

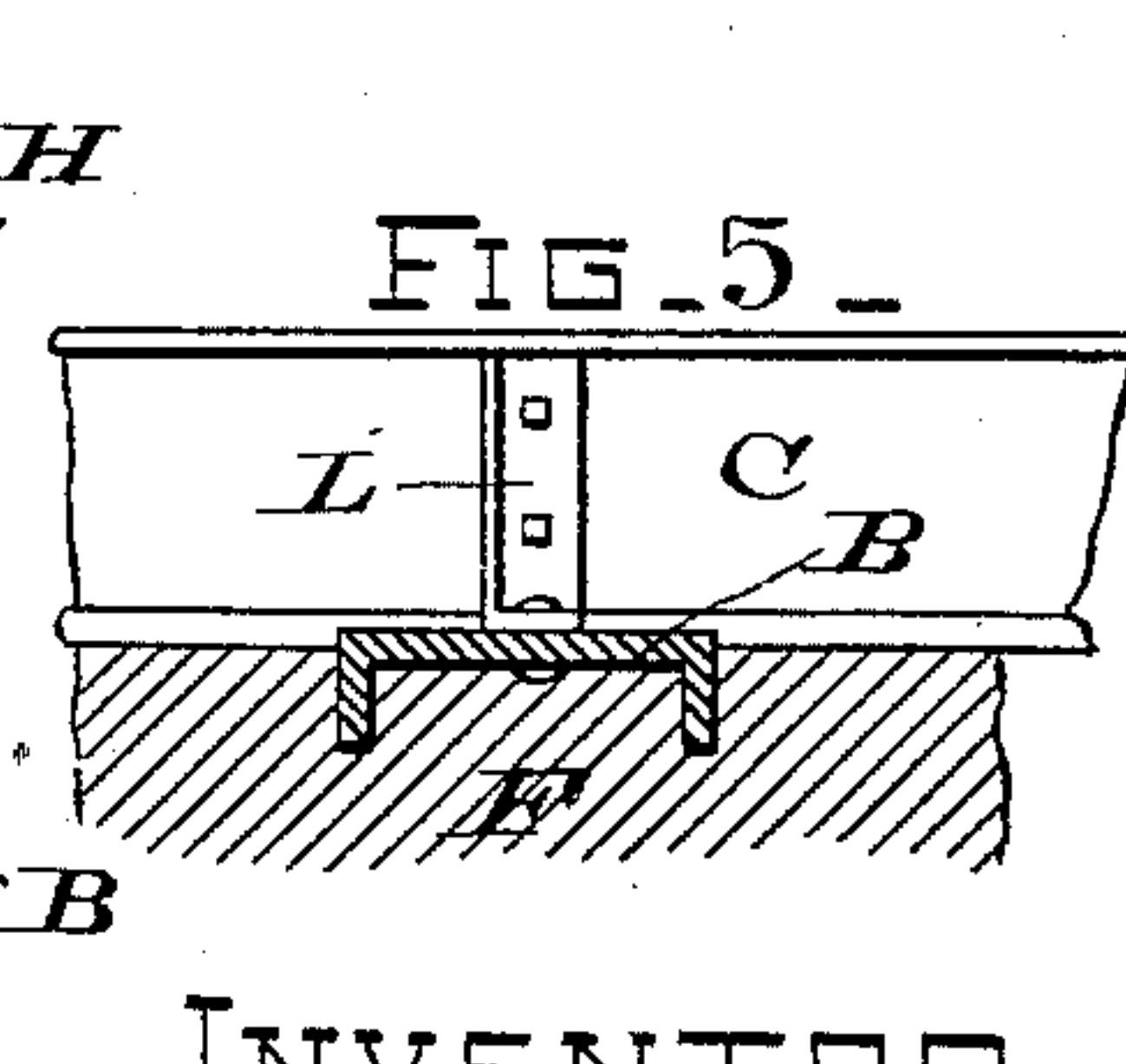
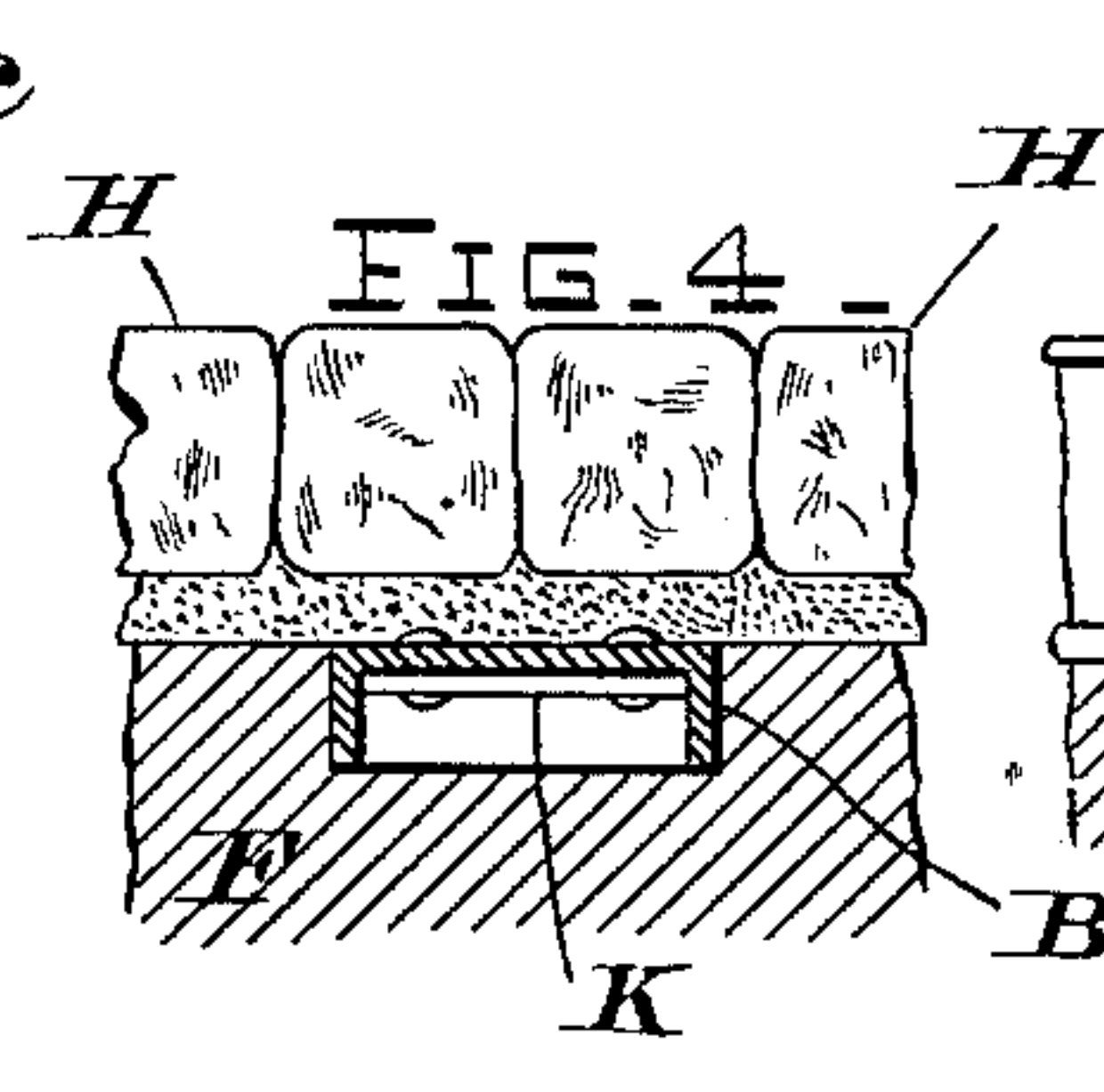
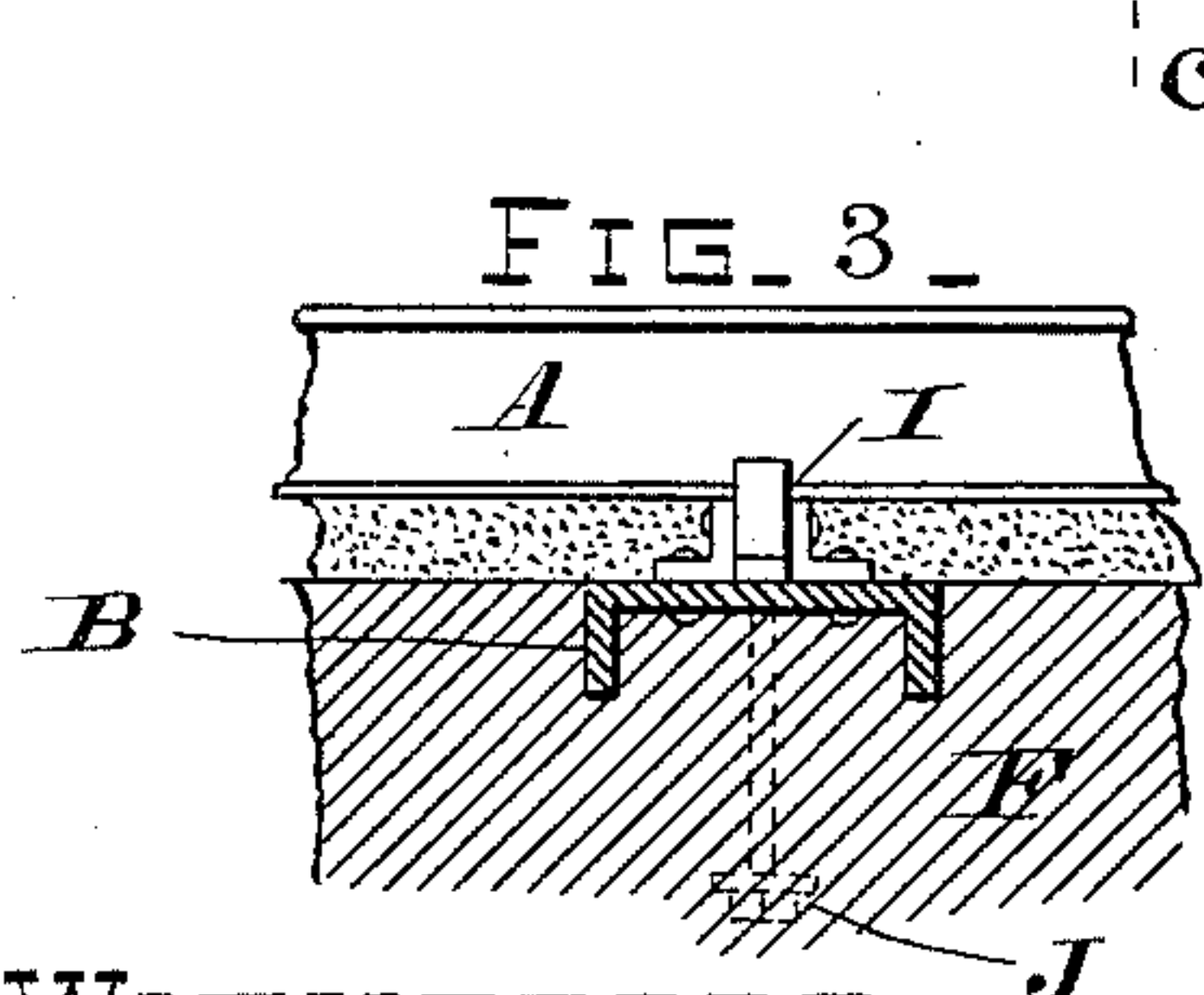
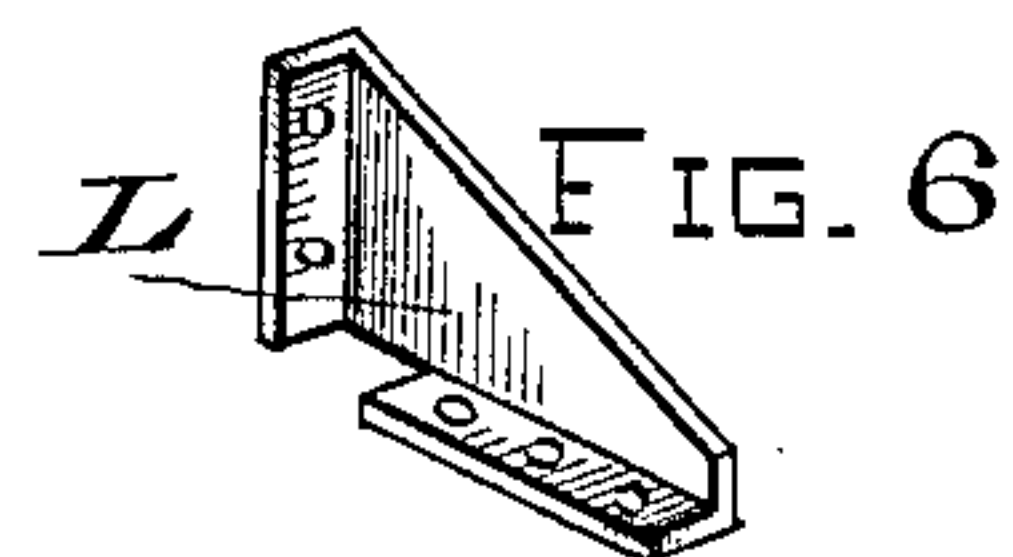
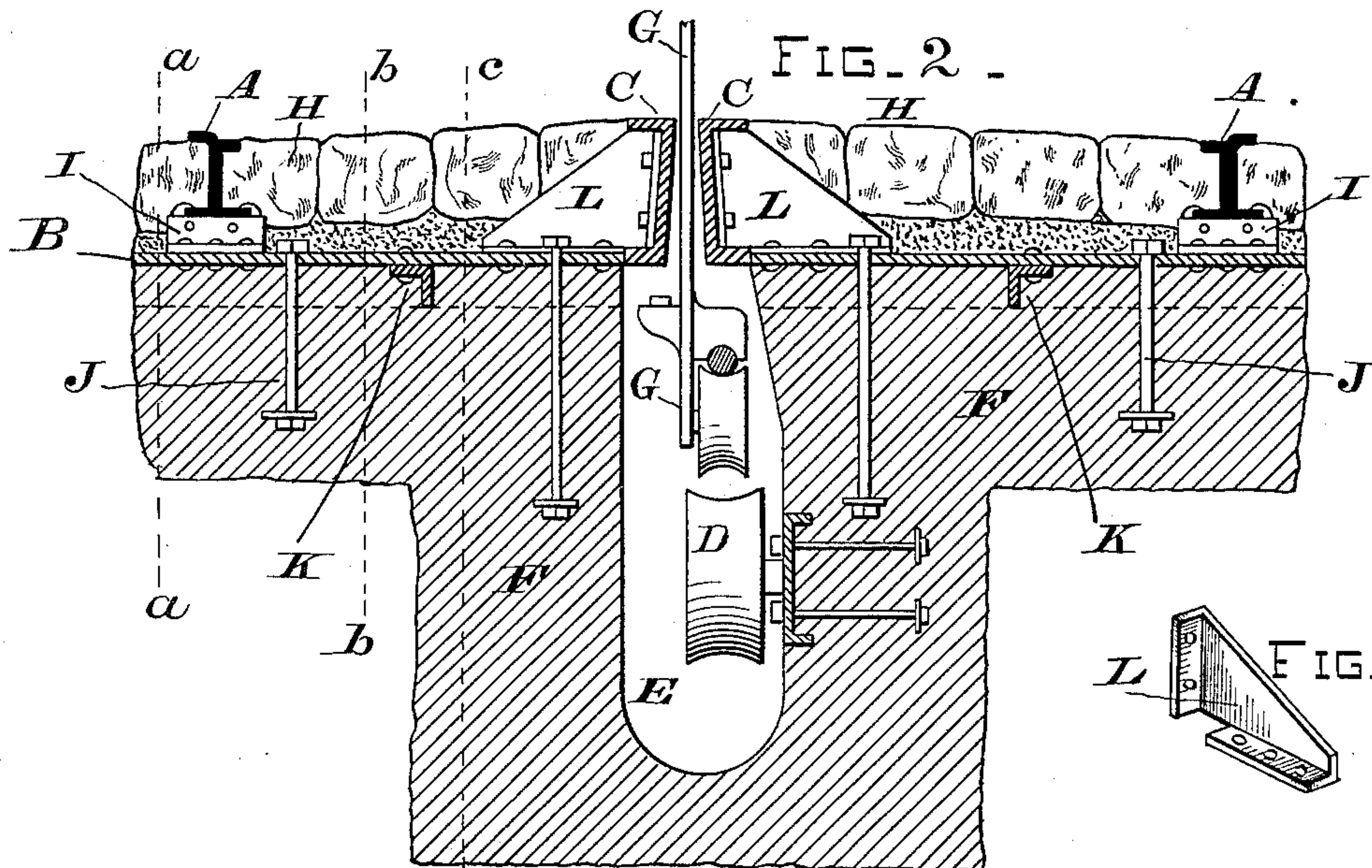
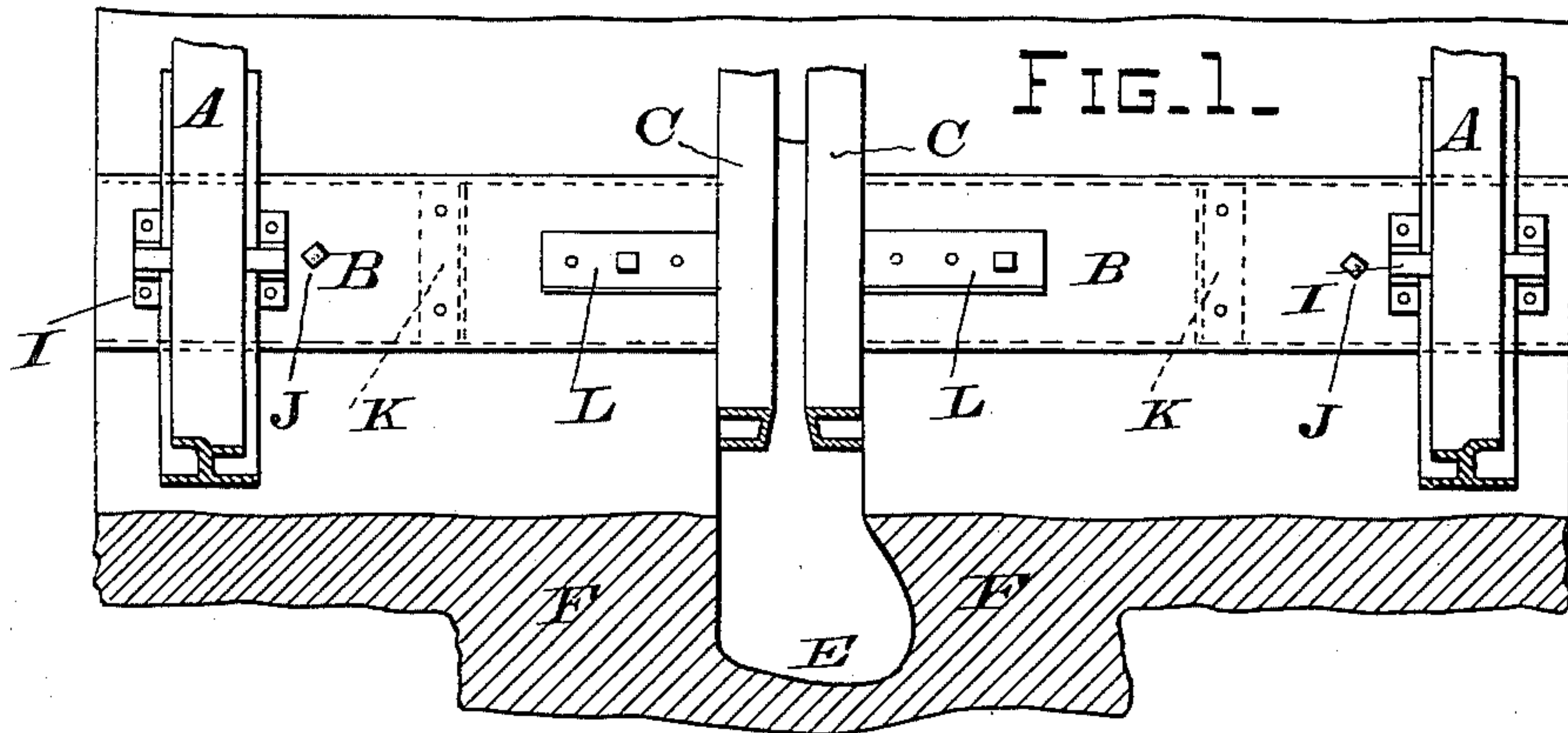
(No Model.)

J. D. ISAACS.

CONCRETE TUBE FOR CABLE RAILWAYS.

No. 318,623.

Patented May 26, 1885.



WITNESSES.
Wilmer Bradford
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UNITED STATES PATENT OFFICE.

JOHN D. ISAACS, OF OAKLAND, CALIFORNIA.

CONCRETE TUBE FOR CABLE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 318,623, dated May 26, 1885.

Application filed August 25, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. ISAACS, a citizen of the United States, residing at Oakland, Alameda county, State of California, have invented certain new and useful Improvements in the Construction of Concrete Tubes and Road-Beds for Cable Railways, of which the following is a specification.

My present invention relates to improvements in the details of a previous invention relating to the same subject-matter for which I obtained Letters Patent No. 298,472, dated May 13, 1884.

It consists, first, in an improved construction of the sleeper or tie connecting the rails with the slot-irons, by which a firmer and more permanent anchorage of the sleeper in the concrete is obtained, so that the spreading apart or closing together of either the rails or the slot-irons is rendered less liable to occur than heretofore.

It consists, secondly, in the means employed to brace the slot-irons and connect them with the sleepers, so that the paving-blocks may be fitted in place without dressing them to fit about the brace, as heretofore.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan of the road-bed and irons with the paving-blocks removed. Fig. 2 is a transverse section of the road-bed and irons. Fig. 3 is a side view on line *a a*, Fig. 2, illustrating the fastening of the rail to the sleeper. Fig. 4 is a portion of a longitudinal section taken on line *b b*, Fig. 2, showing key-piece fitted between vertical sides of the channel-iron sleeper. Fig. 5 is a part of a sectional view on line *c c*, Fig. 2, showing how the gusset-piece is riveted to both slot-iron and sleeper. Fig. 6 is a perspective view of the gusset-piece.

In all the figures all similar parts are indicated by the same reference-letters.

In my previous patent the sleepers are shown embedded in the concrete and anchored by bolts, and the slot-irons are shown without any diagonal bracing, a construction which does not properly secure the slot-irons from closing in when the heavy traffic of the street is constantly affecting them.

In my present invention there will be absolutely perfect rigidity. No ordinary traffic will injure or displace the parts, while lightness

and cheapness of construction will be found a prominent feature of my device.

Referring to the drawings, A A are the rails. B B are the sleepers; C, the slot-irons; D, one of the cable-carrying pulleys. E is the rope-way or tube, formed by coring it out longitudinally from the concrete mass F. G is the grip-shank. H H are the paving-blocks. I I are the chairs supporting and connecting the rails to the sleepers.

The sleepers or ties are, as usual, anchored in the concrete by bolts J J, (which bolts should be riveted over the screw-nuts after the concrete is thoroughly set.) They are preferably made of "channel" iron, but "angle" iron will answer. The precise shape is not material. It is only necessary that the shape be such as will give stiffness and rigidity to the sleepers, while a good wide surface is obtained to rest upon the concrete and support the rails. At the same time there should be, preferably, a downward-projecting flange to maintain the sleeper immovable sidewise.

At, say, about the middle of the length of each half-sleeper there will be riveted, bolted, or otherwise permanently fastened, what I call my "transverse keys" or "anchor-plates" K. They are bedded in the concrete, and effectually prevent, after the concrete has set, any movement of the sleepers or the slot-irons or the rails in a transverse direction, so that the gage of the track and width of the slot are thoroughly and permanently maintained.

L L are what I term "gusset-pieces." They are used to fasten together the slot-irons and the sleepers and to form a brace to prop the slot-irons in a true vertical position. They are made of wrought-iron pieces cut out of the flat in the shape of a triangle having oblong projections on the two right-angle sides. These projections are afterward bent over to form the flanges to fasten them in their places. Fig. 6 amply illustrates this gusset-piece. The vertical flange will have two holes to rivet the piece to the slot-iron, and the horizontal flange may have three holes—two to rivet the piece to the sleeper and one to pass an anchor-bolt through. (See Fig. 2.)

The great advantage of using this form of fastening is that the paving-blocks may be easily set around it, as before mentioned; and, also, it gives a firm support to the slot-iron

vertically when the slot-iron is not supported on the sleeper direct.

What I claim as my invention, and desire to secure by Letters Patent, is as follows:

5 1. In concrete tubes for underground cable railways, in combination with the sleepers B and slot-irons C, the key-piece K, firmly secured to said sleepers and embedded in the concrete, substantially as and for the purpose
10 described.

2. In underground tubes for cable railways, the combination of the sleepers B, slot-irons C, and thin plate-metal gusset-piece L, substantially as and for the purpose described.

3. In concrete tubes for cable railways, the combination of the sleepers B, slot-irons C, rails A, and key-piece K, substantially as and for the purpose described. 15

4. In underground tubes for cable railways, the combination of the slot-irons C and gusset-piece L, suitably anchored directly or indirectly to the material forming the tubes, substantially as and for the purpose described. 20

JOHN D. ISAACS.

Witnesses:

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C. D. RHODES.