

No. 694,317.

Patented Feb. 25, 1902.

L. DION.

ELECTRIC TRACTION ROAD.

(Application filed June 22, 1901.)

(No Model.)

2 Sheets—Sheet 1.

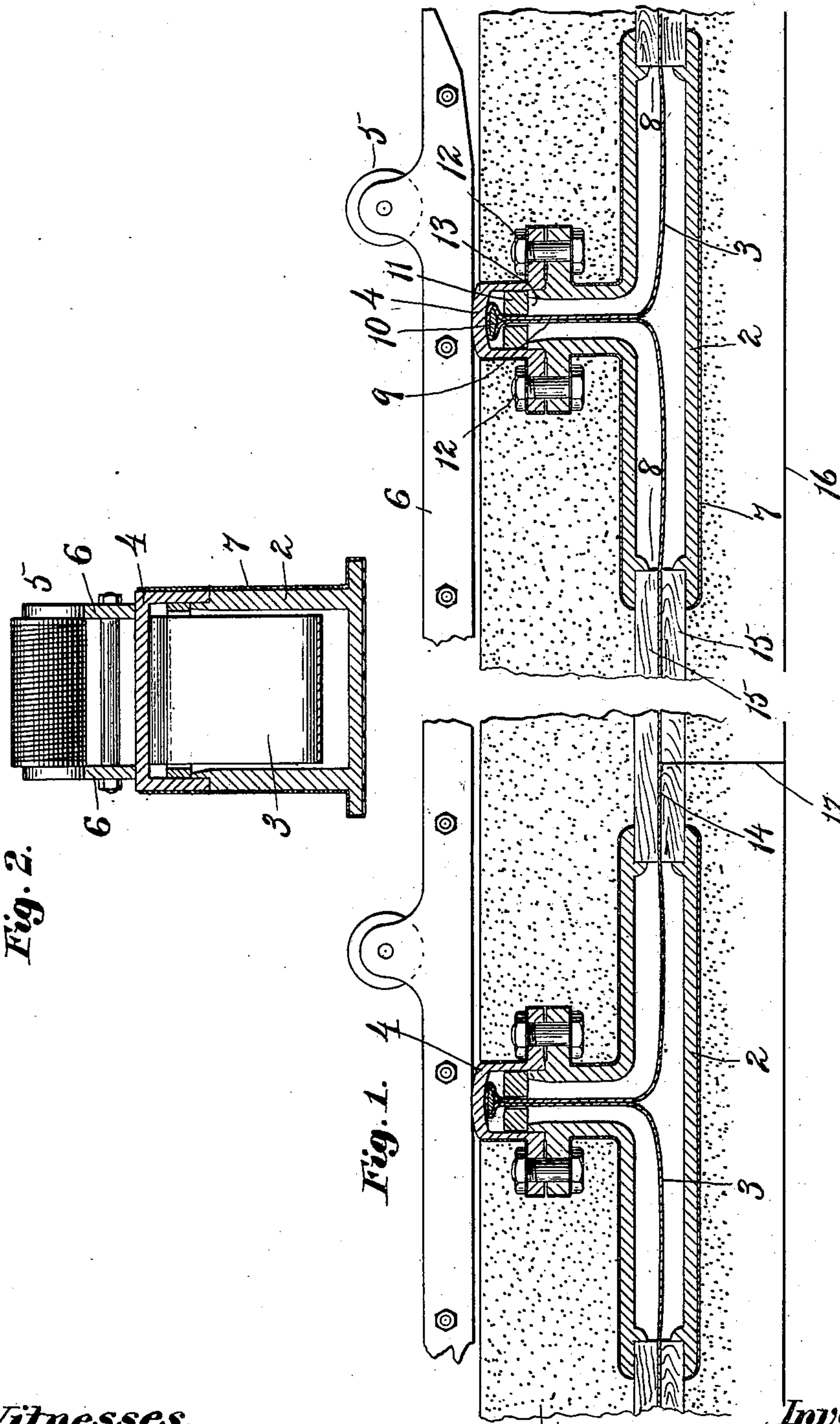


Fig. 2.

Fig. 1.

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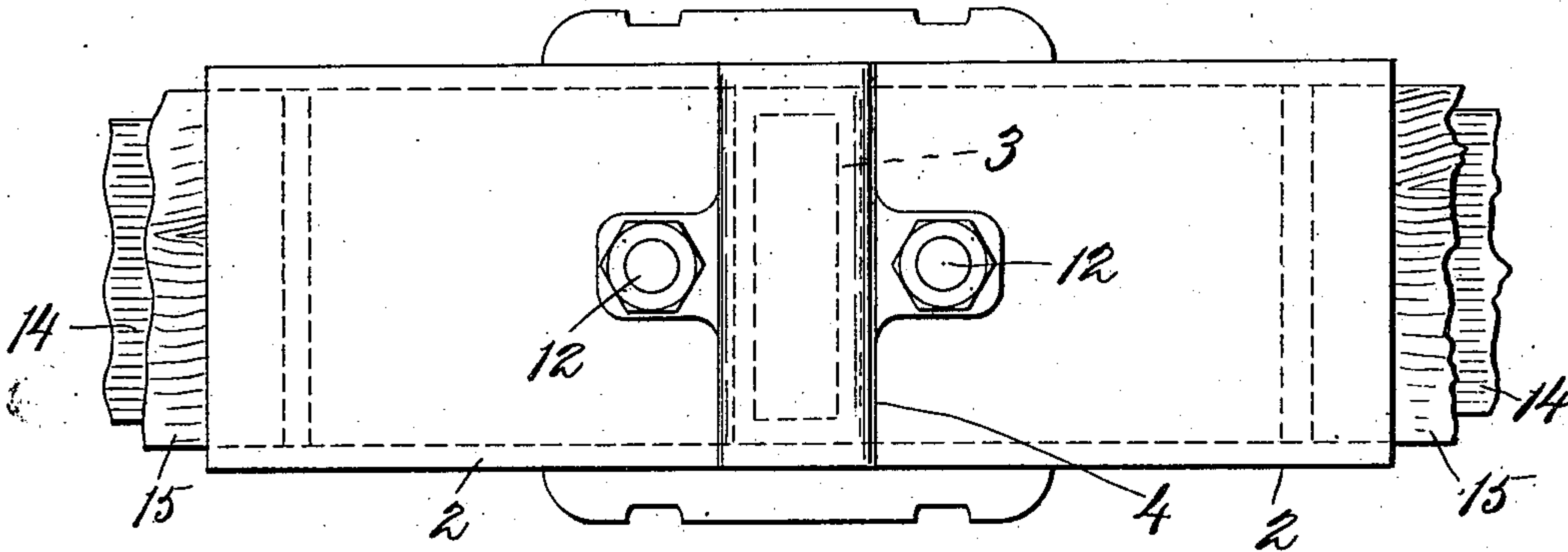
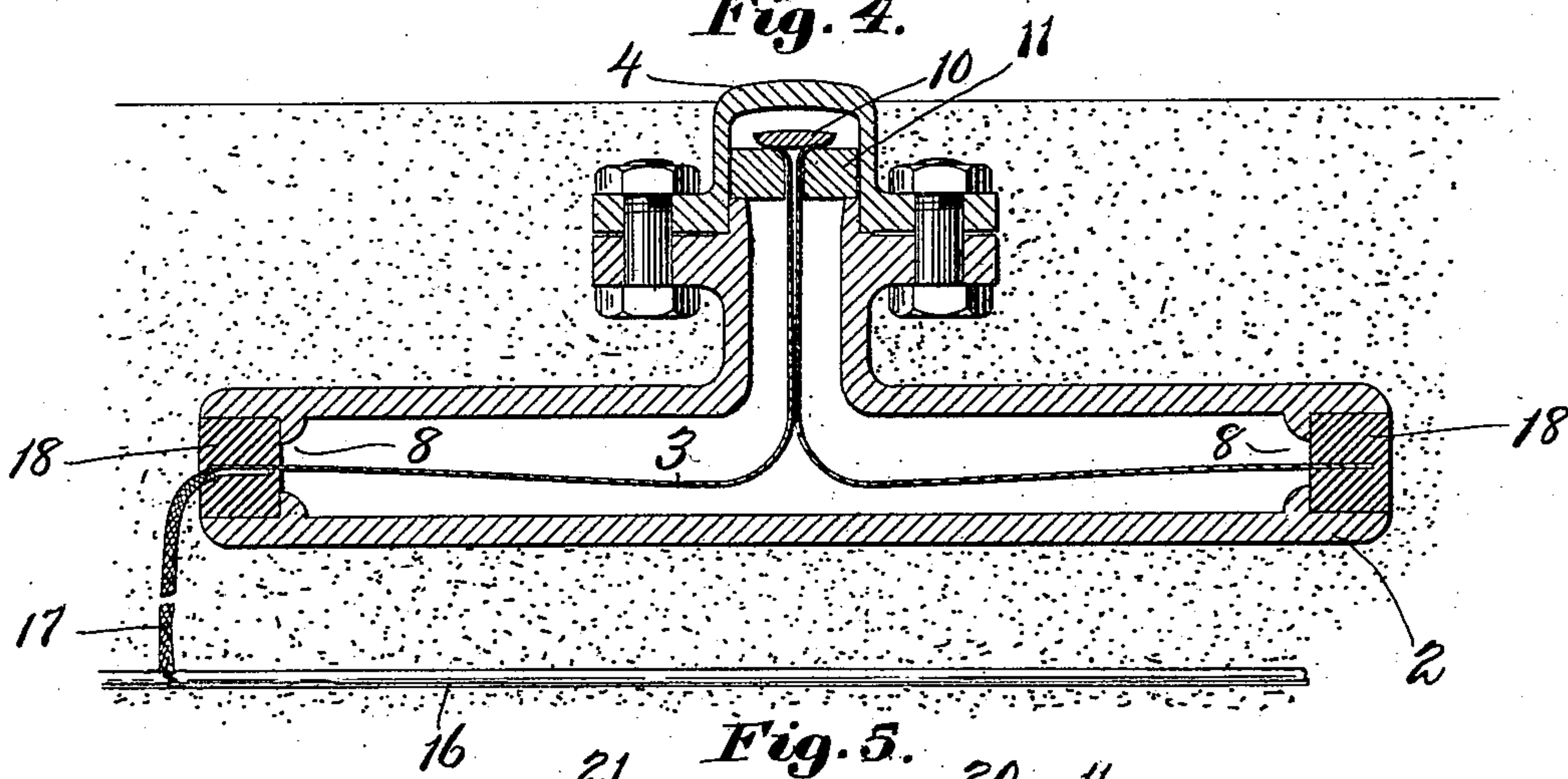
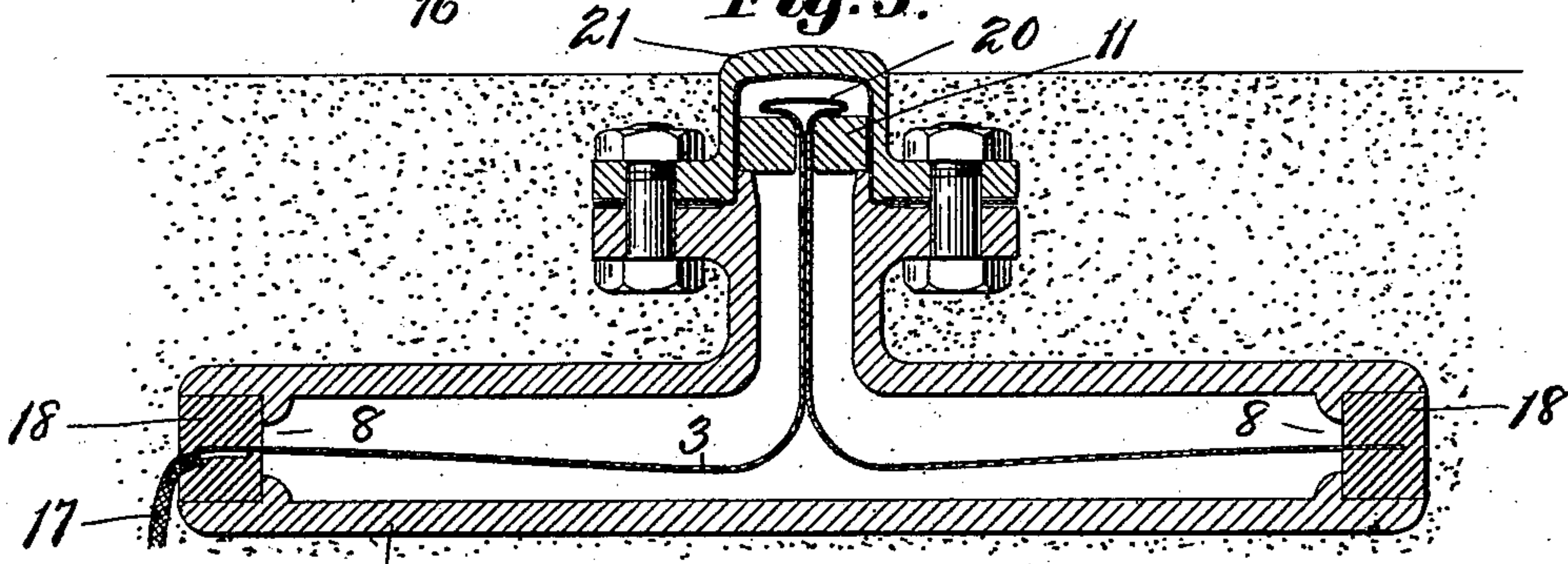
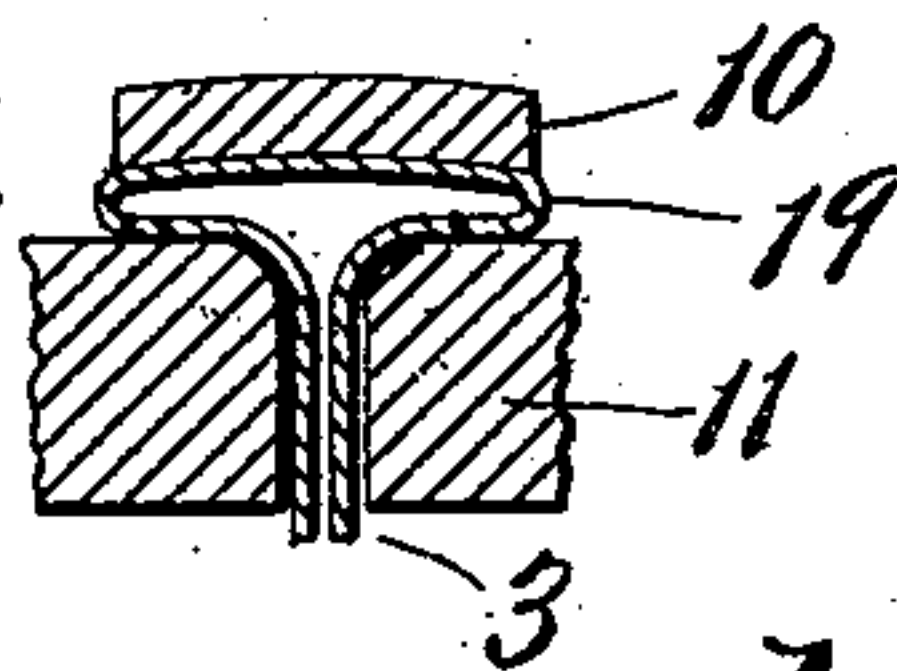
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Fig. 3.*Fig. 4.**Fig. 5.**Fig. 6.*

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UNITED STATES PATENT OFFICE.

LÉON DION, OF BOSTON, MASSACHUSETTS.

ELECTRIC TRACTION ROAD.

SPECIFICATION forming part of Letters Patent No. 694,317, dated February 25, 1902.

Application filed June 22, 1901. Serial No. 65,583. (No model)

To all whom it may concern:

Be it known that I, LÉON DION, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Electric Traction Roads, of which the following is a specification.

This invention relates to closed-conduit or closed-pocket electric traction roads; and its object is to provide a simple, cheap, and durable construction for the roadway units.

Of the accompanying drawings, Figure 1 represents a longitudinal section showing a roadway equipped with my improvements and showing also part of the car-magnet. Fig. 2 represents a transverse section. Fig. 3 represents a plan view of one of the units. Figs. 4 and 5 represent longitudinal sections showing two modified forms of unit. Fig. 6 represents a fragmental section showing another modification.

The same reference characters indicate the same parts in all the figures.

1 is the roadway, and 2 2 are a series of casings embedded therein and forming closed pockets containing connecting members 3, the tops or covers 4 of said casings constituting sections of a normally neutral surface-conductor, which are temporarily energized or electrified from a buried conductor or feeder during the passage of a car by the attraction of a magnet carried by the car exerted on the connecting members 3.

5 represents a car-magnet having elongated pole-pieces 6 6, which also constitute collectors running in contact with the covers 4 4.

The casings 2 are shaped approximately like inverted T's, are covered with a suitable coating 7 of a suitable insulating material, such as porcelain glaze, and are thoroughly sealed to render them damp-proof. Each is formed with opposite openings 8 8, having an insulating-filling, in which is anchored or embedded the two lower ends of the flexible connecting member 3, which is shown in the form of a metallic sheet or ribbon doubled on itself to form a contracted neck portion 9, which projects upwardly into the cup-shaped stem of the casing. At the upper end of this neck portion in Fig. 1 is shown an enlarged magnetic armature 10, comprising a flattened bar or plate of soft iron, around which the sheet or ribbon is wrapped or bent, and to

which it is secured by soldering or in other suitable manner. This magnetic head or intermediate portion of the connecting member is normally supported a slight distance away from the under side of the cover 4 by an apertured shelf or rest 11, composed of insulating material, when the car-magnet comes over the armature-pieces 10. However, they are lifted by magnetic attraction, so as to bring about electrical contact between the connecting members 3 and the covers 4, as shown in Figs. 1 and 2, whereby the current carried by the connecting members flows to the pole-pieces and from thence to the car-motor through suitable connections, the return to the dynamo at the power-station being by way of the car-rail or otherwise.

The casing 2 and its cover 4 are elongated transversely of the roadway, so as to include the parallel pole-pieces 6 of the car-magnet, and the armature-pieces 10 are substantially as long as the distance between said pole-pieces and are located quite close to the surface when at rest, so that the magnetic circuit between the pole-pieces 6 6 will include the armature-pieces and will have comparatively short gaps. The cover 4 is made of non-magnetic material, such as manganese steel, and is removably secured to the body of the casing 2 by means of bolts 12 12. Said cover may be removed at any time to give access to the interior of the casing through the aperture 13 therein, closed by said cover, and to the parts contained in the casing. Owing to the fact that the lower part of the connecting member 3 is fixed at both ends, the armature-piece 10 is balanced and guided in its rising-and-falling movements, so as to rise and fall vertically and without danger of cramping.

In Fig. 1 I have shown the metallic ribbon 3 as extended between adjacent casings 2, so as to form a continuous conductor with the flexible connector members 3, the intermediate portions of the conductors being incased or laid between upper and lower boards 15 15 and tarred or cemented, so as to be thoroughly sealed and insulated. In this case the ribbon conductor may be made to carry the whole of the current-supply, if desired, or a buried feeder 16 may run parallel to it and connect at suitable intervals therewith by branches 17. The ends of the boards 15 are fitted in

the openings 8 of the casings 2 and form the insulating-fillings hereinbefore mentioned.

A modification is illustrated in Figs. 4 and 5, wherein the connector members 3 are discontinuous, the ends of each being embedded in cement fillings 18 18, occupying the openings 8 8, and the feeder 16 being connected by a branch 17 to the flexible members 3 of each casing.

10 Fig. 4 shows a further modification, in which the metallic ribbon is not continuous or folded around the armature-piece 10, but is made in two halves, whose upper ends are secured to the under side of said piece by soldering or
15 in other suitable manner.

Fig. 6 shows a further modification, in which the armature-piece 10 is secured to the top of a flattened head 19 on the member 3.

In all the cases thus far described the ribbon may be of a non-magnetic metal, such as copper. Fig. 5, however, shows a modification in which the head or intermediate magnetic portion 20 of the member 3 is continuous with the ribbon or flexible portion of said
25 member, in which case the ribbon is made of soft sheet-iron. Fig. 5 also shows the inner side of the cover 4 provided with a lining 21 of a material of high conductive and non-rusting or corroding properties, such as
30 copper.

I do not limit myself to the details of construction and the relative arrangement of

parts here shown and described and may variously modify the same without departing from the spirit of my invention.

I claim—

1. A roadway-conductor comprising normally neutral sections in combination with flexible connecting members adapted to contact with the neutral sections and each having fixed end portions, and a movable magnetic intermediate portion.

2. A roadway-conductor comprising normally neutral sections in combination with flexible connecting members adapted to contact with the neutral sections, and each having fixed end portions, an enlarged movable magnetic intermediate portion, a contracted neck portion below said intermediate portion, and an insulating rest for said intermediate
50 portion.

3. A roadway unit comprising a casing having opposite openings, insulating-fillings in said openings, an intermediate opening provided with a removable conductive cover, and a flexible connecting member having ends anchored to said fillings and an intermediate movable magnetic portion below said cover.

In testimony whereof I have affixed my signature in presence of two witnesses.

LÉON DION.

Witnesses:

C. F. BROWN,

CHARLES A. GODLEY.