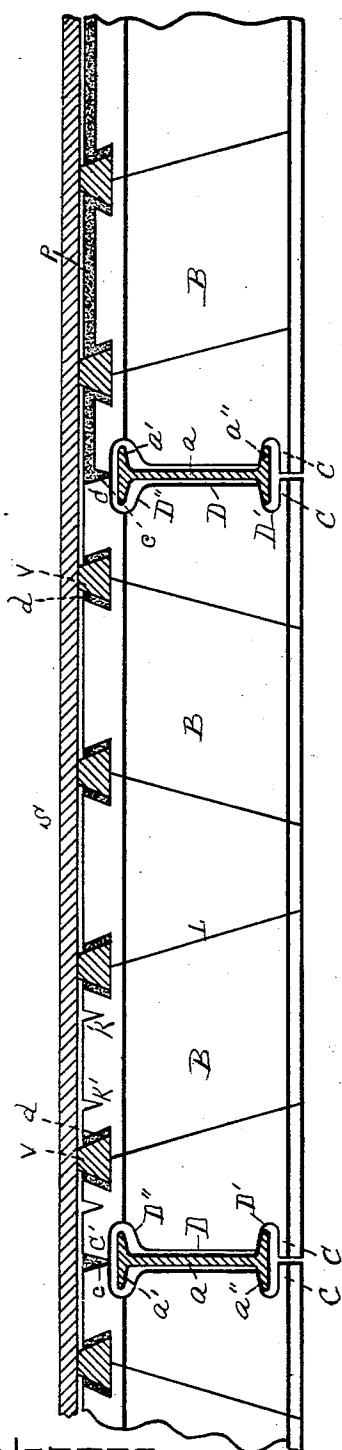


FIG. 3

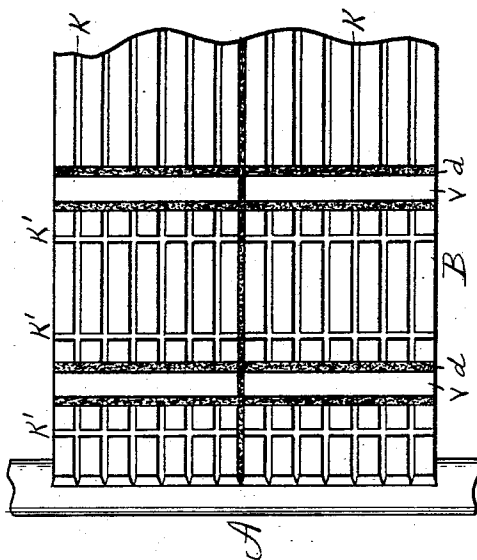


FIG. 4

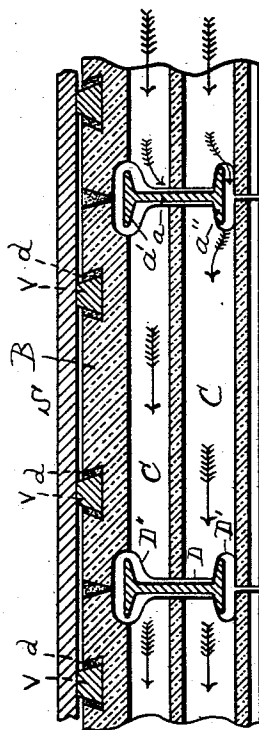


FIG. 2

WITNESSES

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UNITED STATES PATENT OFFICE.

ALBERT G. EASTMAN, OF BOSTON, MASSACHUSETTS.

FIREPROOF FLOOR OR ROOF.

SPECIFICATION forming part of Letters Patent No. 564,783, dated July 28, 1896.

Application filed October 18, 1895. Serial No. 566,057. (No model.)

To all whom it may concern:

Be it known that I, ALBERT G. EASTMAN, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in the Construction of Fireproof Floors or Roofs, of which the following is a specification.

My invention relates to the construction of fireproof floors and roofs, principally the former, and has for its main advantages an increased fireproof quality, an advancement with relation to sanitary effects, great strength in connection with extreme lightness and thinness of material, and ease, simplicity, and economy of time in construction.

The nature of the invention is fully described below, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view illustrating my invention or improvement in construction with a portion of a floor. Fig. 2 is a vertical section taken at right angles to the beams or girders forming the metal supports through a chamber or passage in one of the lintels. Fig. 3 is a similar section showing the lintel in elevation and made in sections, the joints whereof are radial or diagonal. Fig. 4 is a detail in plan of a portion of a lintel set at right angles with the beams or girders, the floor having been removed.

Similar letters of reference indicate corresponding parts.

A A represent the beams or girders constructed in the ordinary manner and each comprising the web *a* and the upper and lower flanges *a'* and *a''*, said beams or girders constituting the metal supports for the floor (or roof) and being themselves supported by the walls of the building.

B B represent the lintels. These lintels are supported by the metallic beams or girders A in the manner below described, and may be laid diagonally with the beams, as shown in Fig. 1, or at right angles therewith, as shown in Fig. 4. S represents the floor supported by the lintels, and V V are the joists to which the floor is nailed.

The lintels B are constructed of fireproof material and are rectangular in shape in cross-section and are formed with a plurality

of longitudinal passages C. The lintels are placed adjacent to each other, and their abutting edges are formed to receive the beams or girders A. The horizontal groove in each edge formed for the above-named purpose consists of the portion D, which accommodates the web *a*, the portion D', which accommodates the lower flange *a''*, and the portion D'', which accommodates the upper flange *a'*. None of these portions, however, come in contact with the beams A with the exception of the upper edge of the portion D', which edge rests upon the lower flange A' of the beam whereby the lintel is supported. With the exception of this resting-point there is no contact between the lintel and the beam, so that there is a continuous and free air-space beneath the lower flanges above and beneath the upper flanges and for the entire surface from bottom to top of the web. The under side of the bottom flanges and the upper side of the top flanges are protected, respectively, by lips C and C', such lips, however, not being in contact with the flanges, as above mentioned. The upper edges or corners of the sides of the lintels are cast in the shape of tongues E and rabbets E', each tongue resting in the rabbet of the adjacent lintel and thus forming a break in the vertical joints between the lintels. The sides of these rabbets and tongues are beveled, as shown, whereby a V-shaped groove is left at that point into which cement or other fireproof material may be introduced and a tight joint thus provided. The lips C' have their edges similarly beveled for the purpose of receiving a similar fireproof material, (indicated at *c*.)

The upper surface of the lintels have cast in them diagonal (or transverse) grooves H, preferably dovetailed in shape, as shown, which are parallel with the ends of the support and which are formed for the reception of the joists V, to which the wooden floor-boards are nailed. Cement or other fireproof material *d* is introduced between the sides of the joists and those of the grooves, thus locking the floor in position. The upper surface of each lintel is, furthermore, provided with incisions K K', preferably V-shaped in cross-section and respectively perpendicular to and parallel with the ends of support, such in-

cisions being for the purpose of facilitating the cutting of grooves for the reception of gas-pipes, electric wires, &c. The under surfaces of the lintels are preferably provided with dovetailed grooves (not new in this invention) whereby a clench is formed for the plastering.

By means of my lintels, formed as above described, the use of concrete above the upper surface is absolutely dispensed with, thus saving an immense weight and freeing the structure in process of erection from the vast amount of dampness and moisture which is contained in the concrete and which remains there a long period of time.

I desire to call particular attention to the fact that the metal supports A are not only ventilated and protected by an air-space between the lower flanges and for a short distance upon the web, but that the entire surface of the upper flanges, the entire surface of the web, and the entire surface of the lower flanges, with the exception of the bearing-surfaces, are ventilated and protected from fire by an air-space and by the projecting lips C C' on the lintels. The method of affording the air access to these parts will be to leave out bricks in the outside wall or to insert bricks having holes or perforations in them.

In Fig. 3 the lintel is broken into sections between the points of support, the joints L being radial, on the well-known principle of a flat arch. This construction is used when it becomes necessary to span so great a space between the metal supports that the lintels cannot be manufactured in one piece sufficiently long.

A fireproof floor or roof constructed by means of these lintels can be very quickly put together, no centering or preliminary preparation being necessary, except where the lintels are made as shown in Fig. 3. The lintels will be dropped into position on the lower flanges of the supporting-beams, and after the cement has been applied to the joints the fireproof floor is complete.

In case a mosaic or marble floor is desired an inch of cement (see P, Fig. 3) may be spread on the top of the lintels and the tesserae or the marble slabs can be embedded in the cement.

A waterproof floor for breweries, &c., can be easily produced by laying an inch of asphalt or cement on the surface of the lintels, in which case a wooden floor may be omitted.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In fireproof floors and roofs of the character described, the combination of the lintels

made of fireproof material and provided with grooves on their upper surfaces of sufficient depth to receive substantially the whole of the floor-joists, and the floor and floor-joists, the latter sinking substantially entirely into said grooves whereby the floor is on a line with and close to the fireproof lintels, leaving substantially no air-space between for the admission of fire, substantially as set forth.

2. In fireproof floors and roofs of the character described, the lintels B made of fireproof material, arranged in adjacent rows and each provided on the upper corner of one side with a beveled rabbet and on the upper edge of the other side with a beveled tongue, whereby the joint between the lintels is broken and a V-shaped groove provided for the reception of cement or other similar fireproof material, substantially as described.

3. In fireproof floors and roofs of the character described, the lintels B made of fireproof material and constructed with their surfaces provided with substantially V-shaped incisions or depressions for the purpose of facilitating the cutting of grooves for the receipt of gas-pipes, wires, &c., substantially as set forth.

4. In fireproof floors and roofs of the character described, the lintels B made of fireproof material, and formed on their upper edges with the lips C' adapted to project over the top flanges of the metallic supporting-beams, said lips having their edges beveled whereby when the lips abut against each other a groove is formed for the reception of fireproof material, substantially as set forth.

5. In fireproof floors and roofs of the character described, the lintels B made of fireproof material, and formed with a plurality of air-passages C, the rabbet and tongue E E' on its opposite sides and the incisions or slits K K' and dovetailed grooves H on its upper surface, substantially as described.

6. In fireproof floors and roofs of the character described, the lintels made of fireproof material and formed with longitudinal air-passages therein; the metallic supporting-beams extending through said lintels, said lintels being formed with air-spaces next the upper flanges of said beams, and said air-spaces next the beams being perpendicular to or at an angle with the longitudinal air-passages in the lintels and directly connecting therewith, whereby the air can pass directly from one said air-passage to the other intersecting it, substantially as set forth.

ALBERT G. EASTMAN.

Witnesses:

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