

(No Model.)

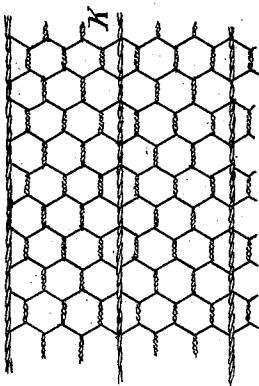
2 Sheets—Sheet 1.

J. W. MACKNIGHT.  
FIREPROOF CEILING AND FLOOR.

No. 540,451.

Patented June 4, 1895.

FIG. 2.



Witnesses:  
*John Becker*  
*Theodore Becker*

FIG. 1.

Inventor:  
*John W. MacKnight*  
by his attorneys  
*Peters & Peters*

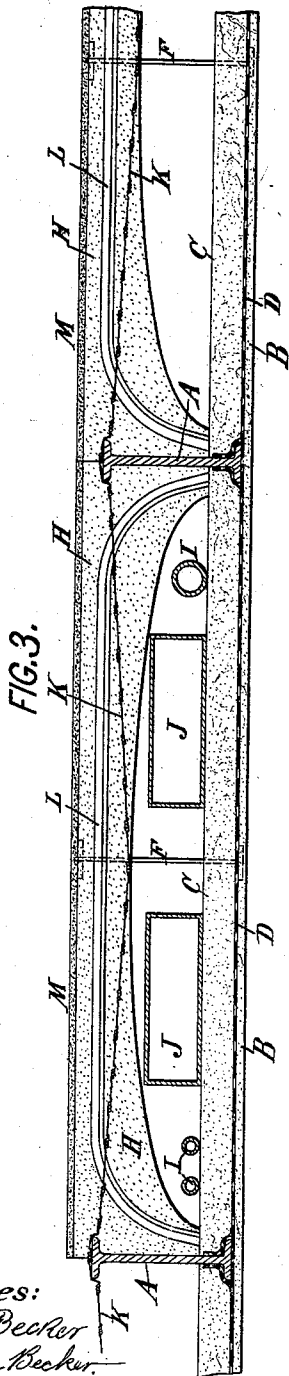
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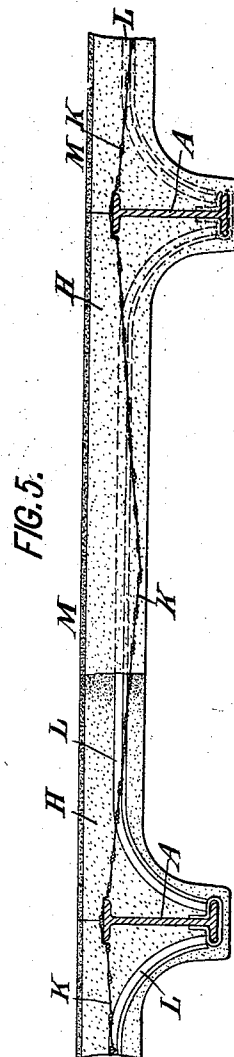
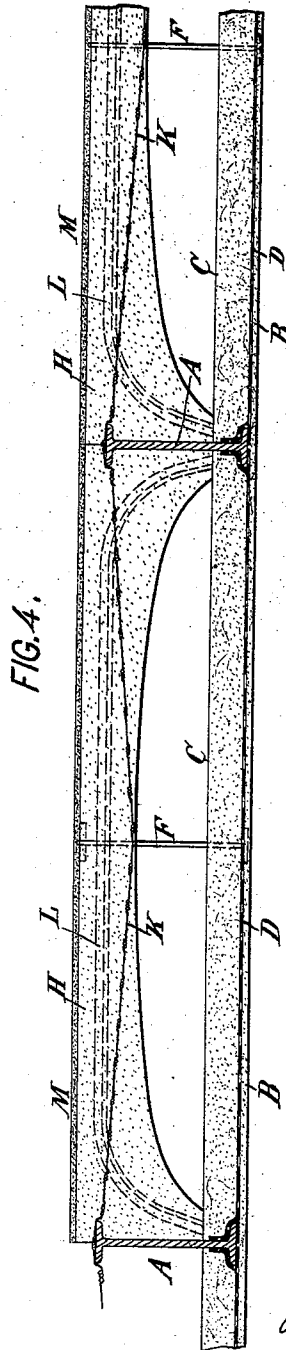
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Witnesses:  
John Becker  
Eldorado Becker.



Inventor:  
John W. Macknight  
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# UNITED STATES PATENT OFFICE.

JOHN W. MACKNIGHT, OF NEW YORK, N. Y., ASSIGNOR TO AWILDA  
MACKNIGHT, OF SAME PLACE.

## FIREPROOF CEILING AND FLOOR.

SPECIFICATION forming part of Letters Patent No. 540,451, dated June 4, 1895.

Application filed March 9, 1895. Serial No. 541,126. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN W. MACKNIGHT, of New York city, New York, have invented an Improved Fireproof Ceiling and Floor, of which the following is a specification.

This invention relates to a fire proof ceiling and floor which is very light, of great strength and can be manufactured at comparatively small cost.

10 In the accompanying drawings, Figure 1 is a perspective view of my improved ceiling and floor, showing it partly broken away. Fig. 2 is a detail of the cable-wire netting. Fig. 3 is a longitudinal section on line 3 3, 15 Fig. 1; Fig. 4, a similar section on line 4 4, Fig. 1; Fig. 5, a longitudinal section of a modification.

In forming my improved ceiling and floor, I first suspend about one-half inch beneath 20 the lower flange of the usual I beams A, a temporary scaffolding B, by hangers B'. This scaffolding serves as a support for the ceiling during the process of construction. Upon the scaffolding B, I form the outer layer C, of the 25 ceiling which should be from one-fourth to one-half an inch thick and is composed of about equal parts of Portland cement, slag wool and sharp sand. This mixture is dampened and is sifted over the scaffolding B, and beneath 30 the lower flange of the beams A to form a continuous surface. Upon the layer C, I place a wire fabric D, the ends of which are slitted and are passed alternately above and below the lower flange of the I beams, to anchor 35 the fabric. Upon the wire fabric D, is spread the upper layer E, of the ceiling, composed of about one part of plaster of paris, one part saw dust and shavings and one part of coal ashes. For this layer however, other materials, such 40 as Portland cement, Acme cement, rock plaster, adamant, crushed stones, crushed brick and sand may be used. The layer E, is applied in a plastic state so as to adhere to the wire fabric D, and outer layer C, and will set 45 so quickly that the construction of the floor can be at once proceeded with.

In forming the floor, I insert into the ceiling at suitable places a series of anchors F, and place upon the layer E, a removable core G, 50 having an arched or straight upper surface. I then cover the core with a suitable concrete

mixture H, preferably the same used in forming the layer E. After the mixture has set to form an arch the core is withdrawn and shifted so that the arch may be extended over the 55 whole surface of the ceiling. The air space formed by the withdrawal of the core serves to lighten and deaden the structure, and is also utilized for the reception of pipes I, and conduits J. Over the arches H, and over the 60 beams A, I draw a cable wire netting K, which is bent around the upper flanges of the intermediate I beams and tied to the outside I beams. This netting is more fully shown in Fig. 2. Its cables are each composed of two 65 or more intertwisted wires, which thus form a rough surface to which the cement will firmly adhere. Through the meshes of the fabric K, I pass the shanks of curved braces L, that are projected into the setting layer H, 70 and rest upon the lower flanges of the I beams. These braces as well as the anchors F, have for their object to support the hollow ceiling and to transfer in part its weight to the lower flanges of the I beams. After the braces L, 75 have been placed, the arches H, are completed by filling the fire proof mixture in to a height sufficient to cover the upper flanges of the I beams together with the cable wire netting K, and the braces L. The upper surface of the 80 layer H, thus formed constitutes the support for the wooden, cement or other flooring M, which, when layed, completes the structure and permits the scaffold to be removed.

In Fig. 5 the bottom layers C, D, and E, are 85 dispensed with and the ceiling is formed by the arched lower surface of the flooring proper.

What I claim is—

1. A fire proof ceiling and floor composed of I beams, a wire netting bent around the up- 90 per flanges of the beams, curved braces supported upon the lower flanges of said beams, and a fire proof filling that incloses the netting and braces, substantially as specified.

2. A fire proof ceiling and floor composed of 95 I beams, a wire netting, curved braces that pass with their shanks through the meshes of the netting and are supported upon the lower flanges of the I beams and of a fire proof filling that incloses the netting and braces, sub- 100 stantially as specified.

3. A fire proof ceiling and floor composed of

I beams, an arched fire proof layer, a wire netting embedded therein, arched braces passing through the meshes of the netting, and anchors F, for supporting the ceiling, substantially as specified.

5 4. A fire proof ceiling and floor composed of I beams, a pair of fire proof lower layers, an interposed wire netting, an arched upper layer, an upper wire netting, and curved braces that pass with their shanks through the meshes of said upper netting, substantially as specified.

JOHN W. MACKNIGHT.

Witnesses:

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