

(No Model.)

J. RUEBEN.
FIREPROOF CEILING.

No. 530,129.

Patented Dec. 4, 1894.

Fig. 1.

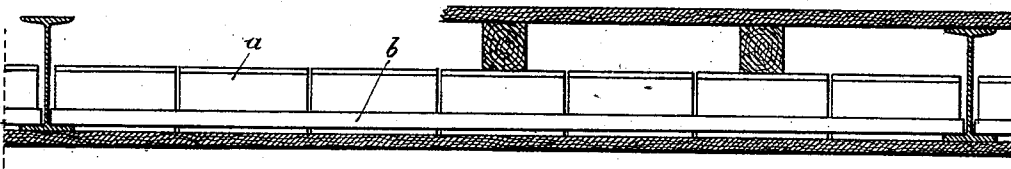


Fig. 2.

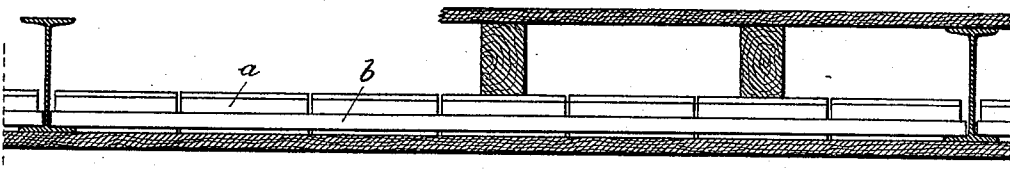


Fig. 3.

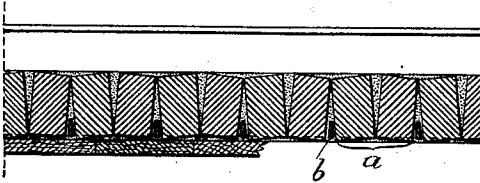


Fig. 4.

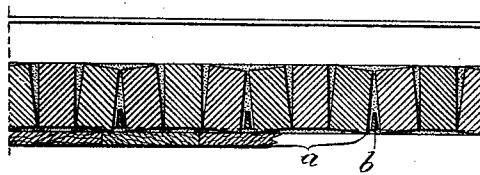


Fig. 5.

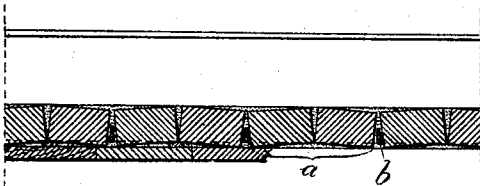


Fig. 6.

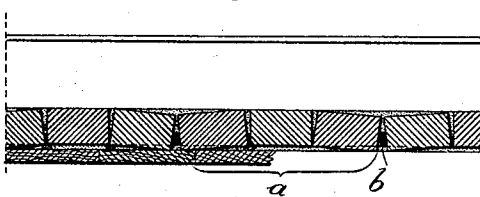


Fig. 7.



Witnesses:
Friedrich Müller.
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per
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UNITED STATES PATENT OFFICE.

JOSEPH RUEBEN, OF AIX-LA-CHAPELLE, GERMANY.

FIREPROOF CEILING.

SPECIFICATION forming part of Letters Patent No. 530,129, dated December 4, 1894.

Application filed September 25, 1894. Serial No. 524,126. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH RUEBEN, architect, a subject of the Emperor of Germany, and a resident of Aix-la-Chapelle, in the Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Fireproof Ceilings, of which the following is a specification.

My invention relates to improvements in or relating to fire-proof ceilings.

This new construction illustrated in the accompanying drawings consists in filling up the compartments or bays between the beams or joists with bricks or stones which are either laid on their edges (Figures 1, 3, and 4) or flat (Figs. 2, 5, and 6), and set aslant in pairs (Figs. 3 and 5) or by threes (Figs. 4 and 6) as shown at *a*, and, in the joints, where these slanting layers *a* lean against each other (in pairs or threes) and meet at their apices they abut against quadrangular bars of iron *b* (see Fig. 7) trapezium or wedge-shaped in section, set on the broader edge, with the narrower edge uppermost. Statically regarded these slanting layers *a* constitute small flat arches, consisting of two or three voussoirs and abutting against the quadrangular iron bars, and consequently under the action of a load, are only submitted to the strain of compression, a condition which is comparatively favorable. On the other hand, the quadrangular iron bars act as beams between two points of support and are therefore in compression at the top and in tension at the bottom, when loaded. This construction may also be used without mortar, provided the inclined position of the brick or stone voussoirs is secured either by

the insertion of suitable wedges or by the adoption of a trapezoidal form so that the surfaces may be radial *i. e.* the bricks or stones being true voussoirs, and if, further, the quadrangular iron bars possess the needful power of resistance to bending, so that the strength of the structure is not derived merely from the cohesion of the mortar. At the same time, for the purpose of imparting additional strength by such cohesive power, mortar may be used with great advantage to fill the joints or vacant spaces between the bricks or stones (so-called voussoirs) in such a manner as to bind the iron bearers and brick or stone arches into one mass.

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

A fire proof ceiling consisting of small flat arches or strutted frames filling up the bays or compartments between the joists or beams and composed of two or three rows of bricks or stones set slantwise, which at the points where they lean against each other on the slope with their tops touching, abut against quadrangular or trapezoidal iron bars set on the broader edge with the narrower edge uppermost, substantially as described and for the purpose specified.

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

JOSEPH RUEBEN.

Witnesses:

JOHN HECKMANN,

W. C. EMMET,

Both of Aix-la-Chapelle.