

No. 652,535.

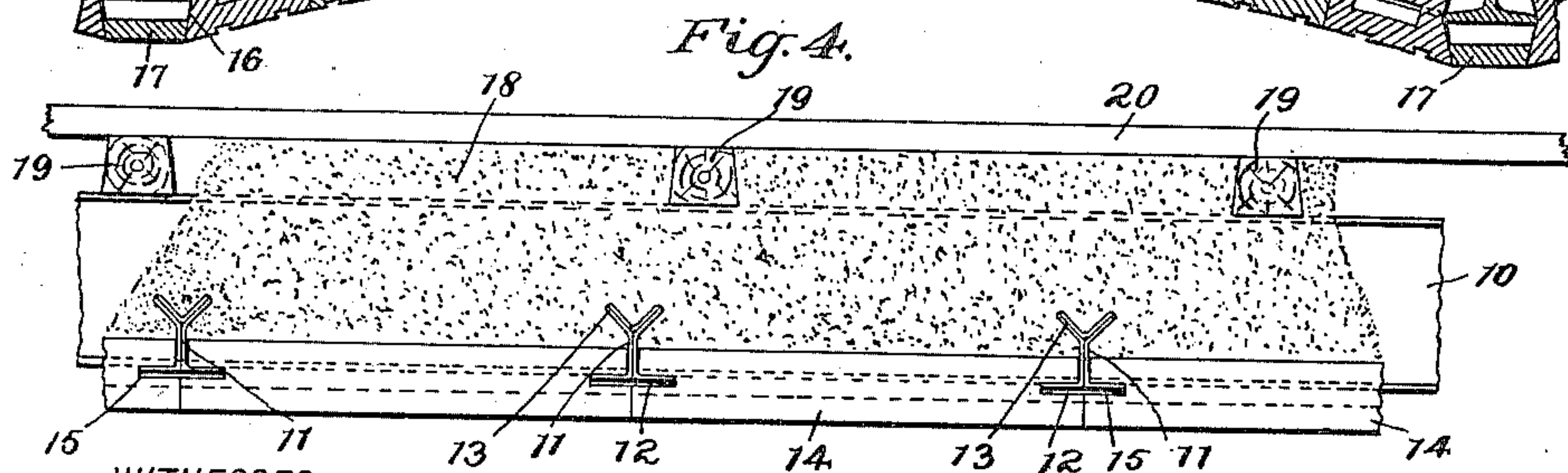
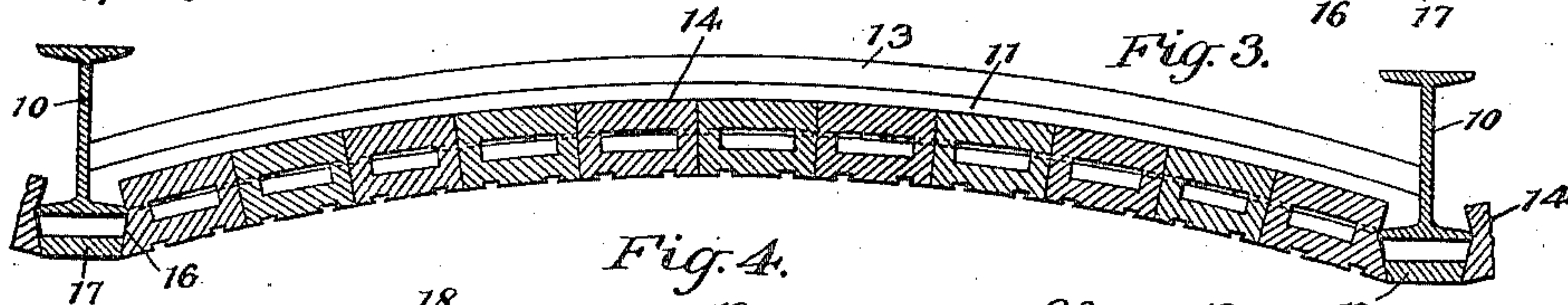
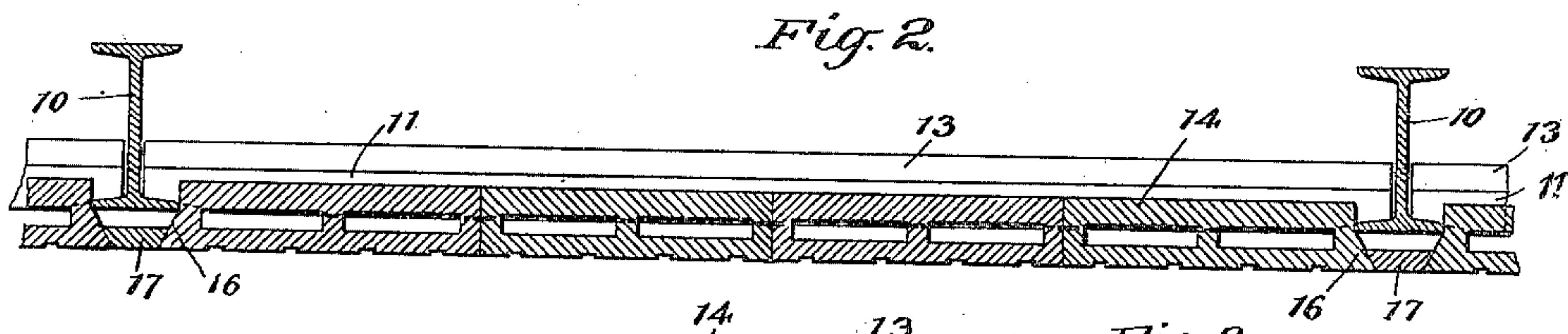
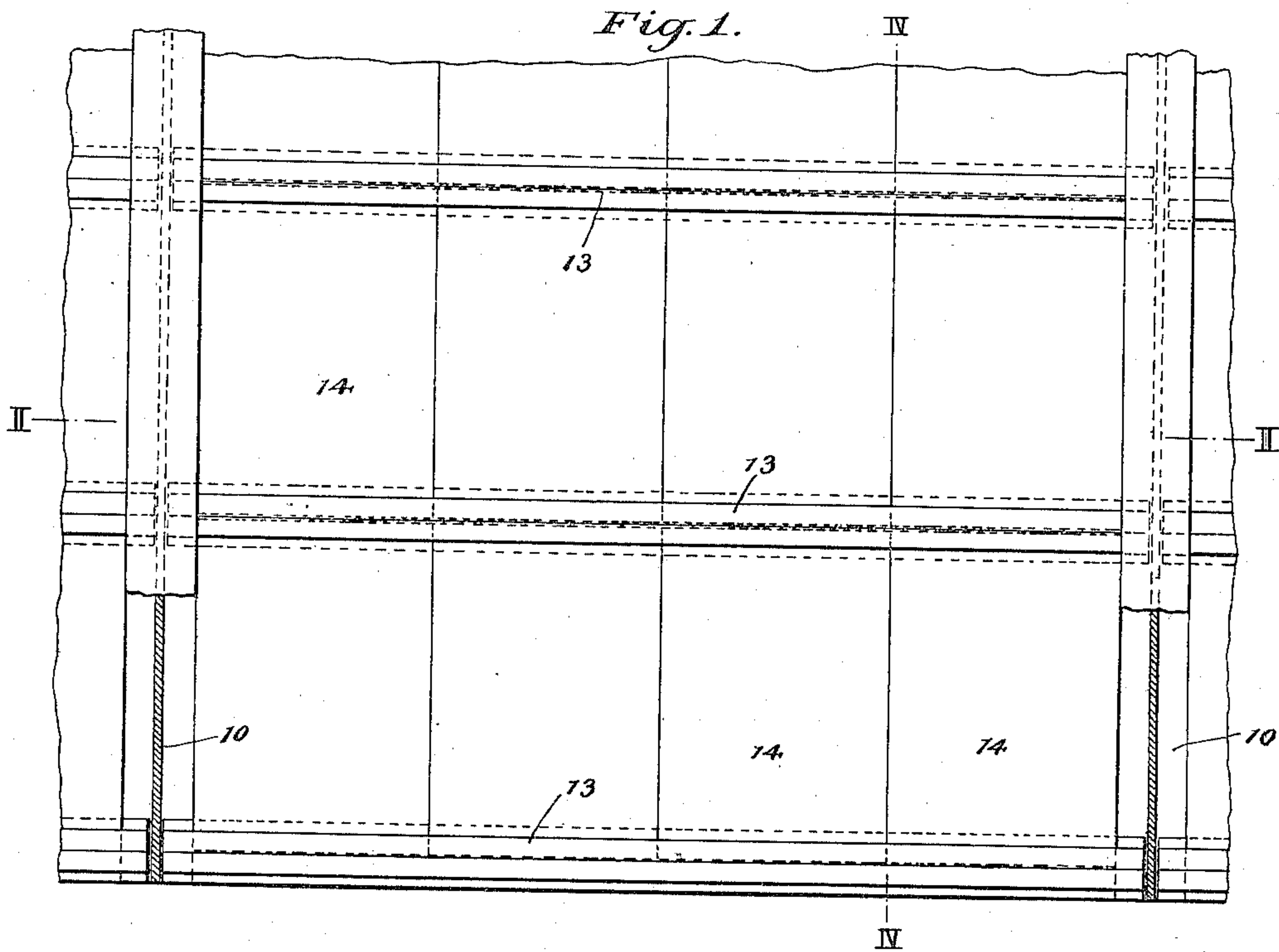
Patented June 26, 1900.

F. L. DOUGLAS.

FIREPROOF BUILDING CONSTRUCTION.

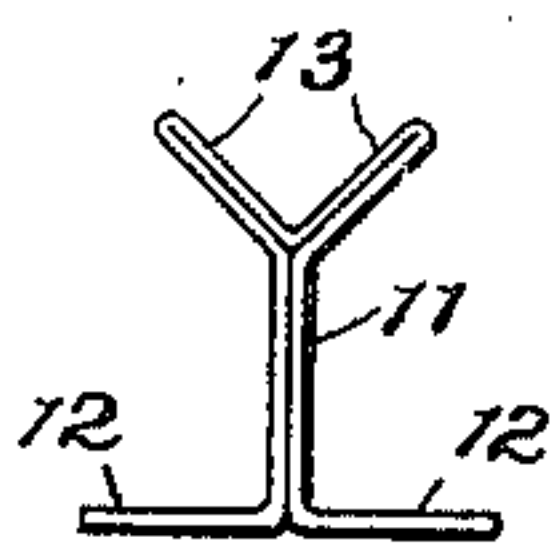
(Application filed Jan. 11, 1899. Renewed Feb. 19, 1900.)

(No Model.)



WITNESSES:

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FIREPROOF BUILDING CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 652,535, dated June 26, 1900.

Application filed January 11, 1899. Renewed February 19, 1900. Serial No. 5,742. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK L. DOUGLAS, of the city, county, and State of New York, have invented certain new and useful Improvements in Fireproof Building Construction, of which the following is a full, clear, and exact description.

My invention relates to improvements in fireproof building construction, and especially in the construction of floors and ceilings, in which it is sought to protect the metal of the floor-supports from above and below.

The object of my invention is generally to produce an essentially - fireproof structure suitable for a floor, in which a permanent composite center of terra-cotta (or other suitable material) and metal is formed, having means for easy fireproof connection between the upper and lower parts of the floor, forming, respectively, the floor proper and ceiling; also, to produce a structure of this character which is thoroughly fireproof, which has convenient means for attaching the other parts of the floor, and, finally, to produce a structure of the kind described which is as fireproof as possible and which is particularly cheap.

To these ends my invention consists of certain improvements in fireproof floor construction, which will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken plan view, partly in section, of a floor, showing my improvements, the concrete and floor proper being omitted. Fig. 2 is a cross-section on the line II II of Fig. 1. Fig. 3 is a section similar to Fig. 2, but showing an arched form of floor construction. Fig. 4 is a detail section on the line IV IV of Fig. 1, and Fig. 5 is an enlarged detailed end view of one of the Y-beams forming part of my invention.

In illustrating a portion of the floor construction I have shown the I-beams 10, which are generally used and which are supported in the usual way, either on walls, girders, or columns, and extending transversely between the I-beams are Y-beams 11, forming an important feature of my invention, and which,

as illustrated, are supported on the flanges of the I-beams 10, although obviously they may be supported on walls or other supports, if necessary. These Y-beams are provided with base-flanges 12, extending at right angles to the web of the beam, and with diverging upper arm 13, which are adapted to be embedded in the concrete, as more specifically described presently. The I-beams are preferably formed of sheet metal, which can be bent into the cross-sectional shape illustrated in Fig. 5, as this form of beam is cheaper; but this construction is not essential, and the beam can be formed of iron or steel in any usual way. The base-flanges 12 of the Y-beams enter slots 15 in the terra-cotta blocks 14, or the blocks may be of brick or other fireproof material. It will be seen that the Y-beams are thus made to serve as hangers or supports for the blocks 14, which thus thoroughly protect the metal of the beams, to the lower sides of which blocks the plastering is attached, as usual.

The blocks 14 next the I-beams 10 are beveled slightly, as shown at 16, so that keys 17, of terra-cotta or other material, may be placed beneath the I-beams 10 and supported on the beveled parts of the blocks 14. These keys are not new, and they are arranged so as to leave a space between them and the I-beams.

The Y-beams 11 may be straight or arched, as shown in Figs. 2 and 3, and the upper portions of them are embedded in concrete, which extends upward to a point above the I-beams 10; but, if preferred, the concrete may be solid relatively to a point only a little above the tops of the Y-beams, after which cinders or similar material may be piled upon the concrete, and the upper surface of the composite body may be comparatively solid, like the lower part, so as to firmly hold the sleepers 19, which rest on the I-beams, firmly embedded in the concrete and serve as anchorage for the floor 20, which is nailed to them in the usual manner.

It will be observed that the Y-beams 11, having, as they do, their upper flanges embedded in the concrete, form, in connection with the concrete, a composite structure or beam, part metal and part concrete, having good tensile strength and capable of support-

ing a great weight. It will be seen that this composite structure or beam has base-flanges formed of the flanges 12, already described, to which the blocks 14 can be secured, while
5 the upper flanges 13 prevent any sagging or slipping, and that the upper part of the floor can be applied to this central structure with great ease, and consequently cheapness.

It will further appear from the description
10 above and by reference to the drawings that every particle of metal in the whole flooring, including the I-beams and Y-beams, is thoroughly insulated and protected.

In carrying out my invention the floor may
15 be made still more rigid by forming the blocks 14 with keyways on the upper sides similar to the usual plaster keyways on the under side, so that the concrete or cement will fill the said keyways, and thus securely lock the
20 permanent central bed to the lower fireproof blocks.

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

1. In a structure of the kind described, the
25 combination of suitable supports, as the I-beams, the parallel Y-beams having base-flanges, concrete or cement in which the tops of the Y-beams are embedded, the slotted
30 fireproof material hanging on the base-flanges of the Y-beams and a filler above the concrete or cement bed, substantially as described.

2. The combination with suitable supports,
of a composite beam comprising a series of
35 metallic beams arranged at essentially right angles to the supports and each shaped to form a double web, double diverging top
flanges, and bottom flanges extending at right
40 angles to the web, and a cement or concrete bed in which the top flanges and a part of the web of the metallic beams are embedded, the bottom flanges being thus brought below the beam to serve as hangers for the fireproof material.

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Witnesses:

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