(No Model.)

A. G. CUMMINGS.

FIREPROOF CONSTRUCTION OF FLOORS AND CEILINGS.

No. 543,082. Patented July 23, 1895.

Fig. 1.

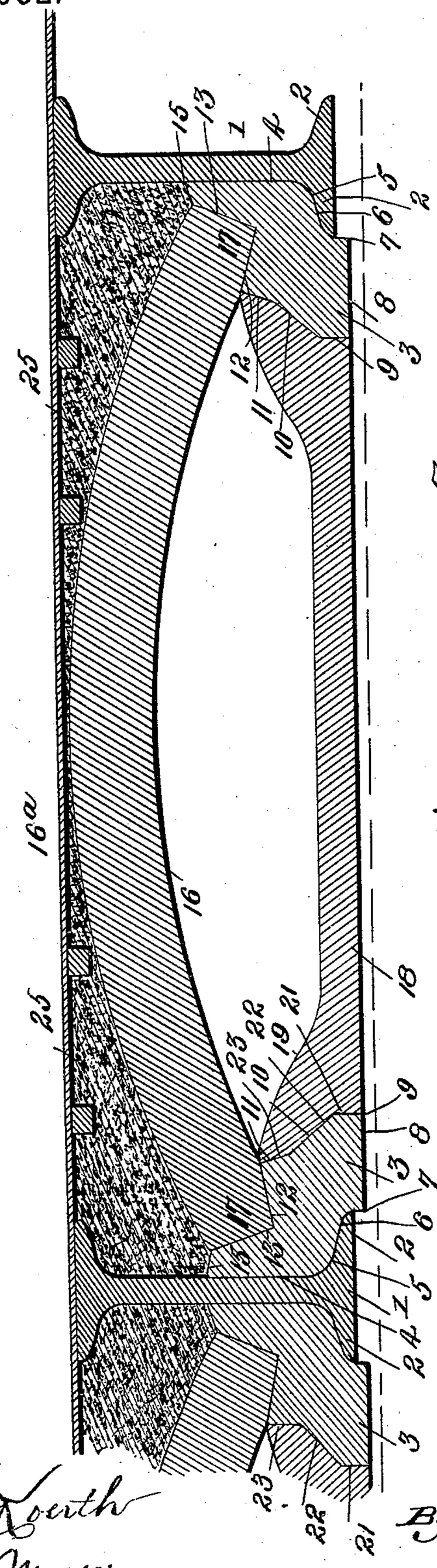


Fig. 3.

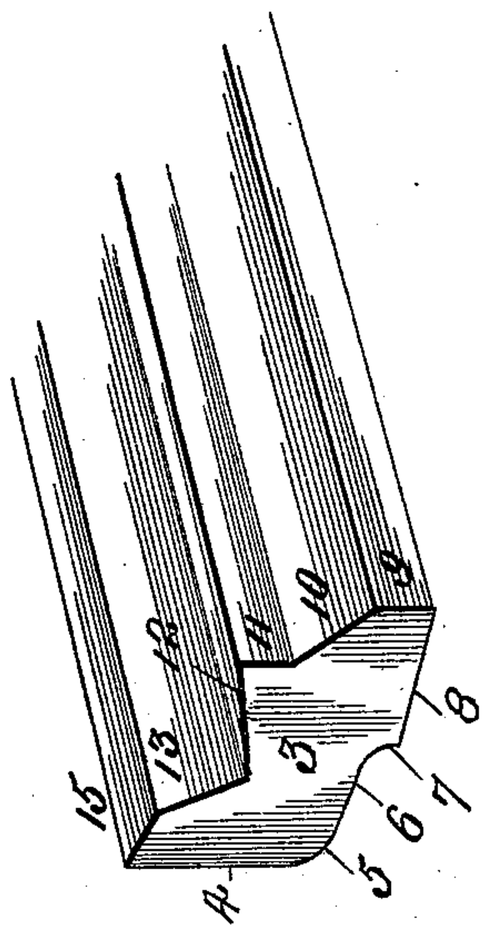
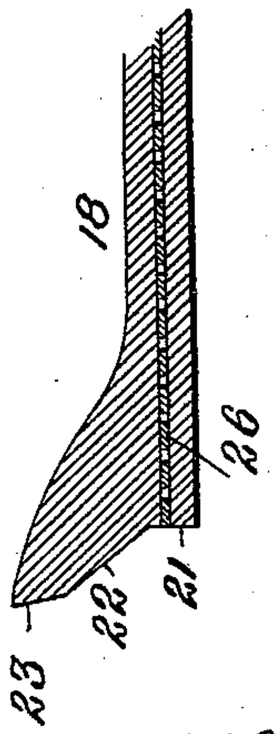


Fig. 2.



Witnesses

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FIREPROOF CONSTRUCTION OF FLOORS AND CEILINGS.

SPECIFICATION forming part of Letters Patent No. 543,082, dated July 23, 1895.

Application filed December 8, 1894. Serial No. 531,246. (No model.)

To all whom it may concern:

Be it known that I, ARCHIBALD G. CUMMINGS, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Fireproof Construction for Floors and Ceilings; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to an improved manner of constructing fireproof ceilings and floors; and it has for its object to provide, first, a fireproof construction that can be used at will either as a ceiling and floor, or one independent of the other; second, a fireproof construction that is exceedingly light in structure and simple and neat in character, and at the same time I greatly add to the strength of the parts; third, a fireproof construction that may be erected without the ordinary scaffolding, which has been proven by experience to be not only expensive but a danger to human life; fourth, by my improved construction I am enabled to provide a fireproof floor and ceiling that is not subject to moisture and breakage; fifth, by my improved construction I am enabled to apply the white coating of plaster directly to the ceiling proper, and thus save the expense and labor of putting two coats of brown mortar thereon.

My invention has many other extremely valuable objects, which will be hereinafter explained, and pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a cross-section of my improvement. Fig. 2 is a view of a modification, and Fig. 3 is a detail of the skew-block.

The same numerals refer to like parts in all the figures.

In the drawings, 1 1 represent the ordinary I-beams, provided with flanges 2 2, on which is adapted to be seated my improved skew-block 3. The skew-block has a vertical back 4, curve 5, inclined lower surface 6, and short vertical surface 7, thus forming the part which rests on the seats or flanges 2 of the I-beam. The horizontal portion 8, (which is parallel with the ceiling,) the vertical surface 9, inclined surface or seat 10, slightly-inclined surface 11, the right-angle surfaces 12 and 13, and the upper inclined top 15.

The arch 16, which forms the foundation for the floor 16^a, is made of a continuous piece of fireproof material, and has its ends 17 so shaped as to fit tight within the right angle or cut out portions 12 and 13 of the skew-block. 18 indicates the ceiling, which has enlarged ends 19, provided with a vertical surface 21, inclined surface 22, and slightly-inclined surface 23. The surfaces 21 22 23 conform to and are made to fit tight within the surfaces 9 10 11 of the skew-block.

Plaster, paint, or, in fact, any equivalent, may be applied directly to the ceiling in any well-known manner.

The spaces formed between the top of the arch 16 and the I-beams 1 will be filled with bituminous concrete or other suitable material, as shown at 25, thus forming the haunches.

My invention will be found to be extremely simple in construction and will be readily understood by those skilled in the art to which it appertains.

When it is desired to provide a building with my improvement the skew-blocks are first seated on the flanges of the I-beams and the ceiling dropped in position from the top, and then the arch is seated within the right-angle groove of the skew-block. It will be readily appreciated how quickly and securely a ceiling and floor can be put in place.

I am aware of patents having been granted which show a construction similar to the present application; but the construction is such as to not warrant a floor and ceiling that is absolutely waterproof and not subject to moisture, and one that may be put up with any degree of cheapness. In the patents, and in fact all other fireproof arches referred to, it is necessary to have the arches made in sections, which require a false structure to put them in place, which costs at a low estimate twenty-five per cent. more than the present construction. In fact, experience has taught me that the construction herein de-

scribed and claimed is the only practical, economical, and waterproof construction for floors and ceilings for fireproof buildings.

By making the parts (skew-block, arch, and ceiling) of pressed Portland cement concrete I greatly add to the strength of the structure and am also enabled to make the above parts of any desired dimensions at a very considerably less expense than has been the custom in the manufacture of this class of fireproof construction heretofore. When it is desired to use the former the skew-blocks are seated in the flanges of the I-beams and the ceiling dropped in place from the top. When it is desired to use the arch for flooring without the ceiling the skew-blocks are put in place, as above described, and the angle ends of the arch are seated within the right-angle groove in the said blocks.

In the modification shown in Fig. 2 the ceiling is reinforced by inserting in the center thereof a piece of perforated metal 26 or the equivalent. By adding this metal to the ceiling I am enabled to secure a much stronger and more durable construction.

From the foregoing it will be readily seen that I have provided a fireproof construction for ceilings and floors, or both in one, that may be set in place by one not skilled in the art to which it appertains, which is, of course, owing to its simplicity.

If desired, the air-space between the arch and ceiling may be used as a means of ventilation.

I also desire to state that the several parts may be made of any fireproof material, and that many other minor details of construction may be made without departing from the spirit of my invention.

Having thus described my invention, what I claim is—

1. A fire-proof ceiling section made of pressed concrete or other fire-proof material having enlarged ends, which taper to the body portion thereof, and having on its outer ends a vertical surface 21, inclined surface 22, and vertical surface 23, a sheet of perforated metal or the equivalent thereof embedded within the center, substantially as and for the purpose set forth.

2. A skew-block for supporting a fire-proof arch for floors, and ceilings, having an angular groove on its upper surface for supporting said arch and a seat for said ceiling, substantially as and for the purpose set forth.

3. In a fire proof construction for floors and ceilings the combination with the skew blocks, having surfaces 9, 10 and 11, grooves 12—13, the continuous arch, for supporting the floors having angular ends, and adapted to be seated in the grooves 12—13, and a ceiling section, having enlarged ends, said ends having surfaces 21, 22 and 23, conforming with and adapted to be seated within the surfaces 9, 10 and 11, in the skew block, substantially as and for the purpose set forth.

4. In a fire-proof construction for floors and ceilings, the combination with the I-beams, of skew blocks resting on the flanges thereof, and made of pressed concrete, having surfaces 9, 10 and 11, and grooves 12—13, an arch made of pressed concrete having angular ends seated within the grooves 12—13, in the skew blocks, and a ceiling section having surfaces 21, 22 and 23, corresponding with and adapted to be seated within the surfaces 9, 10 and 11, in the skew block, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ARCHIBALD G. CUMMINGS.

Witnesses:

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