

(No Model.)

J. SMITH.

FIRE PROOF WALL AND CEILING.

No. 345,001.

Patented July 6, 1886.

Fig. 1.

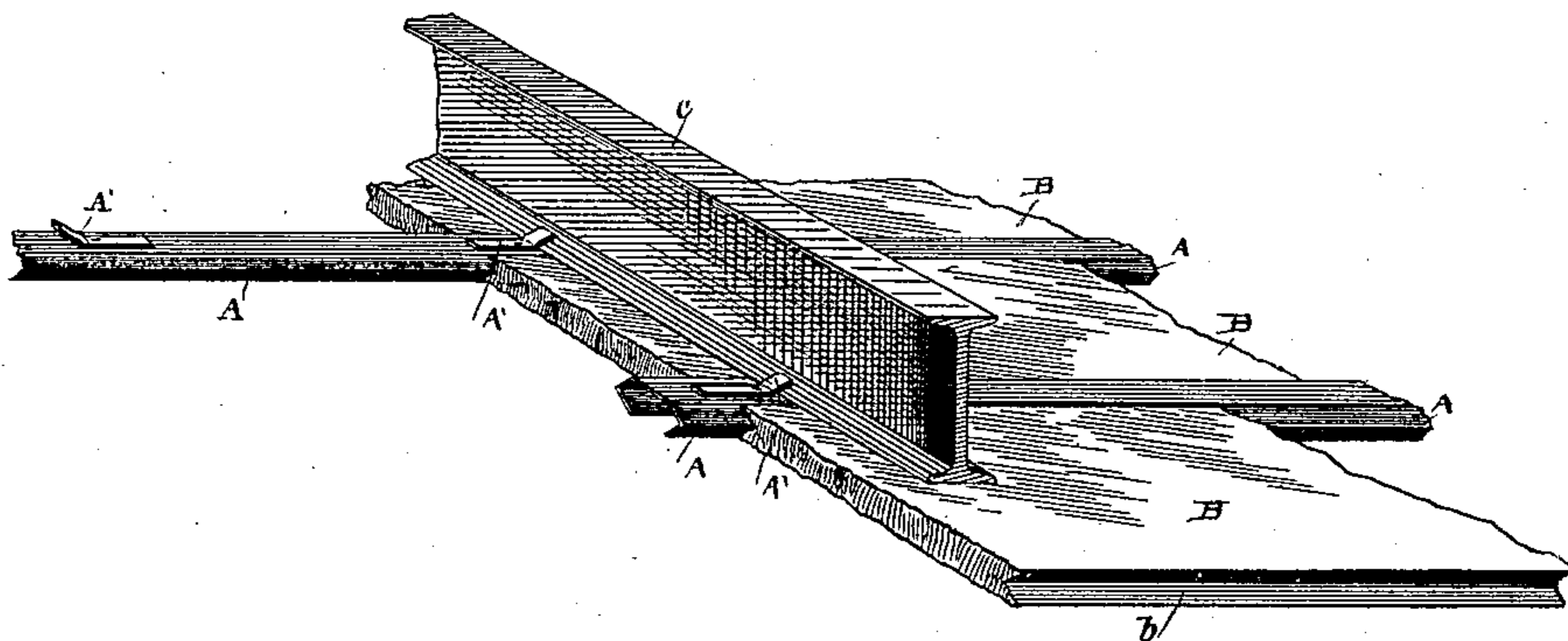


Fig. 2.

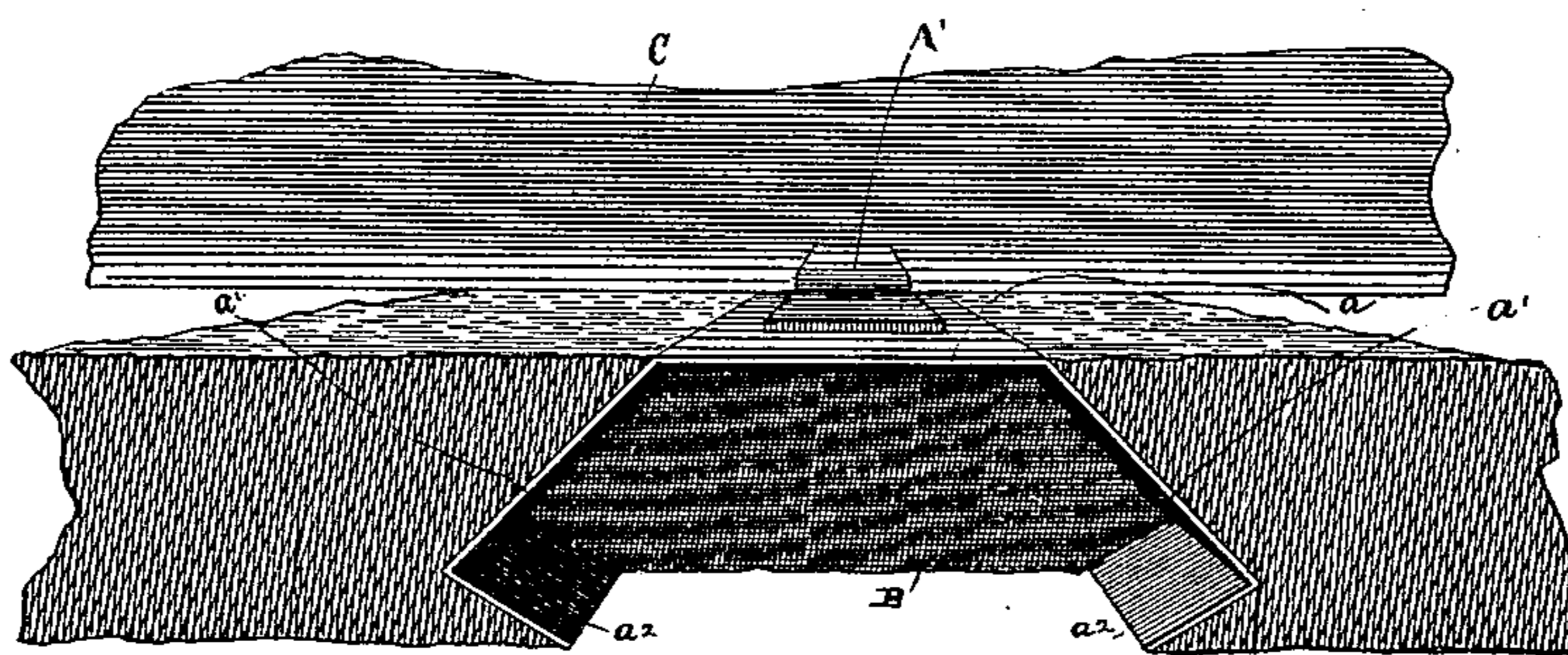
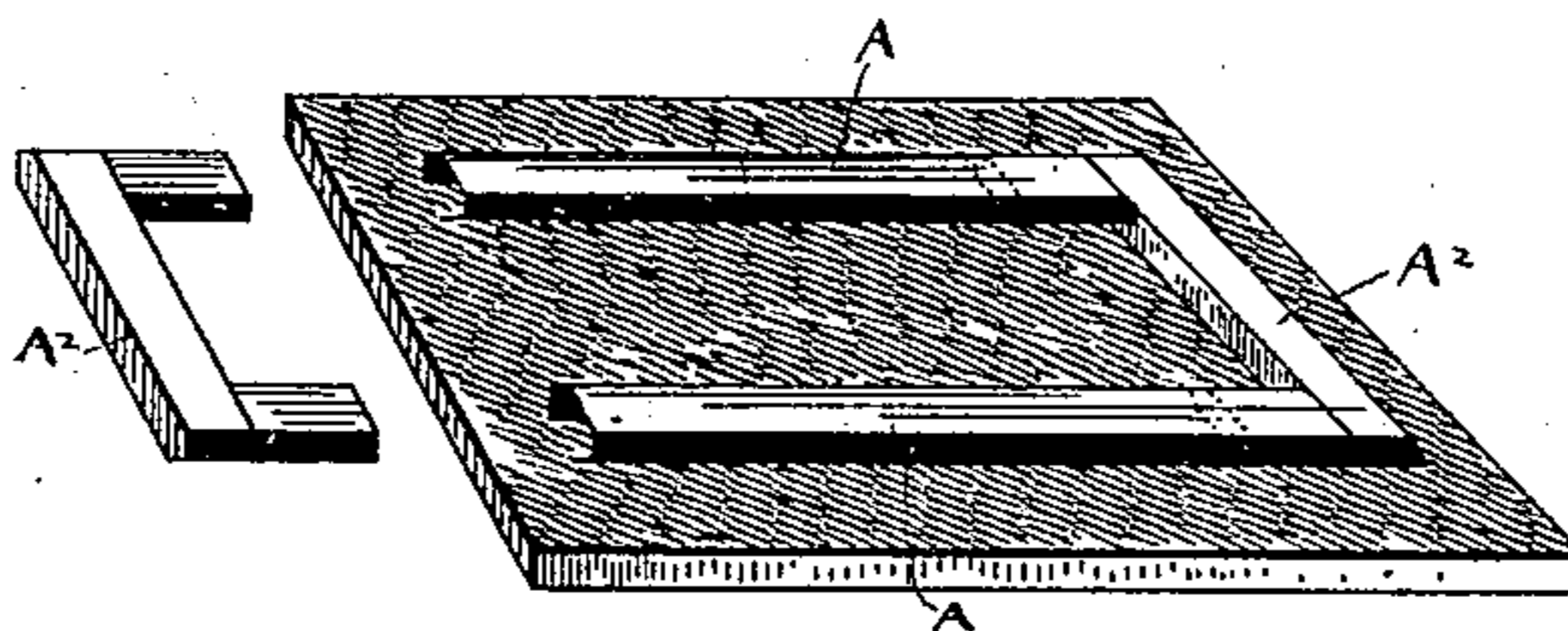


Fig. 3.



WITNESSES

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# UNITED STATES PATENT OFFICE.

JAMES SMITH, OF CLEVELAND, OHIO.

## FIRE-PROOF WALL AND CEILING.

SPECIFICATION forming part of Letters Patent No. 345,001, dated July 6, 1886.

Application filed April 7, 1886. Serial No. 198,107. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES SMITH, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful  
5 Improvements in Fire-Proof Walls and Ceilings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and  
10 use the same.

My invention relates to improvements in so-called fire-proof walls and ceilings in which metal laths having angular edges of considerable depth are secured and extend crosswise of  
15 the joists, studs, or iron girders, as the case may be. The laths are placed usually from a foot to eighteen inches (more or less) apart, and support slabs made of suitable refractory material, the same having been previously  
20 molded in its grooved edges to engage the angular edges of the laths. After the laths and slabs are in position the cavities of the laths are filled with the same refractory material in a plastic condition, and as soon as this filling  
25 hardens the wall or ceiling is ready to receive the finishing coat, that may be of any of the varieties in common use, the object being to provide a cheap and durable so-called "fire-proof wall or ceiling" that will not crack or  
30 show the laths, and that will brace and strengthen the joists, studs, girders, or whatever the supporting structure may be.

In the accompanying drawings, Figure 1 is a view in perspective showing the construction and manner of securing my improved  
35 fire-proof ceiling to iron girders. Fig. 2 is an enlarged view in perspective and detail. Fig. 3 is a view in perspective showing a suitable frame-work for molding the fire-proof slabs.

40 A represents the laths, and B the fire-proof slabs. The former are of metal, preferably galvanized sheet metal. The sheets are cut lengthwise and the strips usually from four to five inches (more or less) in width. These  
45 strips are bent to approximate the form shown in Fig. 2, the central portion, *a*, remaining flat for abutting the joists, studs, or whatever they may be attached to. The parts *a'* are bent outward at, perhaps, an angle of forty-five  
50 degrees, (more or less.) The extreme edges *a''*

are perhaps a half inch (more or less) in width, and are bent toward each other so as to converge sharply. These laths may be nailed to wooden joists, studs, &c., or may be secured to iron girders C by means of hooks A' or other  
55 suitable device. If hooks are employed for this purpose, they are preferably secured to the laths by a single bolt or rivet, and may be turned crosswise of the lath in placing the latter against the iron girders, after which,  
60 by turning the hooks back to their place, they are made to hook over the flanges of the girders.

Suitable refractory or so-called "fire-proof material"—such, for instance, as calcined  
65 plaster, various kinds of cements, clay, &c.—are molded into slabs B, of uniform width, usually from twelve to eighteen inches, (more or less,) and of suitable length, so that they can be conveniently handled, and with grooved  
70 edges *b*, to correspond with and engage the angular edges of the laths. These slabs are inserted between the laths with the ends of the slabs abutting each other. The joists, studs,  
75 or girders are first spaced off and the laths secured thereto at suitable intervals, except that one end of each lath for, perhaps, two or three feet is left unfastened. The laths are not easily  
80 bent in a direct line in either direction, but have little torsional resistance, by reason of which the free end of the lath is easily twisted by the thumb and finger and bent downward and to one side far enough to admit the slabs,  
85 the other edge of the latter having first been placed against the other lath. The slabs are slid along endwise to their place, and as each tier is filled the free ends of the laths are fastened. After the laths and slabs are in position and suitably secured, as aforesaid, the  
90 cavities of the laths are filled with the same refractory material in the plastic condition, the filling B being shown more clearly in Fig. 2. As soon as the filling hardens the walls or the ceiling are ready for the finish, which may  
95 be hard-finish, sand-finish, or any of the different varieties in use.

The iron laths brace the joists, studs, or girders to which they are attached, and, as the laths do not shrink, they hold the laths and filling firmly for all time. These iron laths  
100

do not show through the plastering, even when the edges are but slightly covered by the finish.

5 A convenient mold for making the slabs B is had by placing two pieces of the iron lath parallel and suitable distances apart and detachable, securing them by wooden cross-pieces A<sup>2</sup>. This frame may be placed on a pallet or board, thus forming a mold into which  
10 the fire-proof material may be placed while in a plastic condition, no other implements being necessary than a shovel and a straight-edge for striking off the mold. The parts of the frame are then detached and removed and  
15 the molded material, by means of the board or a pallet, is set aside to harden. It requires but little skill or labor to mold these slabs, and it is found that walls and ceilings constructed according to my invention cost less  
20 than ordinary plaster, excepting the cost of

the iron laths. The material for the latter is cut and rolled into shape at a small advance of the cost of the sheet metal.

What I claim is—

In fire-proof walls and ceilings, the same 25 consisting, essentially, of metal laths, slabs of suitable refractory material inserted between the laths, the slabs and laths having corresponding angular or male and female edges, and a filling of refractory material in the cavi- 30 ties of the laths, the parts being arranged substantially as described.

In testimony whereof I sign this specification, in the presence of two witnesses, this 30th day of March, 1886.

JAMES SMITH.

Witnesses:

CHAS. H. DORER,  
ALBERT E. LYNCH.