

(No Model.)

F. VON EMPERGER.
FIREPROOF FLOOR.

No. 534,432.

Patented Feb. 19, 1895.

Fig: 1.

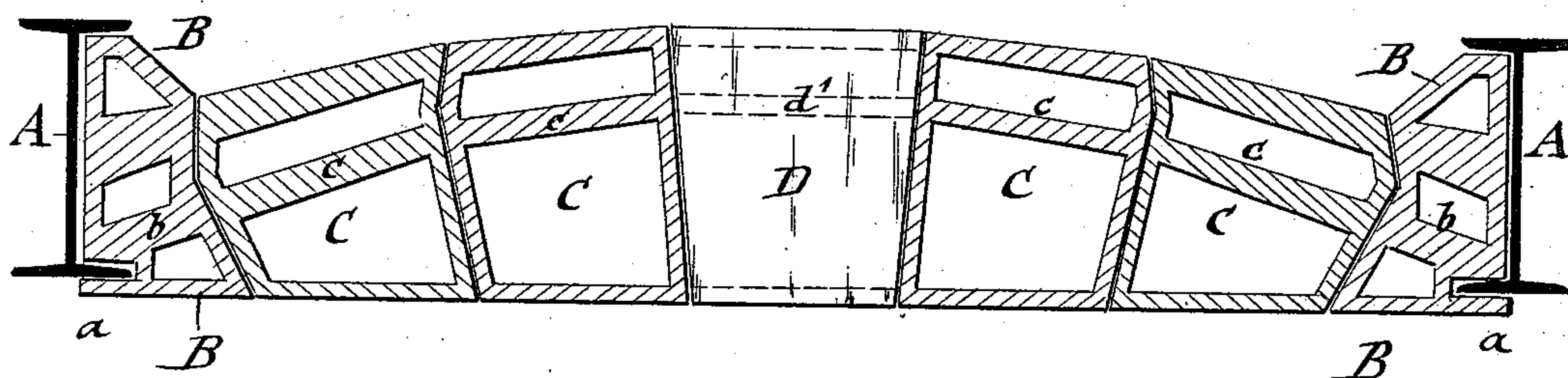
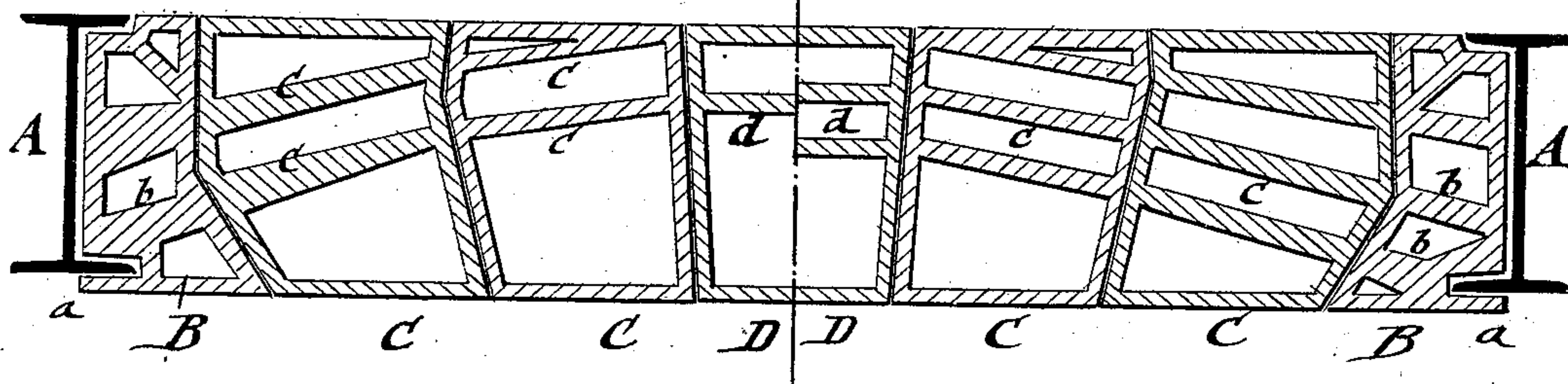


Fig: 2.



WITNESSES:

H. R. Brennan
F. M. Hall

INVENTOR

Friedrich von Emperger
BY
Joseph J. Paege
ATTORNEYS.

UNITED STATES PATENT OFFICE.

FRIEDRICH VON EMPERGER, OF NEW YORK, N. Y.

FIREPROOF FLOOR.

SPECIFICATION forming part of Letters Patent No. 534,432, dated February 19, 1895.

Application filed June 7, 1894. Serial No. 513,736. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH VON EMPERGER, a subject of the Emperor of Austria-Hungary, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Fireproof Floors, of which the following is a specification.

This invention relates to an improved construction of fire-proof floors in which an arched rib with a flat ceiling is formed from hollow tiles, by which greater resistance is obtained than with flat arches made in the ordinary way from tiles with horizontal webs; and the invention consists of a fire-proof floor formed of a number of hollow tiles, each being provided with an intermediate transverse web, the webs and upper members of the tiles being made of gradually increasing cross-section from the key-tile toward the skew-backs so as to be stronger than the lower members and proportionate to the load which they have to carry so that an arched-rib is formed by which the strength of the floor is increased, and the same adapted to carry a much greater load with a comparatively small dead load.

In the accompanying drawings,—Figure 1 represents a vertical transverse section of my improved fire-proof floor, and Fig. 2 is a like section, each half of said figure showing a modified construction of the same.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the I-beams, B the skewbacks that are supported on the web and base of said I-beams and which are provided at their lower ends with flanges *a* that project over the base of the I-beams so as to protect the same against fire.

C are the intermediate hollow tiles and D the center or key-tile. The skew-backs B, as well as the hollow tiles C and key-tile D, are provided with intermediate webs *b*, *c* and *d* respectively which webs are located between the upper and lower members of each tile and which are arranged approximately in the shape of an arch, the upper members of the tiles being made parallel with the webs, so as to form an arched-rib with the same. The intermediate tiles C and the skew-backs B are made with angular sides whereby each tile is given a better key and at the same time a

greater resistance against one-sided loads and buckling.

The webs and upper members of the tiles C and key-tiles D are made of greater thickness than the lower members of the tiles and in addition thereto gradually increasing in thickness from the key-tile toward the skewbacks, so that an arched-rib of increasing thickness and resistance to load is obtained.

The key-tile D may be made, either as shown in Fig. 1, by running it transversely across the opening left between the intermediate tiles, and providing it with transverse ends and a connecting web *d'* between said ends, which form of key-tile permits the easy changing of the span, or it may be made in the form of a hollow tile with a transverse web *d*, as shown in Fig. 2. By this arrangement of skewbacks and hollow tiles with intermediate webs, an arched web is formed by the webs and upper members, which is arranged according to the true line of resistance and with a flat ceiling, which cannot be obtained by the flat arches, made of the ordinary hollow tiles. As the thickness of the webs and top-members increases toward the skewbacks, a continuous arch is obtained the strength of which increases toward the skewbacks, so that it is made capable of resisting a heavier load.

The strength of the arched-rib can be changed according to the live load for which the floor is intended, by arranging in the upper end of the intermediate tiles two or more webs of increasing thickness, as shown at the right-hand side of Fig. 2, in which case the skewbacks can be made solid.

The floor above the arch may be filled up with concrete that extends over the top of the I-beams, or the tiles may be made of the same height as the beams so that their upper ends are on a level with the top of the beams, as shown at the left-hand side of Fig. 2, in which latter case no concrete filling is required. The latter form, however, does not change the arched rib that is obtained by the webs of the tiles in connection with the parallel or nearly parallel top-members because the additional pieces at the top and the bottom members of the hollow-tiles can not be considered as sustaining members but merely as a filling to obtain a flat top or ceiling. It is obvious that the

cross-section of members forming the arched-rib has to be in proportion to the load, while the additional top-pieces and the lower members of the tiles, forming the top and ceiling
5 can be of the smallest cross-section which the manufacture of the tiles will permit.

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

- 10 1. A fire-proof floor, composed of skewbacks, supported on the beams, hollow intermediate tiles having transverse webs, and a hollow key-tile, having also a transverse web, said webs and upper members of the tiles being
15 arranged so as to form an arched rib of gradually-increasing cross-section from the key-tile toward the skewbacks in proportion to the load to be carried, substantially as set forth.
2. A fire-proof floor, composed of skewbacks,

supported on the beams, intermediate hollow 20 tiles having transverse webs of increasing thickness, and a hollow key-tile, having also a transverse web, the skewbacks and intermediate tiles being provided with additional horizontal top-pieces above their upper mem- 25 bers, the webs and upper members of the intermediate tiles being arranged so as to form an arched rib of increasing cross-section between the top-pieces and lower members of the tiles, substantially as set forth. 30

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

FRIEDRICH VON EMPERGER.

Witnesses:

PAUL GOEPEL,
S. E. SMITH.