(No Model.)

M. H. CRITTENDEN & F. V. EMERY.

FIREPROOF CONSTRUCTION.

No. 508,502. Patented Nov. 14, 1893.

Fig. 1.

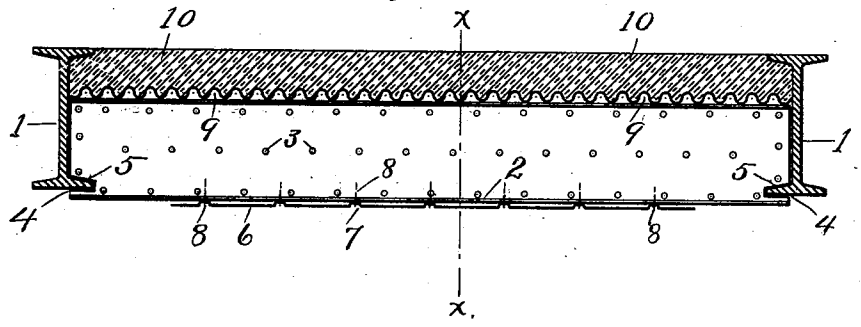
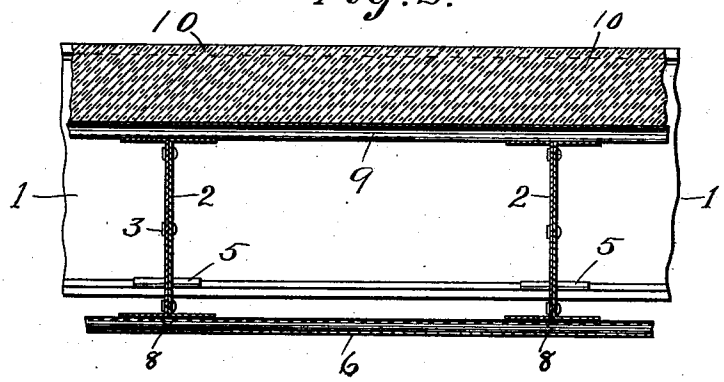


Fig. 2.



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MASON H. CRITTENDEN AND FRANK V. EMERY, OF MINNEAPOLIS, MINNESOTA.

FIREPROOF CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 508,502, dated November 14, 1893.

Application filed April 3, 1893. Serial No. 468,831. (No model.)

To all whom it may concern:

Be it known that we, MASON H. CRITTENDEN and FRANK V. EMERY, citizens of the United States, residing at the city of Minneapolis, in the county of Hennepin and State of Minnesota, have jointly invented certain new and useful Improvements in Fireproof Construction, of which the following is a specification.

Our invention relates to fire-proof construction for the interior of buildings.

The principal object of the invention is to provide means between the floors and ceilings for supporting both a plastering surface for the ceiling and fire-proofing material between the ceiling and the floor. This we do by providing ceiling-joists formed of flanged sheet-metal pieces fastened together and having their ends supported by the flanges of the floor-joists; attaching to the under side of the ceiling-joists metallic lathing, and placing on their upper surfaces metal sheets upon which can be laid cement, tiling, or other fire-proof material.

Our improvements are illustrated in the accompanying drawings, in which—

Figure 1, shows a sectional elevation of a floor and ceiling and their supports, constructed in substantial accordance with our improvements; and Fig. 2, a transverse section of the same on the line *x*—*x* of Fig. 1.

In such drawings 1 designates the floor-joists of metal and I-shaped; and 2 ceiling-joists which are preferably constructed of two strips of sheet-iron bent to channel-shape and secured together at proper intervals by rivets 3, forming I-shaped bodies. The ends of the ceiling-joists thus constructed are provided with slots 4 of proper shape to fit the feet or flanges of the floor-joists. The metal at the upper edges of these slots is bent outward at opposite sides to form flanges 5 for the purpose of providing comparatively wide bases for seating the ceiling-joists on the feet of the floor-joists. Ceiling joists thus constructed and supported and placed at suitable intervals, are sufficiently strong and provide suitable means for attaching and supporting metallic lathing of almost any usual construction, and also to sustain the weight of a superposed fire-proof body.

In the drawings there is shown, for the purpose of illustrating the mode of attaching the lathing to the joists, a sheet-metal lathing 6 having at intervals grooves or depressions 7, and the lathing is shown to be attached by means of nails 8 driven through the lathing and between the sheets composing the ceiling-joists. As will be understood, there is sufficient elasticity in the sheet-metal members forming the joists to permit nails to be driven between them at intervals and force the members slightly apart, while the latter serve to firmly clamp the nails.

The bodies of the ceiling-joists above the feet of the floor-joists may be of any desired height, in view of the kind of fire-proof filling to be used above it. It is preferable to place on the top of the joists 2 sheets of corrugated sheet-iron 9 for supporting the fire-proof packing; and on these, as a foundation, cement 10, or any other suitable fire-proof or non-conducting material may be laid, and be made of such thickness as may be desirable in any particular structure. The material may be made to fill the entire space above the foundation 9 to the level of the tops of the floor-joists, and on it may be laid a tiling, wooden or other floor. Such construction is a desirable and cheap substitute for the ordinary arched ceilings formed of corrugated iron or terra-cotta, and at the same time provides convenient means for supporting a flat plastering surface for the ceiling.

It is not intended herein to claim broadly the character of ceiling-joists, or other building member described, for that feature is reserved to be claimed in another application concurrently pending Serial No. 468,833, filed April 3, 1893.

Having described our invention, what we claim is—

1. The combination with floor-joists and sheet-metal ceiling-joists supported on the feet of the former, of metallic lathing supported by the ceiling-joists below their bases and fire-proofing material supported on their upper surfaces, substantially as set forth.

2. The combination with floor-joists, of sheet-metal transverse joists seated on the

feet of the floor-joists, corrugated sheet-metal supported on the transverse joists, and fire-proofing material supported by the corrugated sheets, substantially as set forth.

3. The combination with floor-joists, and sheet-metal ceiling-joists constructed of flanged sheet-metal pieces secured together back to back and adapted to support lathing by means of nails driven into the joists between such pieces, of a metallic base seated on the ceiling joists and fire-proofing material thereon, substantially as set forth.

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