Edwin May.

Fire Proof Building.

No. 86,312. Patented Jan 26. 1869.

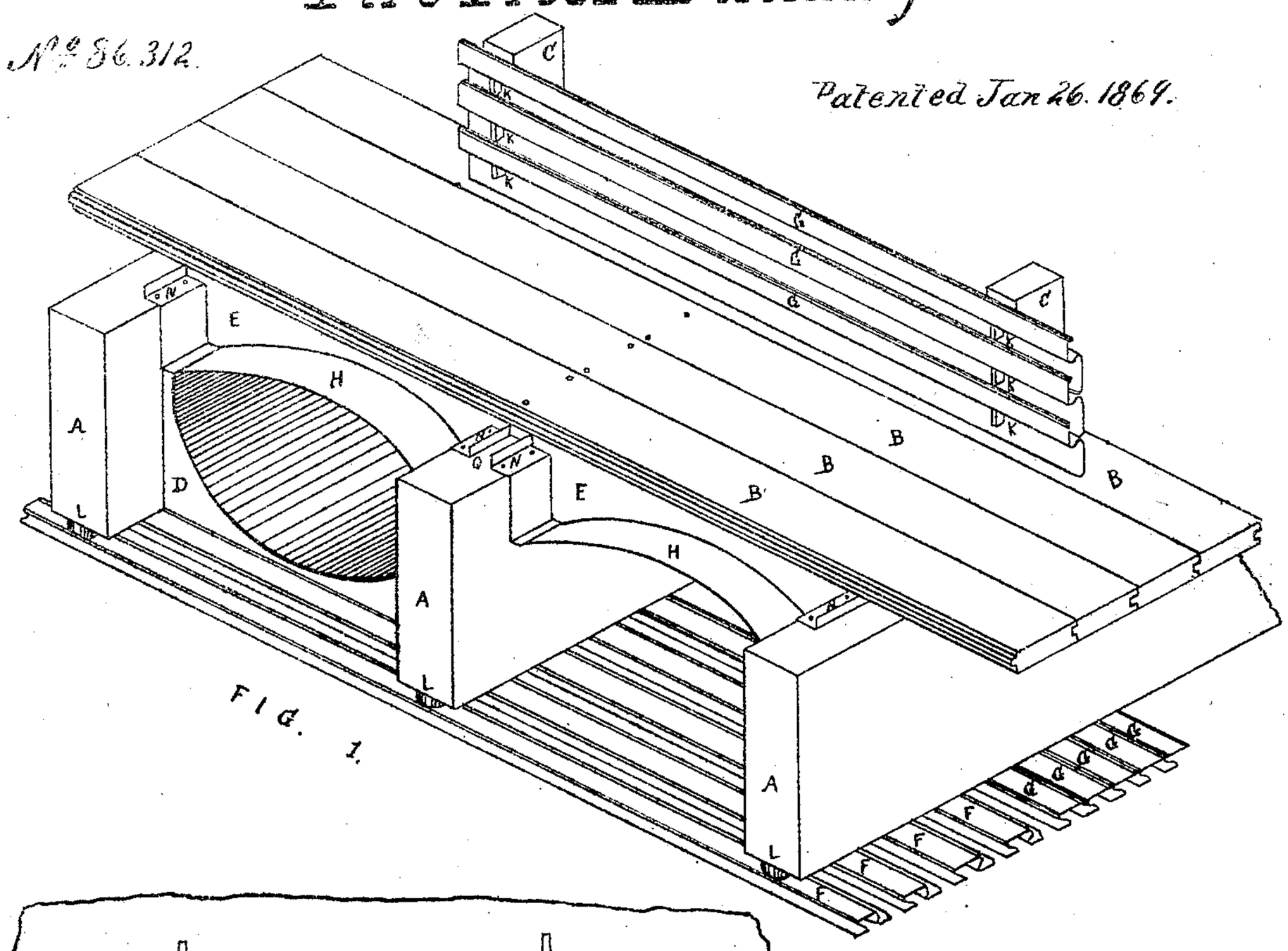

FIG. 1.

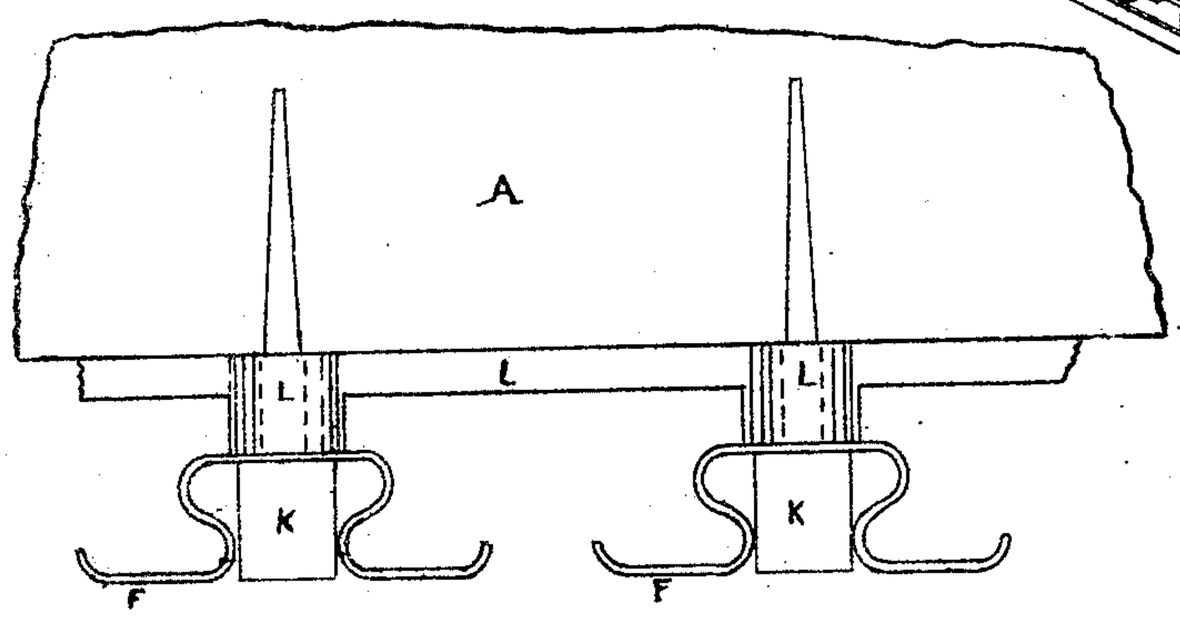

FIG. 2.

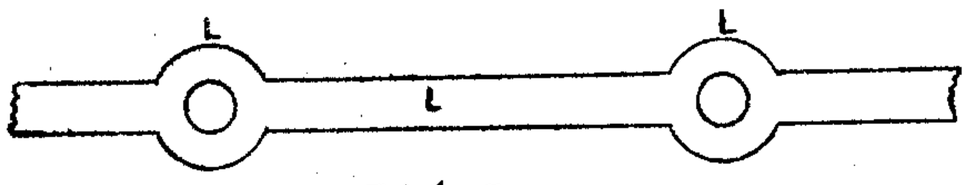

FIG. 3.

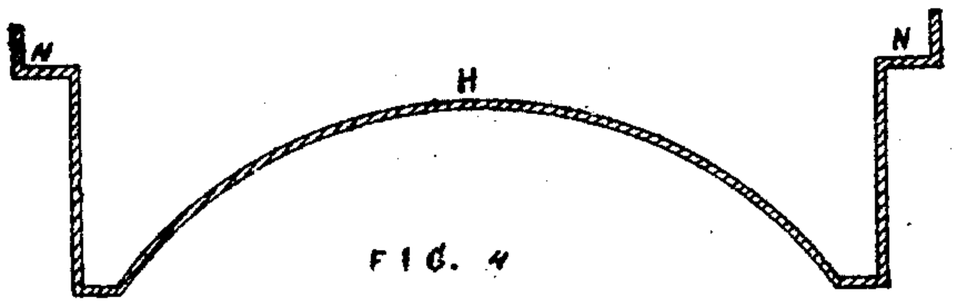

FIG. 4.

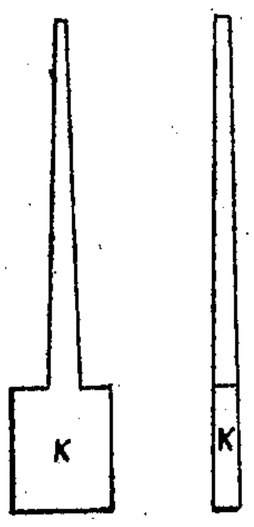

FIG. 5.

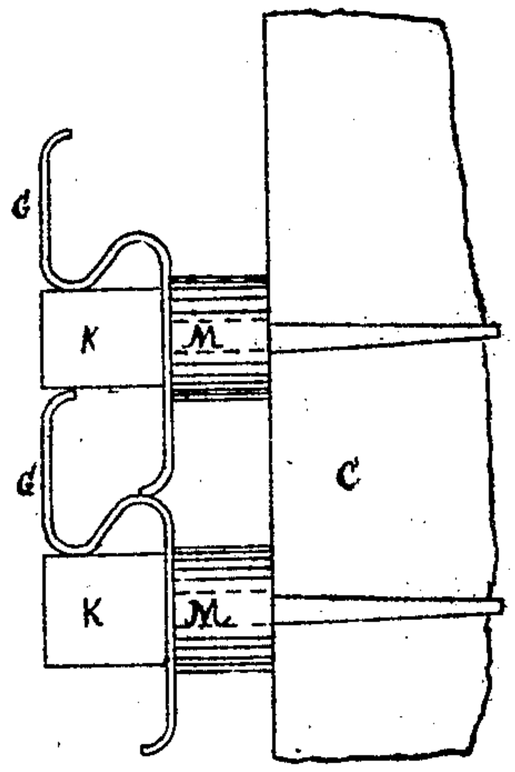

FIG. 6.

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EDWIN MAY, OF INDIANAPOLIS, INDIANA.

Letters Patent No. 86,312, *dated January* 26, 1869.

IMPROVEMENT IN FIRE-PROOF BUILDINGS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, EDWIN MAY, of Indianapolis, in the county of Marion, and State of Indiana, have invented new and useful Improvements in the Mode of Rendering Buildings Fire-Proof; and I do hereby declare that the following is a full, clear, and exact description thereof, that will enable skilled artisans to make and use it, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making part of this specification.

This invention consists, first, in the mode of applying segmental arches, made of plates, of thin sheet-metal, to be attached to and supported between and near the upper edges of wooden floor-joists, arching over the space between them, and arranged to carry the least practicable sufficient quantity of non-conducting or fire-proofing material to be laid thereon, to cover and encase the upper edges of the joists, in such a manner as to prevent their ignition at the top by the burning of the flooring-boards and upper part of the building, and at the same time to admit of the flooring-boards being laid thereon, and nailed to the joists without disarranging the intervening fire-proofing material.

And it further consists in the novel form of the sheet-metal laths that are employed on the ceilings and walls, by which they are rendered susceptible of being more easily and cheaply manufactured and applied than the metallic laths heretofore in use, and which is also such as to constitute nearly a double wall of sheet-metal, leaving an intervening space that is filled by the mortar or fire-proofing material, in the process of putting it on, forming a substantial key, and preventing the waste of the material.

The invention still further consists in the peculiar construction of a hollow cast-iron furring-stud, that may be employed to hold the laths off the wooden joists or studding, and which may be easily and conveniently attached to the laths preparatory to nailing them to the joists or studding.

Figure 1 is a perspective view of a section of flooring, and stud-partition erected thereon, with my improvements applied thereto.

Figures 2, 3, 4, 5, and 6, are detail views of my improvements, showing more particularly their construction and arrangement.

Similar letters of reference indicate corresponding parts in the several figures.

A are the wooden floor-joists.

B, flooring.

C, studding for partitions or side walls.

D, filling of plaster or fire-proofing material over the metal laths.

E, the same, over the segmental arch of sheet-metal H.

G, sheet-metal laths for ceilings or partitions.

M, hollow cast-iron furring-studs.

The sheet-metal segmental arches H are formed with angles, to rest on the upper edges of the joists, that they may the better sustain the weight of the fire-proofing material. They are also formed in a manner to leave recesses in the haunches, so as to receive and contain the greatest quantity of the material against the sides and about the upper edge of the joists, the better to protect them against excessive heat.

The edges of the sheet-metal plate of which the segmental arch is formed, are turned up in a vertical position, as shown at N, leaving a space between them, along the top of the joists, to be filled with the fire-proofing material, as shown at O.

Care should be taken that the vertical edges N are all turned of one width, so that when the segmental arches are all laid in place, these edges will be as level as the top edges of the joists.

The segmental arch-plates H are all prepared in the form shown, previously to being applied to the joists, and when placed in position, the fire-proofing material E and O is to be filled in, and levelled by the edges N, and after it becomes sufficiently dry, the floor is laid down and nailed to the joists through the filling O, any defects in which should be made good as the work progresses.

In this manner the upper edges of the joists will be completely covered and encased by the fire-proofing material. This manner of fire-proofing also subserves the same purpose as the ordinary deafening generally employed in good buildings, and at about the same cost.

To render metallic laths cheaper, and more practicable to manufacture, as well as to be applied to wooden joists and studs, to receive either ordinary plaster or fire-proofing material, I make them in the form shown at G. The sheet-metal, being first cut into strips of suitable width and length, is readily given the required form by means of suitable machinery.

It will be seen that the peculiar form of the laths G is such that the part nailed against the studs or joists forms a connected wall of the sheet-metal on the back or upper side, that prevents the fire-proofing material from going through to the back, thus preventing waste of the material. The form is also such that they may be as conveniently nailed to the studs or joists as wooden laths, besides which, when put on, they form nearly a double wall of sheet-metal, leaving a space between the outer and inner surfaces, to receive the fire-proofing material, that is pressed into it, and which constitutes a substantial key or clinch to hold the material, and in case of fire, the material enclosed in this space will be less liable to become disarranged by the heat.

The outer surface of the laths may also be pierced with holes, if desired, through which the mortar on the surface will be connected with that in the space between the inner and outer surfaces of the lath, thus affording additional security against the mortar becoming separated from the laths.

When applied to the ceiling-joists, to fire-proof ceilings, either with or without the furring-studs M, these

laths form a close flooring on the upper side, to receive and hold the fire-proofing material which is to be placed thereon between the joists. The advantages of this will be readily understood when it is remembered that the fire-proofing is all to be applied before the floor is laid, leaving the plastering to be put on after all hammering is done, as in the ordinary manner, thus avoiding the liability to jar it loose.

Other forms of sheet-metal laths may be used, such, for instance, as those shown at F, but the form of these renders them more difficult to manufacture, and also involves the necessity of using long-headed nails, such as shown at K, to fasten them to the joists or studs. To obviate the use of nails of unusual construction, and also for the reasons above given, I prefer the laths made in the form shown at G.

When it is desired to interpose the fire-proofing material between the metal laths and the studs or joists, I have devised the hollow cylindrical furring-studs M, which are to be attached to the laths before putting them on.

The novelty in this stud consists in making the cavity within it, cone-shaped, so as to be easily cast, and so as to form a small sharp-edged hole at one end, of suitable size to receive the nail that secures it to the studding or joists, and, at the same time, to provide for its being readily attached to the laths previously to their being nailed to the joists.

The furring-studs M are attached to the laths by driving a punch through the laths into the small hole, formed as above described. The burr of the lath clinching the edges of the metal around the hole in the furring-stud, securely holds it, and when thus previously prepared, it will be readily understood that the laths, with the furring-stud attached, may be as readily nailed to the joists as the common wooden laths.

I am aware that metallic laths have been applied to the under side of joists, and also to wooden partitions, to hold plaster or fire-proofing material, instead of wooden laths, but these, for the most part, have been impracticable, on account of their form rendering them expensive to manufacture and difficult to apply.

I make no claim to metallic laths broadly, nor do I make any claim broadly to metallic furring-studs, for holding the metal laths off the floor or wall-timbers, as these have been used before; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. The furring L, constructed as described, in combination with metal laths F and nails K, as shown in fig. 2, substantially as and for the purposes set forth.

2. The metal lath G, when constructed as shown in fig. 6, in combination with nails K and studs M, substantially as and for the purposes set forth.

3. The arch H, when provided with parts N, constructed and applied substantially as and for the purposes set forth.

EDWIN MAY.

Witnesses:

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G. M. LEVETTE.