

No. 708,901.

F. E. MUSGRAVE.
TRAMWAY RAIL.

Patented Sept. 9, 1902.

(Application filed July 18, 1902.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 2.

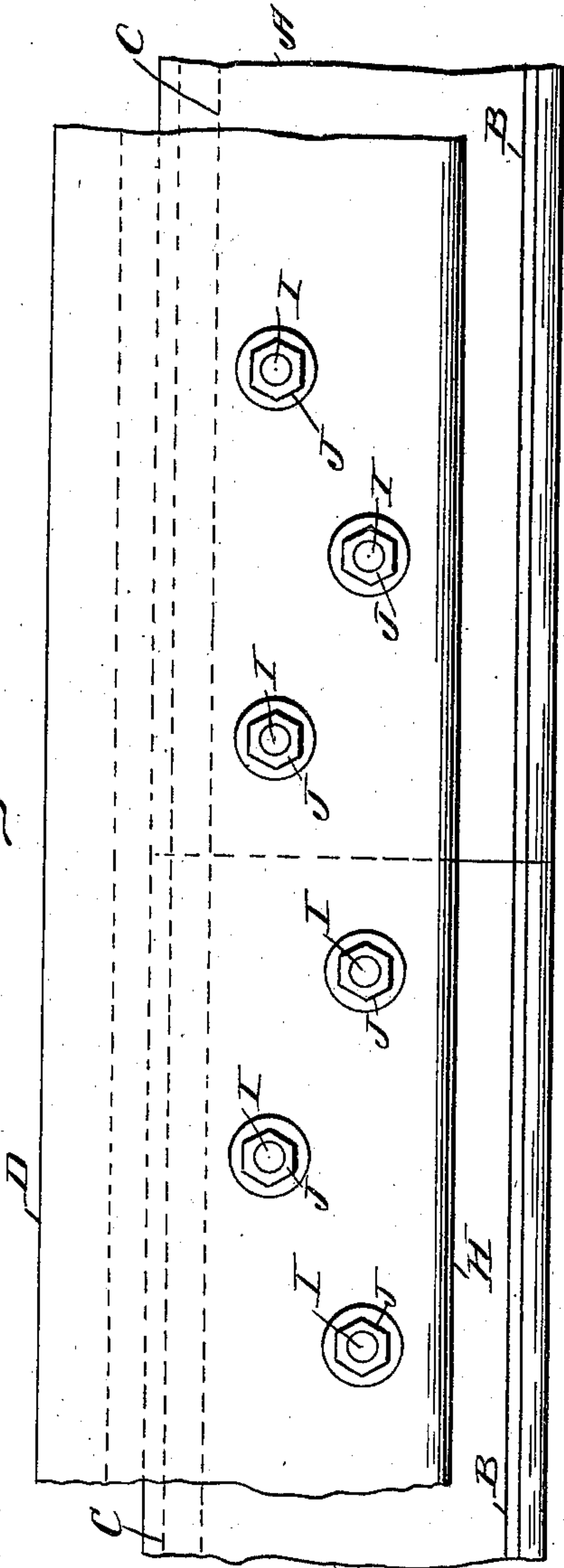


Fig. 3.

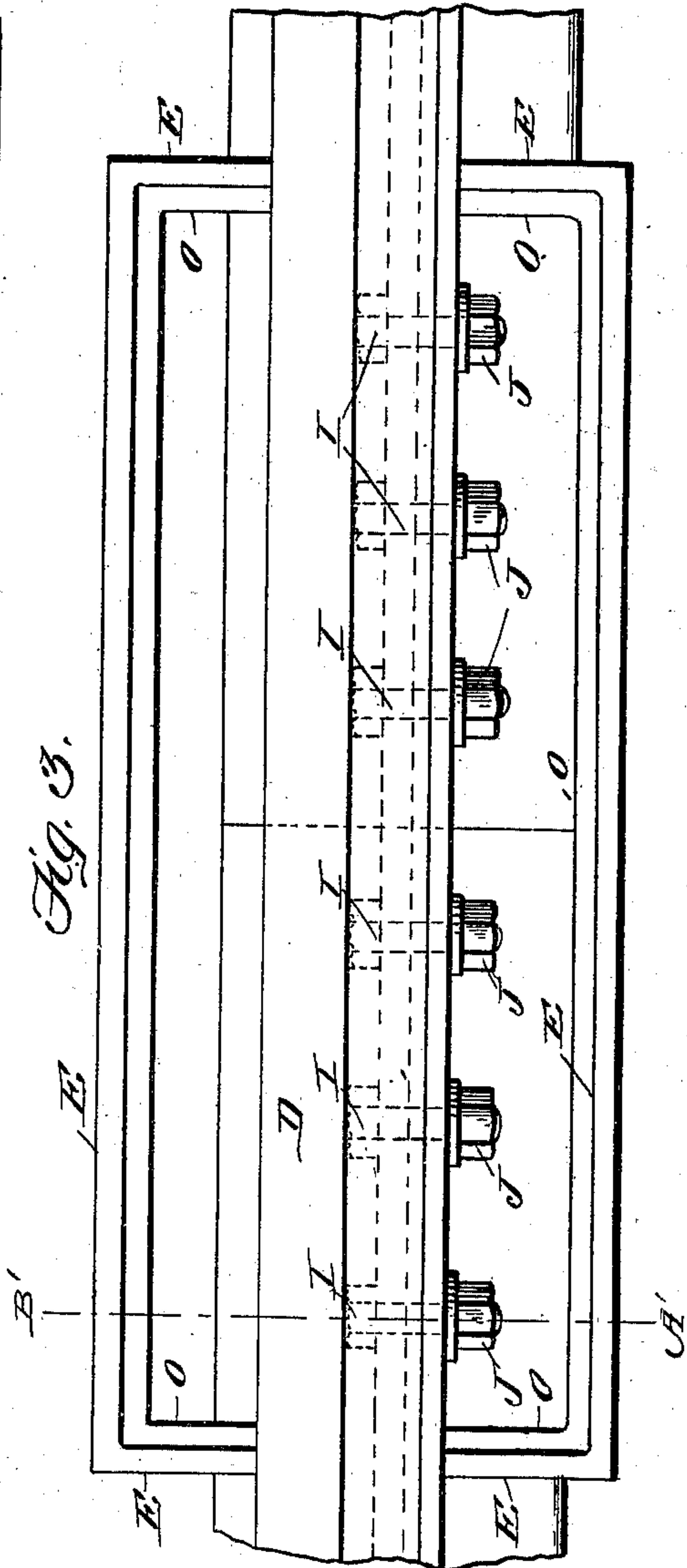
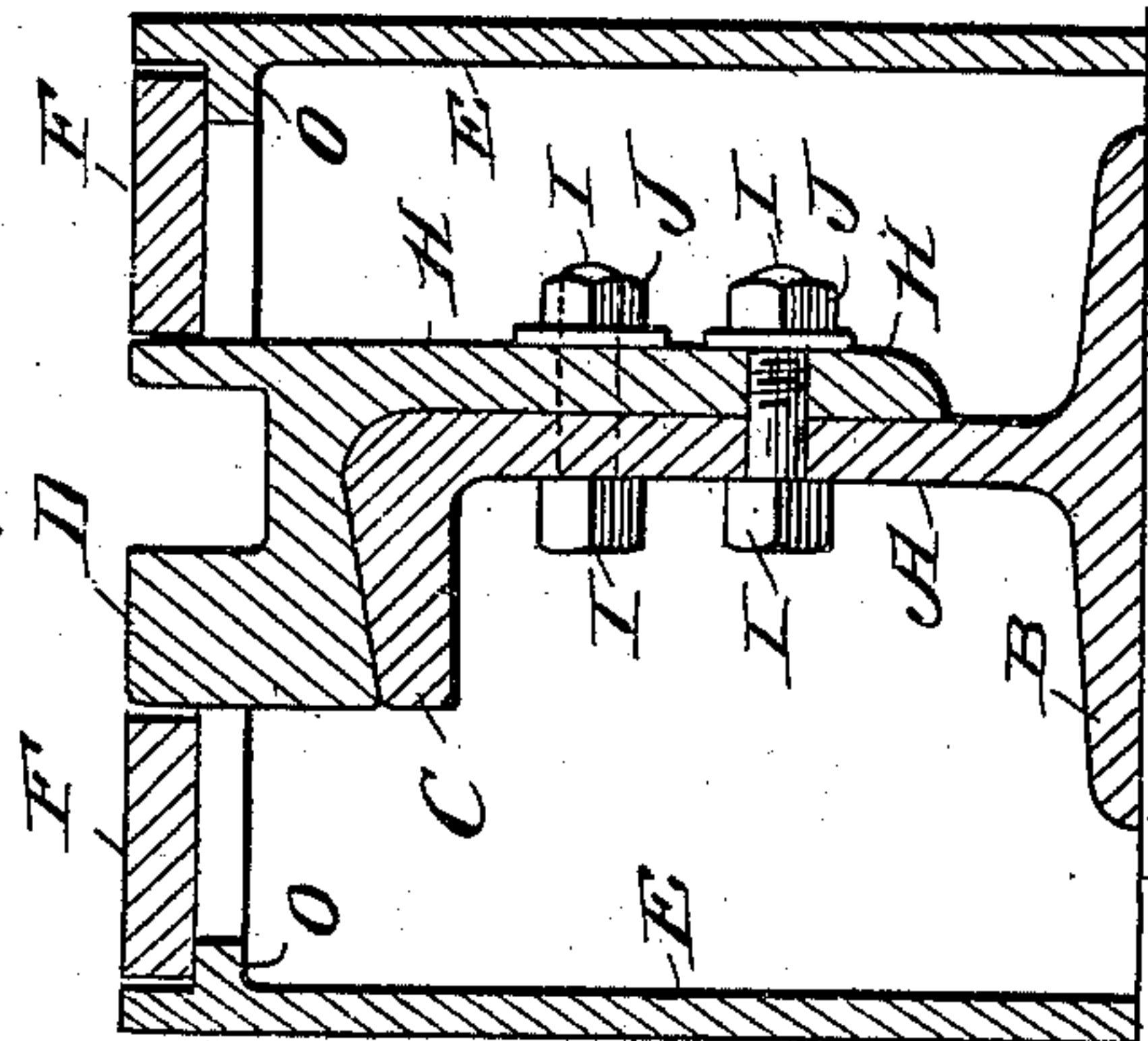


Fig. 1.



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2 Sheets—Sheet 2.

Fig. 4.

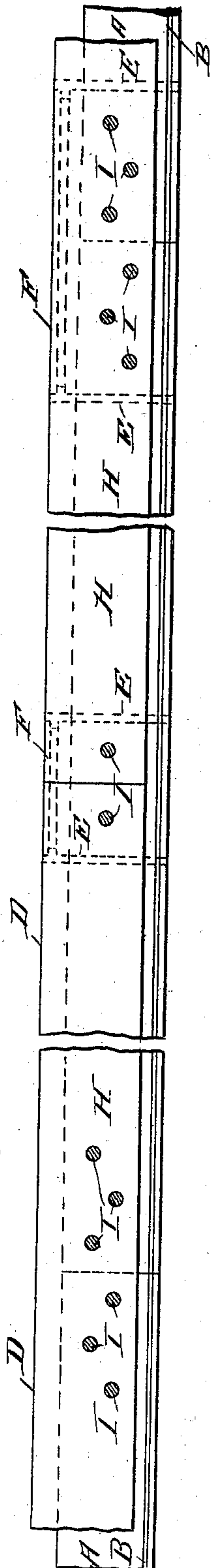
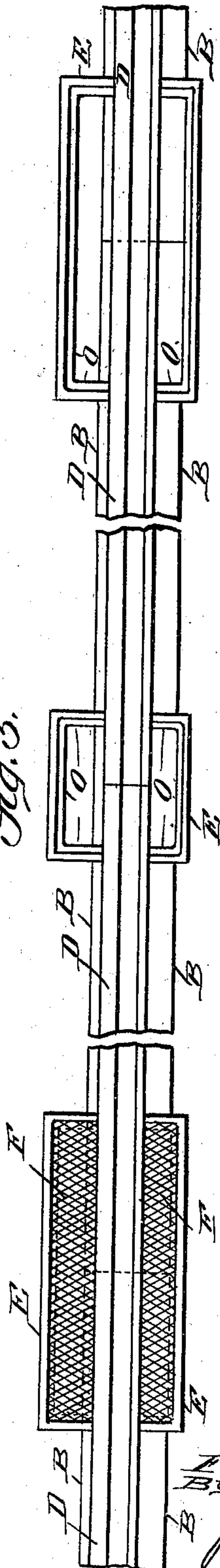


Fig. 5.



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UNITED STATES PATENT OFFICE.

FRANK EVERARD MUSGRAVE, OF BOLTON, ENGLAND.

TRAMWAY-RAIL.

SPECIFICATION forming part of Letters Patent No. 708,901, dated September 9, 1902.

Application filed July 16, 1902. Serial No. 115,854. (No model.)

To all whom it may concern:

Be it known that I, FRANK EVERARD MUSGRAVE, of the firm of John Musgrave & Sons, Limited, of Globe Iron Works, Bolton, in the
5 county of Lancaster, England, have invented certain new and useful Improvements in or Relating to Tramway-Rails, of which the following is a specification.

This invention refers to improvements in
10 or relating to tramway-rails and is designed to allow of the grooved upper face of the same being renewed, removed, and replaced when required or desired without disturbing the body and flanges of the tramway-rail and the
15 track or roadway carrying the same. This I carry into effect by constructing the bottom flange and web in the usual manner with an upper flange on one side of angular form to receive the under side or other portion of the
20 grooved upper face of the tramway-rail. The grooved upper face of the latter is provided with a flange or web by which it is secured to the web of the permanent supporting tramway-rail by means of bolts and nuts or their
25 equivalents in any convenient manner. The upper grooved portion of the tramway-rail may be of any desired length and arranged so as to break joint with the lower or carrying portion of the tramway-rail. The aforesaid
30 flange or web is so arranged that it forms a "fish-plate" at each joint in the body of the permanent carrying-rail. By means of this invention the upper grooved face of the tramway-rail may be removed and renewed in case
35 of wear or breakage without disturbing the body of the supporting or carrying portion of the tramway-rail, thereby effecting a great saving in time, labor, and expense. Metallic boxes and covers may be employed where de-
40 sired or necessary to facilitate repairs and other operations.

Figure 1 is a transverse sectional elevation of my improvements in or relating to tramway-rails through line A' B' in Fig. 3; Fig. 2,
45 a part longitudinal elevation of my improvements in or relating to tramway-rails with metallic boxes and covers removed; Fig. 3, a plan of Fig. 1 with metallic boxes located on each side of the tramway-rail and the covers
50 removed; Fig. 4, a longitudinal elevation of

a tramway-rail, showing joints; and Fig. 5, a plan of Fig. 4, showing metallic boxes with and without covers.

A represents the web of a tramway-rail; B, bottom flange; C, upper flange on one side of
55 angular form; D, grooved upper face of the tramway-rail; E, metallic boxes, and F covers for same.

In all the figures the same letters are employed to indicate corresponding parts. 60

The bottom flange B and the web A of the tramway-rail are constructed in the usual manner, the latter being provided on its upper end with the flange C on one side of angular form to receive the under side or other
65 portion of the grooved upper face D of the tramway-rail on which the wheels of the tram or other cars or vehicles travel.

The grooved upper face D of the tramway-rail is provided with the flange or web H, by
70 which it is secured to the web A of the permanent supporting tramway-rail by means of the bolts I and nuts J or their equivalents in any convenient manner. The upper grooved
75 portion D of the tramway-rail may be of any desired length and arranged so as to break joint with the lower or carrying portion of the web A and flange B of the tramway-rail. The aforesaid flange or web H is so arranged that
80 it forms a fish-plate at each joint in the body or web A of the permanent carrying-rail.

By means of this invention the upper grooved face D of the tramway-rail may be removed and renewed in case of wear or breakage without disturbing the body of the per-
85 manent supporting or carrying portions A, B, and C of the tramway-rail, thereby effecting a great saving in time, labor, and expense.

To facilitate repairs and other operations, such as inserting and removing the bolts I
90 and nuts J and to allow of the same being screwed and unscrewed, the sides of the tramway-rails D are provided with the metallic boxes E at each joint of either the supporting tramway-rail and the grooved upper
95 face D and the flange or web H. The metallic boxes E are provided with the metallic covers F, with their outer surface "checkered" or roughened to prevent persons and animals slipping when passing over the same. The 100

metallic covers F are supported on the projections or ledgings O, located on the inside of the metallic boxes E.

5 Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

10 The combination of parts relating to tramway-rails consisting of the tramway-rail composed of the web A, bottom flange B and the flange C on one side of the web of angular form to receive the under side or other portion of the grooved upper face D of the tramway-rail on which the wheels of the tram or
15 other cars or vehicles travel, the upper portion having the flange or web H by which it is secured to the web A by the bolts I and

nuts J at each joint, and arranged so as to break joint with the web A, and flanges B and C, thus forming a "fish-plate" at each joint in the body or web A of the permanent carrying-rail; each tramway-rail being provided with the metallic boxes E and the covers F, the whole being constructed, connected, and applied substantially as described and as illustrated in the drawings. 25

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FRANK EVERARD MUSGRAVE.

Witnesses:

EDMUND CHADWICK,
JAS. STEWART BROADFOOT.