

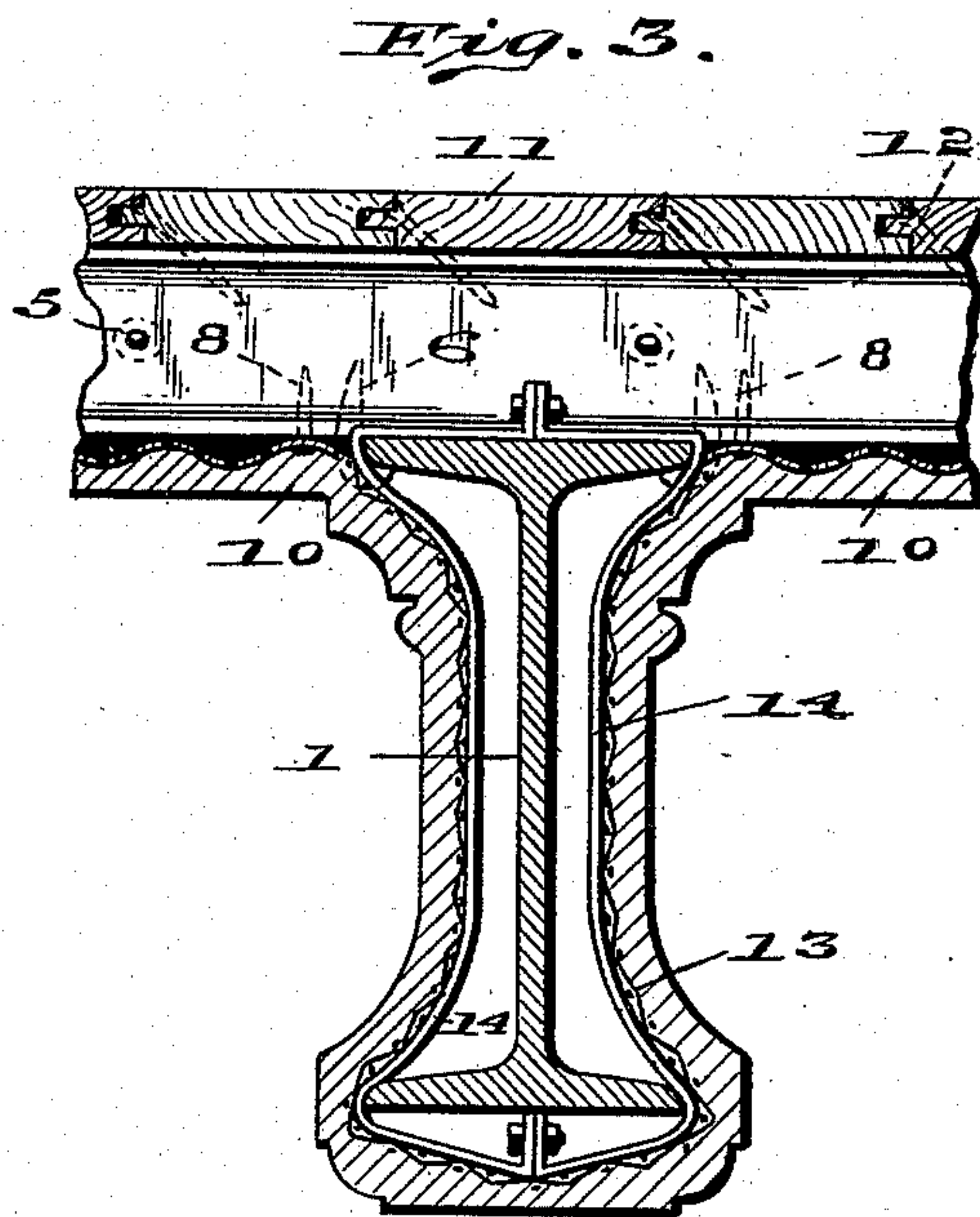
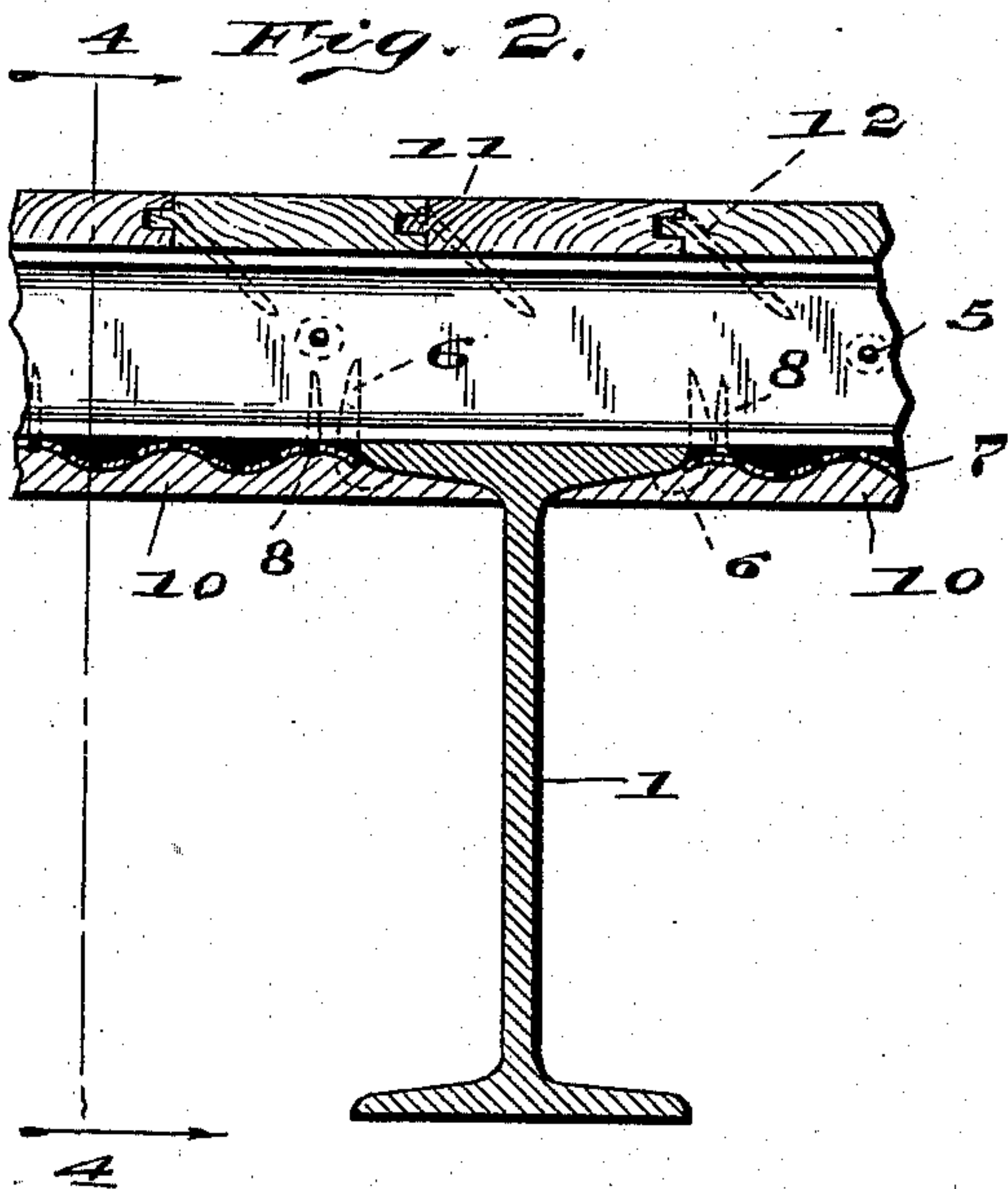
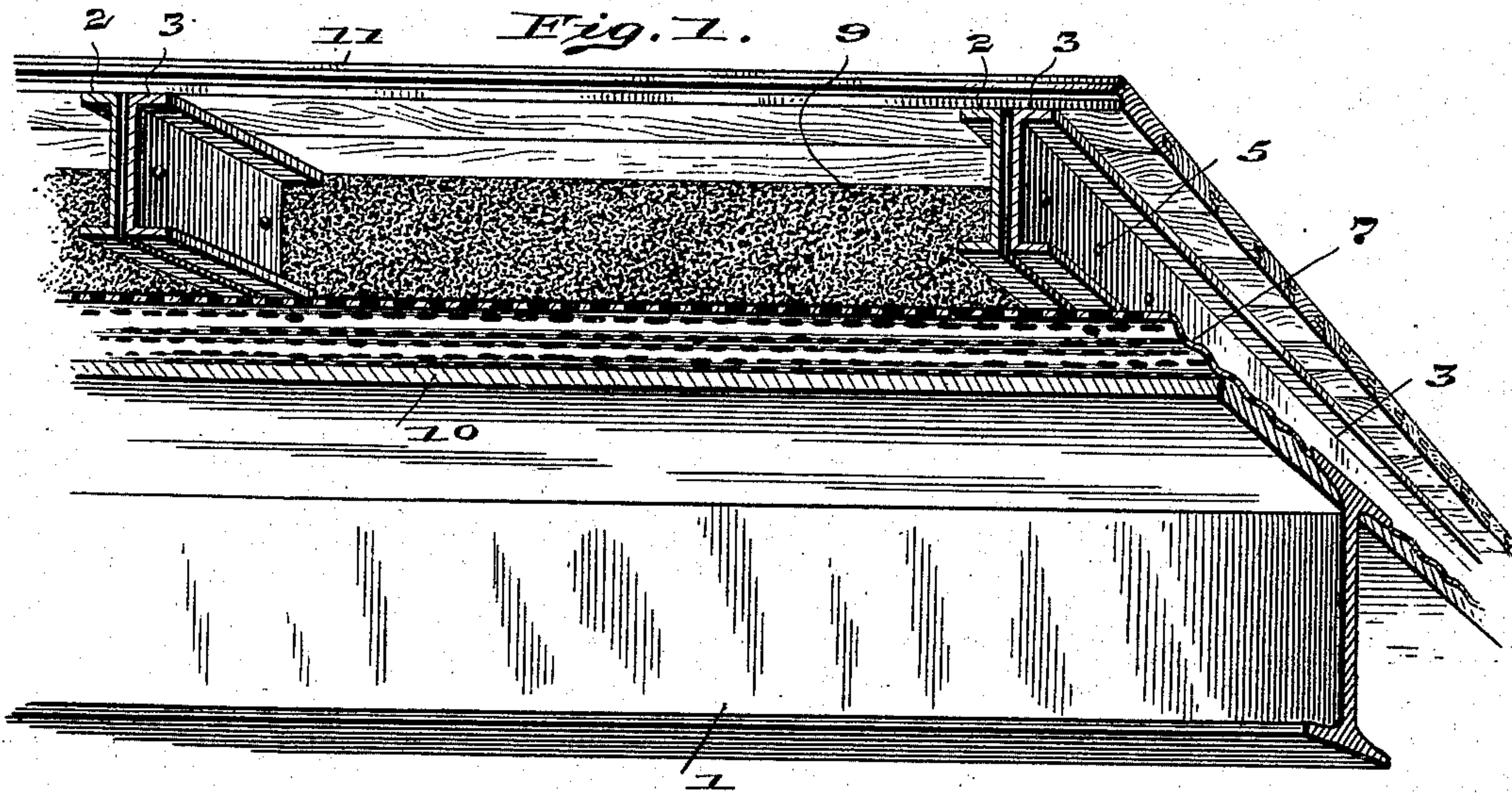
(No Model.)

2 Sheets—Sheet 1.

W. H. BROWN.
FIREPROOF FLOOR OR CEILING.

No. 535,612.

Patented Mar. 12, 1895.



WITNESSES:

H. S. Neely.
J. A. Walsh

INVENTOR

William H. Brown,
BY
Chester Bradford,
ATTORNEY.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

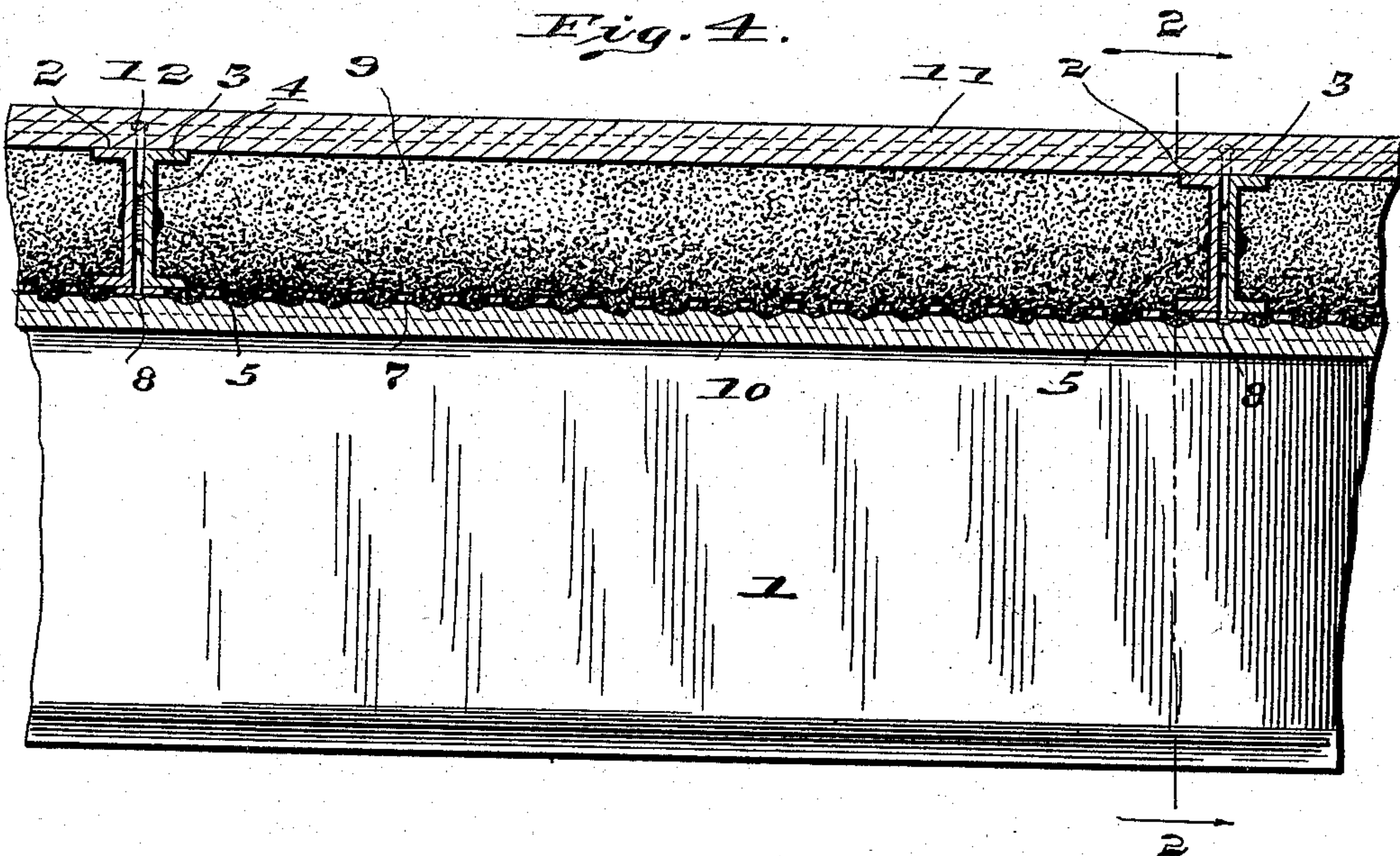


Fig. 5.

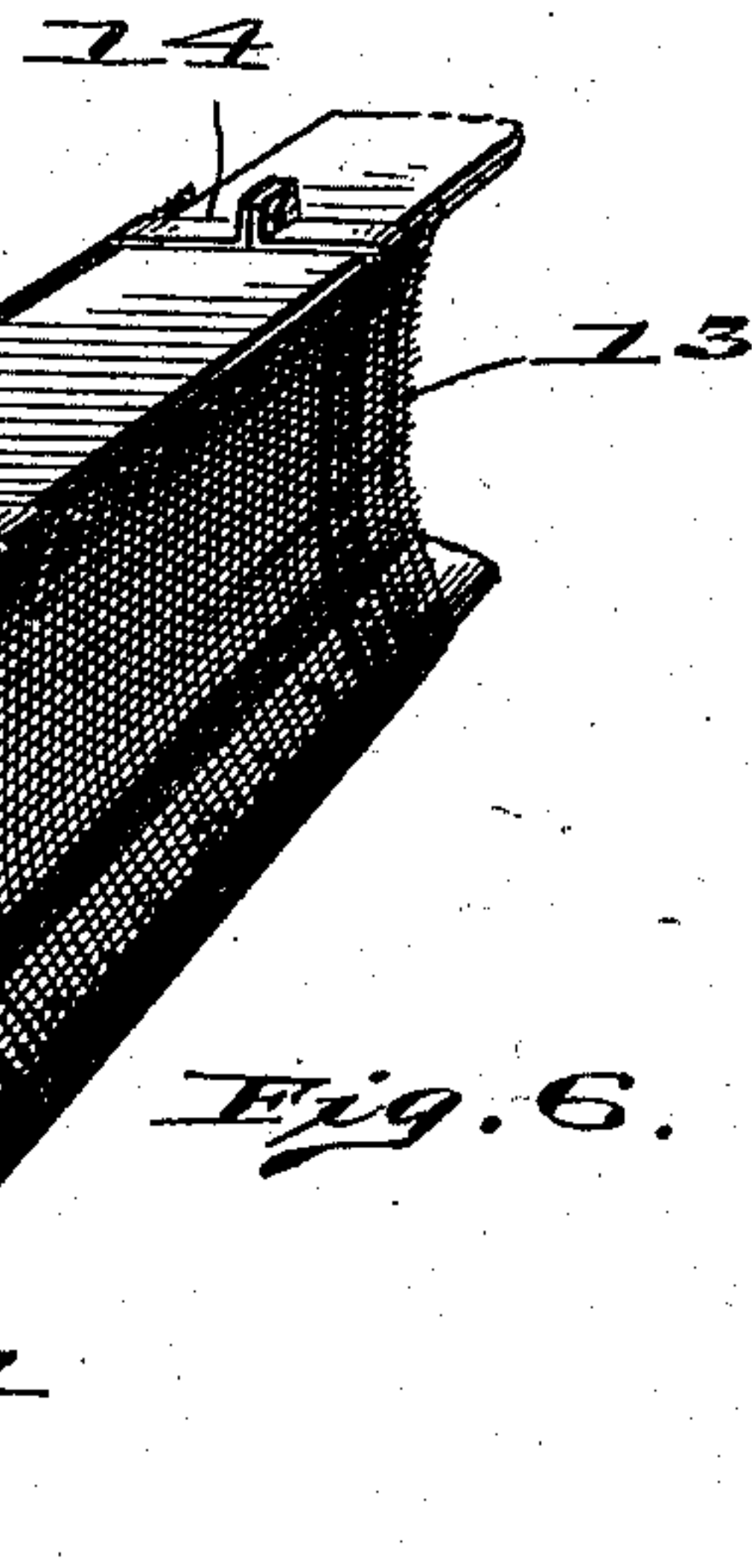
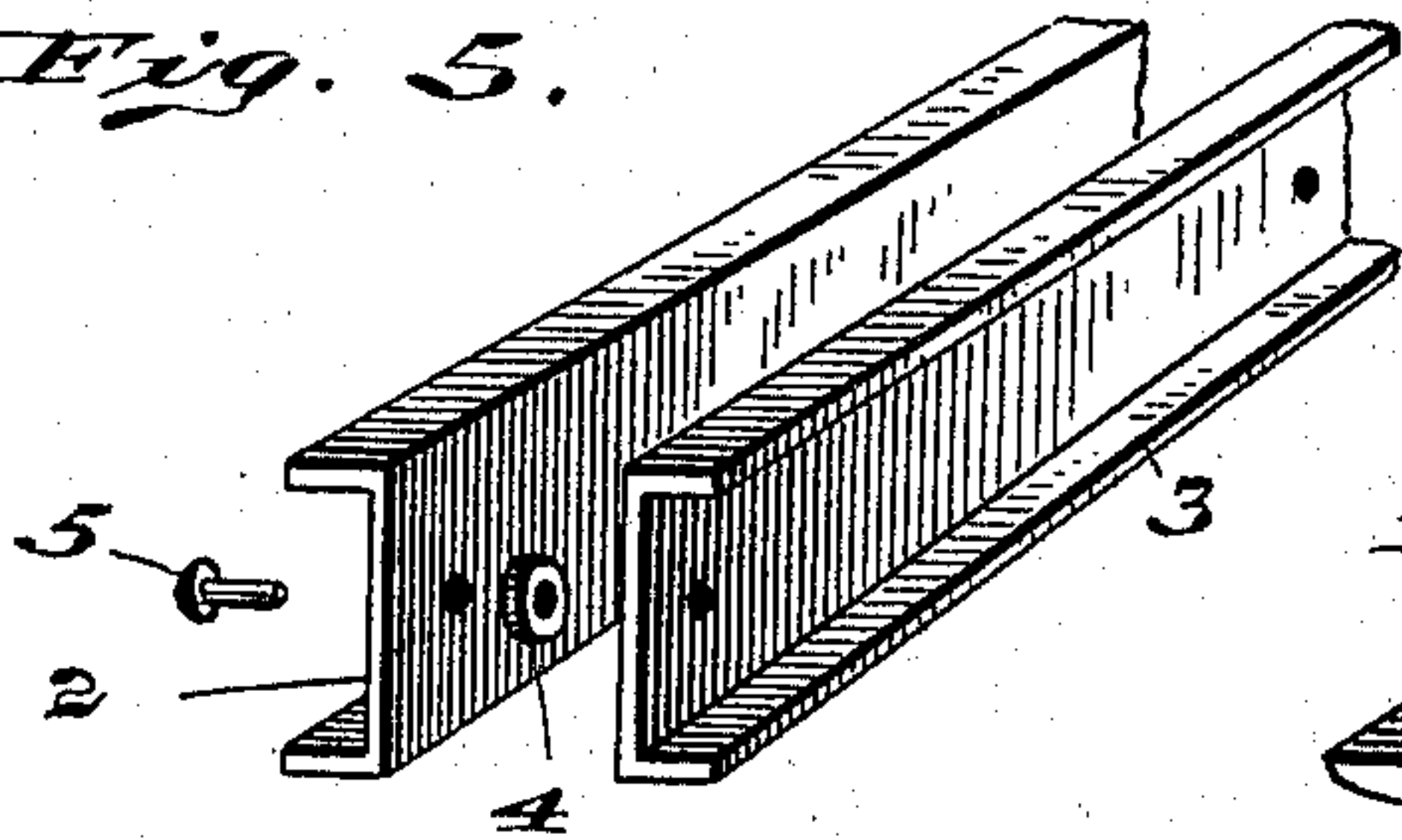
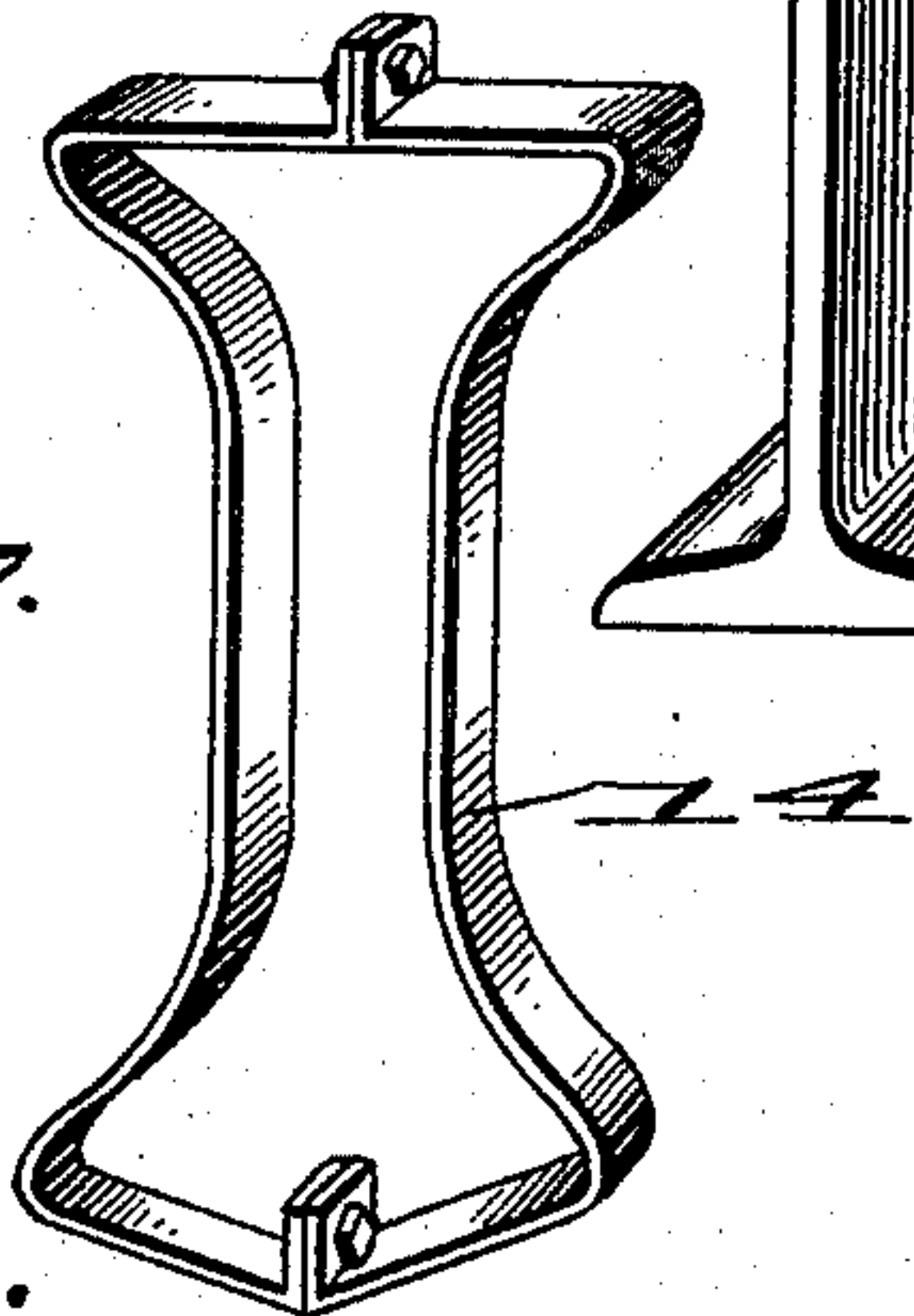


Fig. 6.

Fig. 7.



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ATTORNEY.

UNITED STATES PATENT OFFICE.

WILLIAM H. BROWN, OF INDIANAPOLIS, INDIANA.

FIREPROOF FLOOR OR CEILING.

SPECIFICATION forming part of Letters Patent No. 535,612, dated March 12, 1895.

Application filed December 18, 1894. Serial No. 532,201. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BROWN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Fireproof Floors or Ceilings, of which the following is a specification.

My present invention relates to a class of floors similar to that shown and described in my Letters Patent No. 384,421, dated June 12, 1888, and upon which my said present invention is in some sense an improvement. As is shown in Figure 2 of said Letters Patent which is the only figure (which shows the complete structure contemplated thereby), it has been common to make floors and ceilings in which the supporting beams and sleepers were of iron, the floor being secured on top of the sleepers, and the ceiling to the lower edges of the beams.

I have now discovered a new method by which the ceiling, instead of being located below the beams, can be efficiently secured directly to the sleepers, and the height of the ceilings in proportion to the gross height of the stories of the building be thus materially increased, the main beams themselves dividing such ceiling into the panels. This enables me to materially reduce the height of a building, particularly such as are composed of numerous stories without reducing the effective height of the individual stories, which effects a material saving in cost; and frequently, in localities where there are laws limiting the height of buildings, I am thus enabled to construct an additional story within the prescribed height, thus largely increasing the rental value of the building.

Referring to the accompanying drawings, which are made a part hereof, and on which similar numerals of reference indicate similar parts, Fig. 1 is a perspective view of a fragment of a floor and partially formed ceiling, the construction and arrangement being in accordance with my invention; Fig. 2, a detail sectional view of what is shown in Fig. 1, as seen from the dotted line 2 2 in Fig. 4; Fig. 3, a similar view to Fig. 2, but showing a more finished structure; Fig. 4, a detail sectional view as seen from the dotted line 4 4 in Fig. 2, and Figs. 5, 6 and 7, detail perspective views,

illustrating more plainly the form and construction of detached parts.

In the practice of my invention, metallic floor beams, 1, of the usual forms, are placed upon the walls of the building being erected, at such intervals as the circumstances and conditions may require. On the top of these beams, and at right angles thereto, are placed certain metallic sleepers, made of two pieces, 2, 3, (see especially Fig. 5,) the adjacent sides of which are nearly in contact, being separated by a proper filling piece, 4, and all connected and held together by rivets, 5, or other convenient devices passing through same, thus forming a continuous open space or slit between the two metallic surfaces, of uniform width, and the length and breadth of which is equal to that of the sleeper itself. These sleepers are attached to the top of the floor beams by means of hook-headed spikes, 6, which are driven into the bottom of the slit in the floor sleeper and are held by the grip of its sides, the hook of the head of each spike also engaging with the upper flange of a floor beam, thus securing the sleeper and the beam firmly together. To the under side of these floor sleepers, I apply a perforated metallic scaffolding, 7, which I secure in place by driving nails, 8, through it into the slit formed in said sleepers, the nails being held by the grip of the two sides of the sleeper. This perforated scaffolding serves a two-fold purpose: First, it forms a foundation upon which I spread a bed of concrete, 9, composed of any fire-resisting material, which is applied in a plastic state so that portions of it will protrude through the perforations in the scaffolding, thus forming on its under side a rough surface, and filling the entire space between the sleepers to their tops; and, second, through the medium of its perforations, it provides a practically continuous connection of the coating of plastering, 10, which I apply to its under side, with that portion of the concrete filling which protrudes through the said perforations, and by means of which a complete union is formed between the plastering and the concrete.

To the upper edge of the floor sleepers, as in my said former patent, I apply the flooring boards, 11, which are of the ordinary tongued and grooved form, and which I se-

cure to the sleeper by driving nails, 12, diagonally through the tongue of the same into the slit in the sleeper, where they are held by the grip of its two sides upon the nail.

5 I thus produce a construction which consists of metallic floor beams, metallic floor sleepers thereon, a metallic perforated scaffolding secured to the underside of the same, a concrete or filling material on top of scaffolding and between the floor sleepers, the
10 plastered ceiling applied to the under side of the scaffolding and united to the concrete, and a wood floor secured to the upper edge of the floor sleepers, all so arranged, combined and united together as to form practically a single body, of high fire-resisting
15 qualities, and which occupies a very limited amount of vertical space.

In Fig. 1, I have shown the floor beams, 1, incased by surrounding the same with wire
20 lathing, 13, secured to appropriate clips, 14, said clips being so constructed, as shown in Figs. 3 and 7, as to leave open spaces all around the surfaces of the beams, through
25 which the plaster may penetrate, and then covering said wire lathing with plaster, as shown in Fig. 3. Of course these beams may be incased by other methods, if desired, without departing from my invention in other
30 particulars.

Instead of securing the perforated scaffolding, 7, to the under side of the sleepers by the nails, 8, said scaffolding might rest on the

upper sides of the lower flanges of said sleepers, if desired; all the other features being
35 carried out as above described.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

A fire-proof floor structure for buildings, 40 consisting of metallic floor beams; metallic floor sleepers composed of two members and separated by proper filling pieces, producing a small slit, as specified, and strongly united together; a metallic perforated scaffolding 45 secured to the lower side of said sleepers; a concrete or filling material on top of said scaffolding and between said sleepers; the plastered ceiling applied to the under side of the scaffolding and united to the concrete 50 projecting through the perforations therein, and a wood floor secured to the upper edge of the floor sleepers, said parts being arranged, combined and united together to form practically a single body which serves the 55 purpose of both a finished floor and a ceiling, of high fire-resisting qualities but occupying a comparatively small amount of vertical space, substantially as set forth.

In witness whereof I have hereunto set my
60 hand and seal, at Indianapolis, Indiana, this 15th day of December, A. D. 1894.

WILLIAM H. BROWN. [L. S.]

Witnesses:

CHESTER BRADFORD,
JAMES A. WALSH.