

(No Model.)

C. F. W. DOEHRING.
FIREPROOF CEILING.

No. 532,037.

Patented Jan. 8, 1895.

Fig. 1

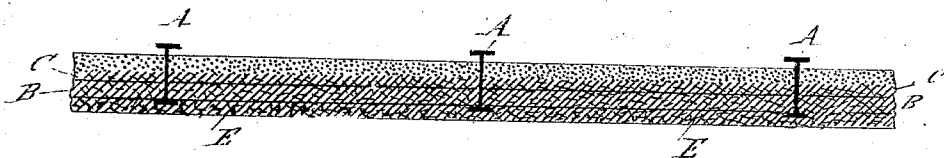


Fig. 2.

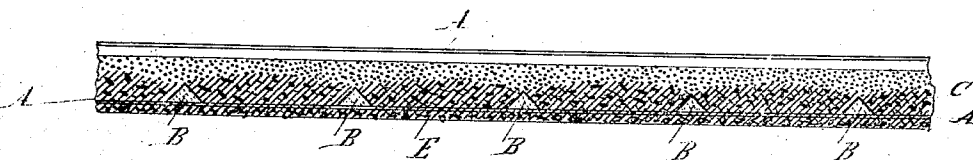


Fig. 3



Fig. 4.



Fig. 5.



Fig. 6.



Fig. 7.



Fig. 8.

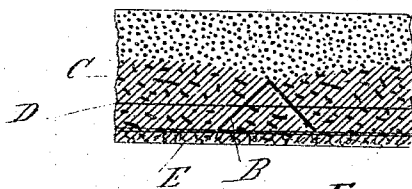


Fig. 9.

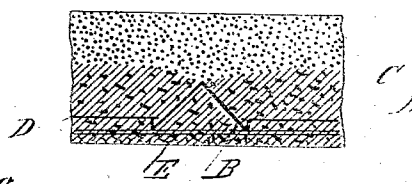


Fig. 10.

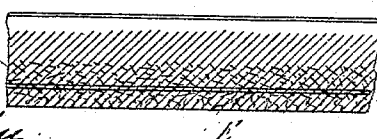
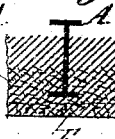


Fig. 11.



WITNESSES:

Al. P. ...
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INVENTOR

Charles F. W. Doehring
BY *Charles Key*

ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES F. W. DOEHRING, OF NEW YORK, N. Y., ASSIGNOR TO THE
DOEHRING & VAN FIRE PROOFING COMPANY, OF SAME PLACE.

FIREPROOF CEILING.

SPECIFICATION forming part of Letters Patent No. 532,037, dated January 8, 1895.

Application filed September 14, 1894. Serial No. 523,021. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. W. DOEHRING, a citizen of Germany, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Fireproof Ceilings, of which the following is a specification.

My invention relates to improvements in ceilings and consists in a ceiling of a new and simple construction, by which not alone the height, as well as the weight of the ceiling is greatly diminished, but also the power of resistance of the same is highly increased.

My improved ceiling is illustrated in the accompanying drawings, in which—

Figure 1 shows a cross-section and Fig. 2 a longitudinal section of the same. Figs. 3 to 7 are cross-sections of the intermediate girders in different constructions. Figs. 8 and 9 are cross-sections of ceilings showing the appliances of such girders in connection with supporting wires. Figs. 10 and 11 are a longitudinal and a cross section respectively of my ceiling without the appliance of the intermediate girders.

Similar letters of reference indicate corresponding parts.

Referring to the drawings A are iron beams with lateral bottom and top flanges which are parallelly laid on and held by the side-walls of the buildings in the usual manner.

B are sheet metal girders of a triangular cross-section, the shanks of which may be provided with inwardly or outwardly projecting extensions, as shown in Figs. 4, 5, and 6, or may be perforated, as indicated in Fig. 7. These girders are placed between the said beams A and held thereon by the lower flanges of the same, as shown in Figs. 1 and 2.

The filling mortar C consists of the usual binding materials and is intermingled with short pieces of thin wire of a length of about one inch, which wire-pieces have the purpose to impart to the mortar a higher degree of firmness and consistency.

D are wires either drawn and stretched through the perforations of the triangular intermediate girders or simply placed upon the lateral extensions of the shanks of the same, as illustrated in Figs. 8 and 9 respectively.

E is a bottom-layer formed of broken stones or broken casted or burned tiles.

My improved ceilings are built in the following manner: Upon the top-surface of the supporting scaffold a layer of broken stones or tiles is placed and evenly distributed thereon, which layer is insulated from the scaffold-top by means of sand, textile fabric, or any other suitable material. Then a sufficient quantity of the mortar, containing the aforesaid wire-pieces, is placed upon the said bottom-layer to combine the broken stones or tiles with each other and to form thus a supporting bottom for the ceiling. Upon the lower flanges of the beams A the triangular intermediate girders B, consisting of sheet-metal, as said before, are then placed in required distances from each other, and the spaces between the beams and the intermediate girders are filled up with the before described mortar to a certain height, which depends on the distances the beams are laid from each other. It may be understood that the intermediate girders may come in contact with the beams A with both shanks or in any other way and that the spaces between the shanks of the girders may be filled with mortar before they are attached to the beams, so that they, filled in such a manner, can be brought on the market as a special article of manufacture.

To diminish the weight of the mortar, it may be intermixed with a quantity of hollow but closed bricks, tubes, or similar articles. If it is desired to increase the strength of the ceilings, wires D are drawn through the corresponding perforations of the shanks of the intermediate girders, or such wires may be placed upon the lateral extensions of the girders and embedded in the mortar. Instead of the wires any other suitable supporting material, answering the purpose, for instance, band-iron or metal rods or strips of any cross-section may be used. The remaining upper spaces of the ceiling are finally filled up with any known filling material, as ashes, and when the mortar has dried and binds, the supporting scaffold underneath the ceiling is removed, whereafter the ceiling is provided with the usual finish-coating.

By my improved construction the lateral pressure upon the beams A is entirely dispensed with, the height and weight of the ceiling are greatly diminished and, in com-

parison with such reduced height and weight, the most possible resistance and strength are attained, so that my improved ceiling surpasses all other known constructions in regard to simplicity, as well as to cheapness and strength.

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

1. A ceiling consisting of parallel beams, intermediate sheet metal girders of triangular cross-section attached crosswise to the said beams, wires stretched between and attached to the said girders, and a binding mortar filling the spaces between the said beams and intermediate girders, substantially as set forth.

2. A ceiling consisting of parallel beams, intermediate sheet-metal girders of triangular cross-section attached crosswise to the said beams, and a binding mortar having small wire pieces intermingled therewith and filling the spaces between the said beams and intermediate girders, substantially as set forth.

3. A ceiling consisting of a bottom layer of

broken stones or tiles, parallel beams, intermediate sheet-metal girders of triangular cross-section attached crosswise to the said beams, and a binding mortar having small wire-pieces intermingled therewith and filling the spaces between the said beams and intermediate girders, substantially as set forth.

4. A ceiling consisting of a bottom layer of broken stones or tiles, parallel beams, intermediate sheet-metal girders of triangular cross-section attached crosswise to the said beams, wires stretched between the intermediate girders, and a filling mortar having small wire-pieces intermingled therewith, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 11th day of September, 1894.

CHARLES F. W. DOEHRING.

Witnesses:

ALB. VON DEN DRIESCH,
CHARLES KARP.