

No. 682,165.

Patented Sept. 10, 1901.

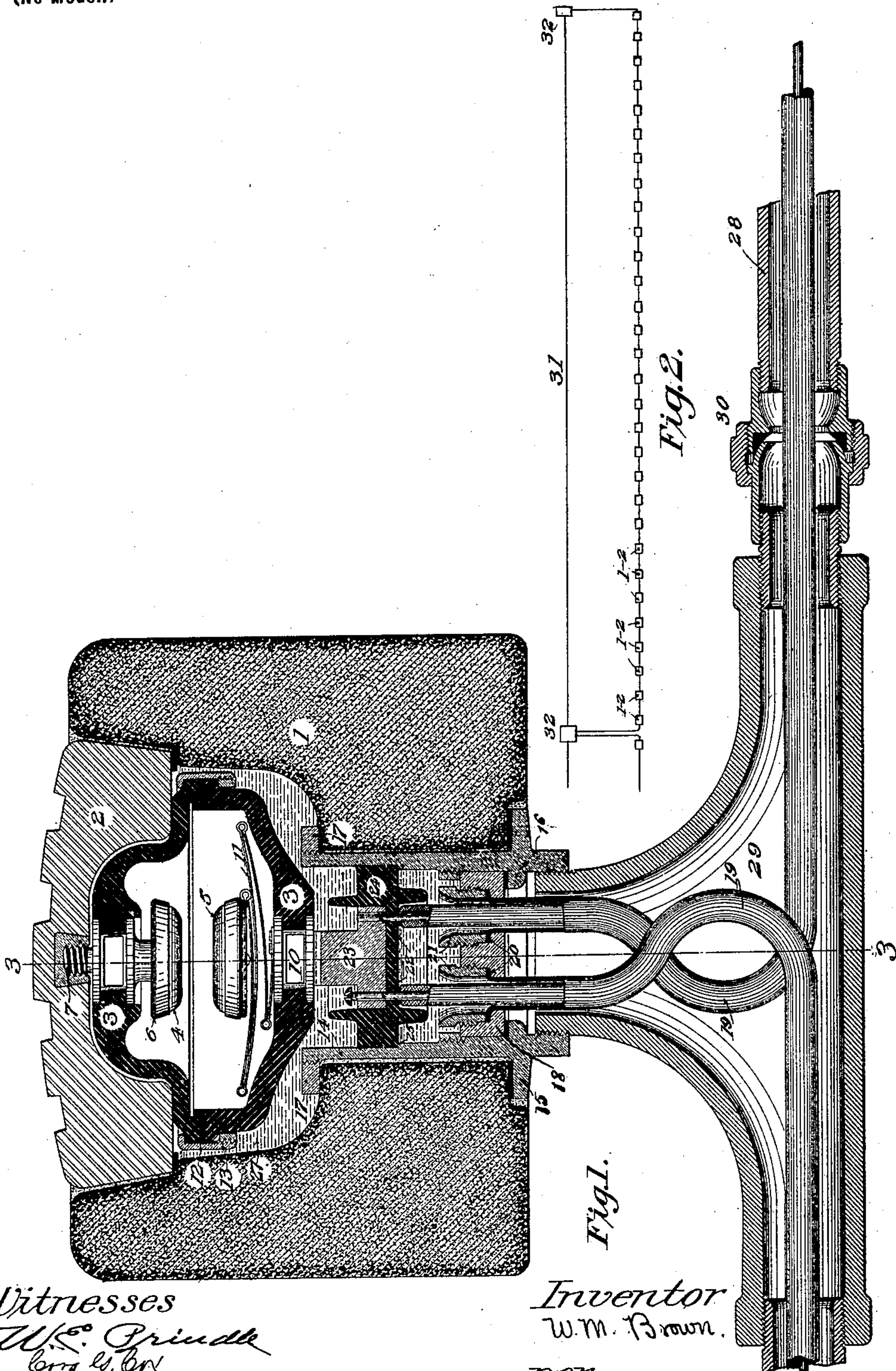
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CONTACT DEVICE FOR ELECTRIC RAILWAYS.

(Application filed Jan. 8, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
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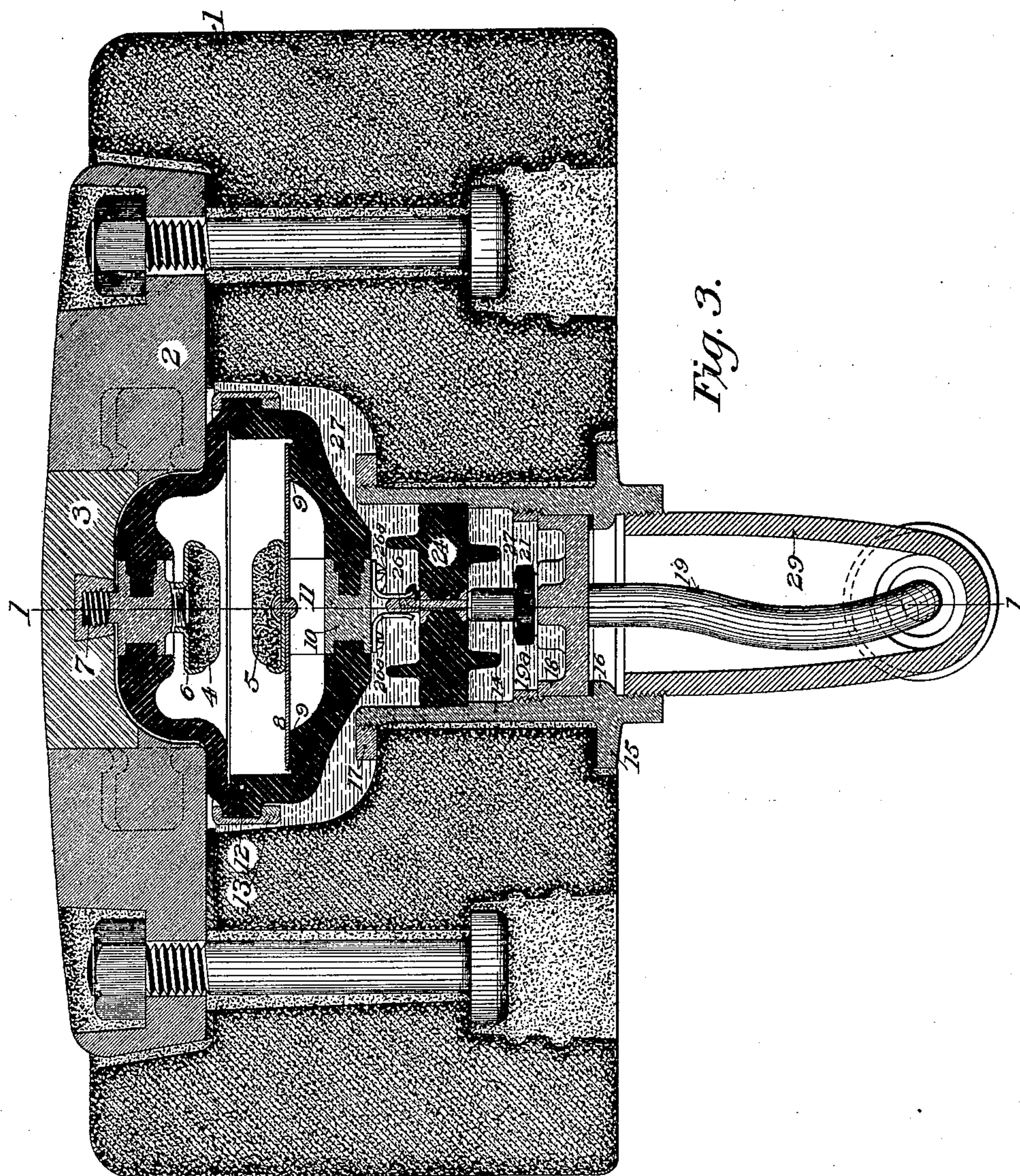
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UNITED STATES PATENT OFFICE.

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CONTACT DEVICE FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 682,165, dated September 10, 1901.

Application filed January 8, 1901. Serial No. 42,502. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MILTON BROWN, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Contact Devices for Electric Railways, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

This invention has relation to electric railways, and more particularly to that class of railways in which non-continuous or isolated contacts are fixed in the line of travel of the propelled vehicle, such contacts being normally disconnected from the supply system and provided with circuit-closing devices actuated by means on the passing vehicles, whereby they deliver current to the propelling-motors thereof.

The invention has reference to the construction and arrangement of the contact and circuit-closing devices of an electric-railway system of this class, and is designed to provide novel and efficient means which will quickly respond to the action of a magnet carried by a passing vehicle to establish an electrical connection between the surface contact and the supply-conductor and which will as soon as free from the immediate action of the vehicle-magnet at once break such connection and leave the contact free of any current until such time as the operation may be repeated by the passage of another vehicle.

Other objects of the invention are to facilitate access to the parts when necessary, to guard against the entrance of moisture or water to the working parts, and to eliminate the danger of current leakage.

The invention also has reference to the means employed for distributing current to the contact devices, and is designed to simplify the underground construction of the railway and to reduce the number of junction-boxes and manholes necessary to the system.

The invention will best be understood by reference to the accompanying drawings, in which—

Figure 1 is a transverse vertical section

through one of the contact-boxes and its contained circuit-closer. Fig. 2 is a diagram showing the circuit connection of said boxes; and Fig. 3 is a longitudinal vertical section of one of the boxes, taken on the line 3 3 of Fig. 1.

Each of the boxes, as shown in Figs. 1 and 3, is constructed in two parts, a box-like base 1, of non-conducting material, preferably asphaltum molded into form, and a metallic cover 2. The base 1 and cover 2 are hollowed out to form a chamber, in the upper portion of which is contained a two-part bell-shaped vessel 3, of insulating material, in which are the normally-separated contacts or electrodes 4 and 5. These electrodes are of non-magnetizable material, preferably blocks of carbon, and the upper one, 4, is secured in the upper wall of the bell by a holder 6, of conducting material, which is also fastened in the cover 2 by means of its screw end 7. The lower electrode is fastened to an armature 8, having a normal support at 9 on the lower interior portion of the bell, and is connected with a conductor 10, embedded in and extending through the bottom of the bell by a flexible strip or ribbon 11, preferably of copper. The joint between the two sections of the bell is sealed by a gasket 12 and sealing-ring 13.

As thus far described the construction is similar to that described and claimed in the patent to George H. McFeaters, No. 618,179.

Extending up into the chamber of the base 1 from its bottom is a cylinder 14, having a flange 15, recessed into the bottom of the base, and also an interior flange 16 near its lower end. 17 is a screw-ring engaging the upper end of said cylinder to secure it in place.

18 is a block supported on the flange 16 and having two vertical apertures there-through to receive the two ends of a lead-covered subfeeder-cable 19. 19^a is a screw-ring for retaining the block 18 in place. The lead coverings of these cable ends terminate in flanged portions 20, which are forced down upon seats in the block 18 by means of hollow screw-plugs 21, whereby is eliminated any possibility of moisture finding its way along the surface of the cable into the inte-

rior of the box. The bared end portions 22 of the conductors are secured in a conducting-piece 23, held in an insulated support 24, resting on an internal flange 25 of the cylinder 14. The piece has a lug 26, which is detachably engaged by a spring conducting-clip 26^a, connected to and carried by the conductor 10.

27 designates liquid-insulating material which fills the upper portion of the cylinder 14 and the space around the bell to guard against possibility of current leakage.

28 is a conduit-pipe through which extends the subfeeder-cable and which has an enlarged T-shaped section 29 at the contact-box, which is screwed into the lower end of the cylinder 14.

30 indicates a joint in the conduit.

Referring now to Fig. 2, 31 designates a section of the main feeder, which is buried in a suitable conduit. In a double-track system this conduit may be located intermediate the two tracks, and subfeeder-cables may be connected thereto for the contacts of both tracks. 19 designates the subfeeders. From this figure it will be seen that a plurality of the contact-boxes 1 2 are connected in series on a single subfeeder 19. In practice I prefer to arrange the contacts about ten feet apart and to connect about thirty of them in series on a single subfeeder. The connections between the subfeeders and the main feeders are effected in suitable junction-boxes 32, which by the arrangement above need not be provided except at intervals of about three hundred feet. When a propelled vehicle is not immediately over a box, the current simply flows through it across the conducting-piece 23 and on through the boxes in series. When, however, a vehicle is passing over the box, its magnet acts upon the armature 8 and raises it to bring the contact 5 into engagement with the contact 4. Current now flows from the subfeeder to the conductor 23, thence to the conductor 10 and through the ribbon 11 to and through the contacts to the cover, and from thence to the current-collecting apparatus of the vehicle, which, together with the circuit-closing magnets, forms no part of the present invention. In case of any defect in any of the boxes the cover 2 can be readily removed. The bell 3 can then be taken out and taken apart to give access to the contacts. By unscrewing the ring 17 the entire box can be removed by lifting it off the cylinder 14. The bared ends of the feeder-cable may also be disconnected from the piece 23, which, with its support 24, can be readily lifted out.

I do not wish to limit myself to the precise construction, arrangement, and combination of parts which I have herein shown and described, since various changes may be made in the details thereof without departing from the spirit and scope of my invention as it is pointed out in the appended claims.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. The combination with the base portion 70 of the box having the chamber therein, an opening leading into said chamber from the bottom, and contact devices contained in said chambers, of a cylindrical open-end shell seated in said opening, a detachable fastening securing the upper end of the said shell, and means supported in said shell for supporting a supply-conductor and for electrically connecting the same to one of the contacts. 75

2. The combination with the base portion of the box, having the chamber therein, the opening leading into said chamber from the bottom, and contact devices contained in said chambers of the cylindrical shell seated in said opening and having a flange at its lower end engaging the bottom of the base, a detachable fastening device engaging the upper end of said shell, and means supported by the shell for effecting an electrical connection 80 between the contact devices and a supply-conductor. 85

3. In a contact-box of the character described, the combination with the base portion of the box having an opening leading into it from the bottom, a conductor-carrying conduit having an extension seated in said opening and from which the box may be lifted vertically, and detachable means engaging the upper end of said extension to normally secure the box thereto. 90 100

4. In a contact-box of the character described, the combination with the base portion having a chamber therein containing contact devices, and an opening leading into said chamber from the bottom, of a conduit to which the box is connected, a sectional supply-conductor in said conduit, the adjacent ends of adjacent sections thereof being extended into said box through the said opening, an electrical connection between the said ends, and an electrical connection between the same and the contact devices. 105 110

5. In a contact-box of the character described, the combination of the base having a chamber therein containing contact devices, and an opening leading into said chamber from the bottom of the box, of a conductor having separated end portions leading into said chamber through the said opening, a removable support in said opening in which said end portions are secured, and an insulated piece above said support which electrically connects said end portions, together with means for making an electrical connection between said piece and one of the contacts. 115 120 125

6. In a contact device of the character described, the combination of a chambered box containing contact devices, and having an opening leading into its chamber from the bottom, of a severed supply-conductor leading into the said box through the said opening, a removable support in said opening in 130

which the end portions of the conductor are secured, an insulated removable piece above said support which electrically connects said end portions, and means for effecting a separable electrical connection between said piece and the contact devices.

7. In an electric railway of the class described, the combination of a plurality of isolated contact-boxes, of a main conductor or feeder, and sectional subfeeders connected to the main feeder at their ends, the sections

of the subfeeders being electrically connected in series by the said boxes, and electrical connections in said boxes between the subfeeders, and the circuit-making devices of the boxes.

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

W. MILT. BROWN.

Witnesses:

CORA G. COX,
H. W. SMITH.