

(No Model.)

2 Sheets—Sheet 1.

S. L. PHILLIPS.

TRAVELING CONTACT OR PLOW FOR UNDERGROUND ELECTRIC RAILWAYS.

No. 562,483.

Patented June 23, 1896.

Fig. 1.

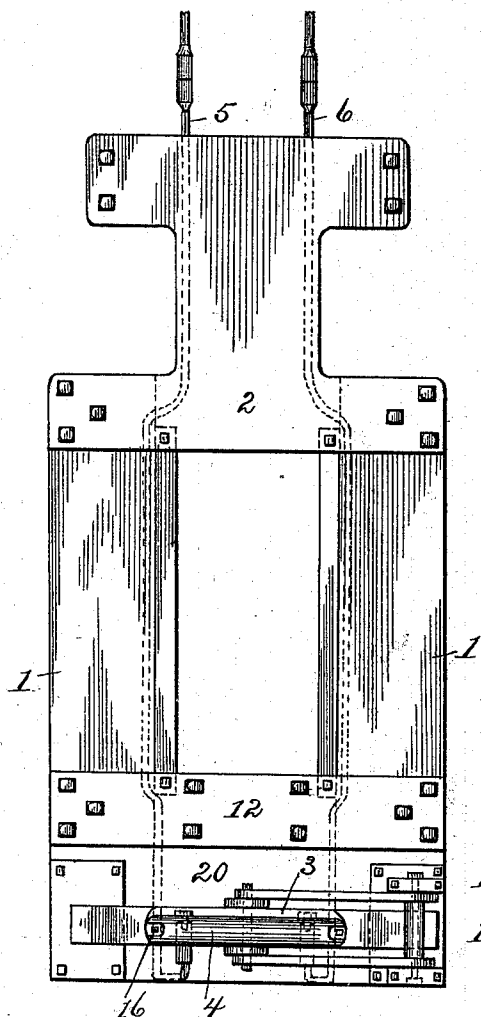
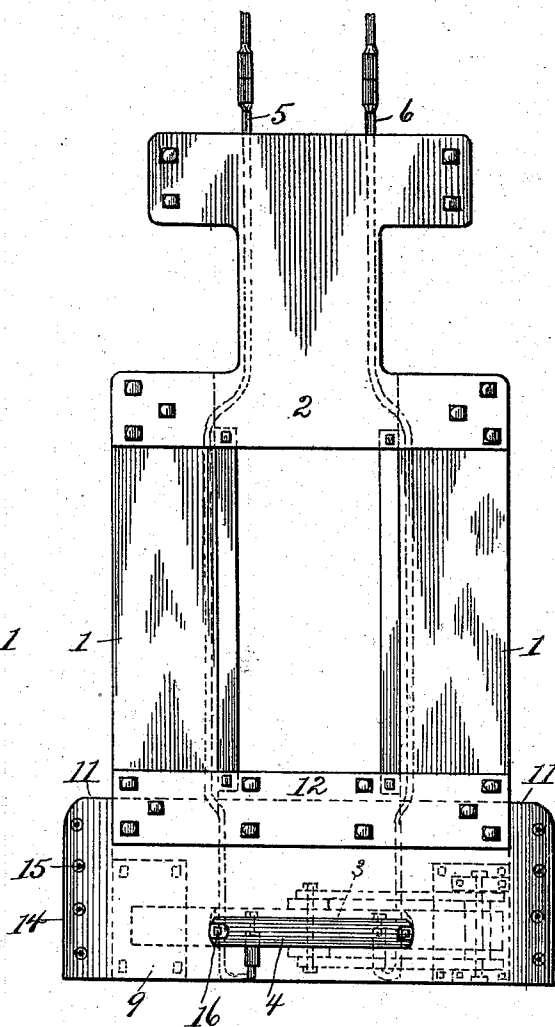


Fig. 2.



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INVENTOR

Samuel L. Phillips
by his Attorney
Jas. L. Skidmore.

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2 Sheets—Sheet 2.

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Fig. 3.

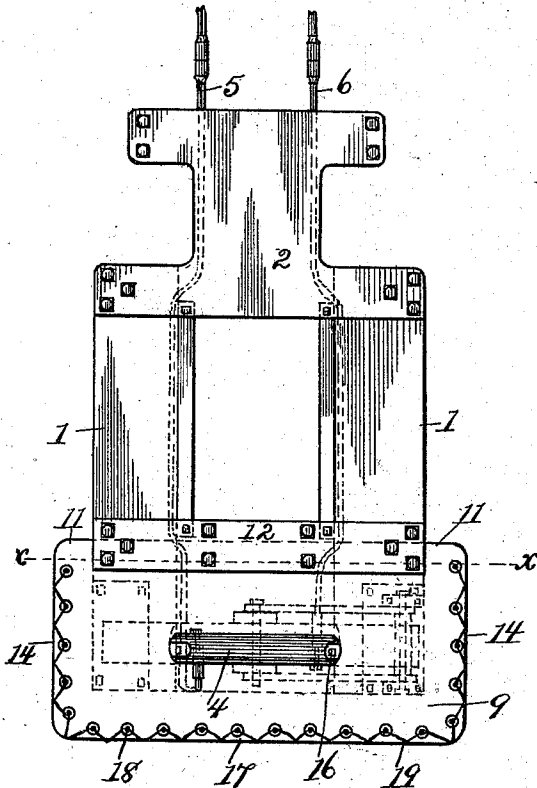


Fig. 4.

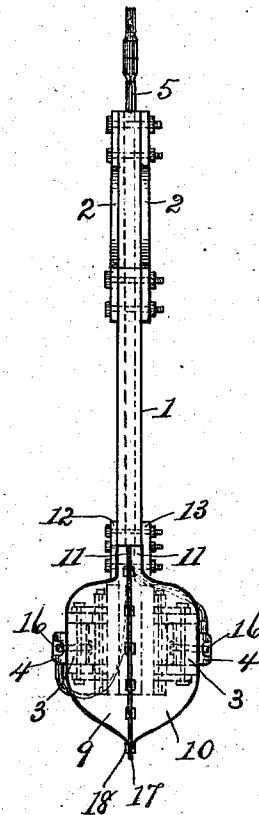
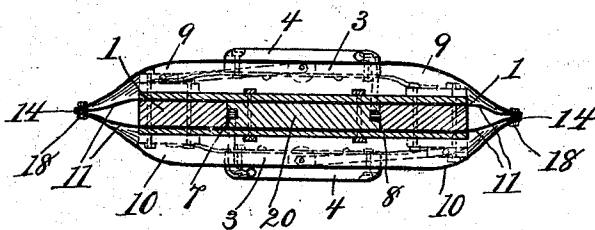


Fig. 5.



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UNITED STATES PATENT OFFICE.

SAMUEL L. PHILLIPS, OF WASHINGTON, DISTRICT OF COLUMBIA.

TRAVELING CONTACT OR PLOW FOR UNDERGROUND ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 562,483, dated June 23, 1896.

Application filed January 21, 1896. Serial No. 576,324. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL L. PHILLIPS, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Insulating Coverings or Protectors for Electric-Railway Plows or Traveling Contacts; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to traveling contacts or plows for underground electric-railway systems, and more particularly to means for protecting this class of devices from mud and dampness, and avoiding undue leakage of current.

In the accompanying drawings, Figure 1 is a side elevation of the type of plow to which my improvements are especially adapted. Fig. 2 is a similar view with my improved insulating and protecting plates or covers applied thereto. Fig. 3 is a side elevation, and Fig. 4 an end view of a modification. Fig. 5 is a section on the line *xx* of Fig. 3.

The plow proper may be of any suitable construction, and said plow may include underground trolley-wheels, but I preferably employ the form shown in the drawings, comprising parallel vertical bars or plates 1, upper cross-plates 2, and the base-block 3, to which the contact-shoes 4 are secured. The insulated conducting-wires 5 and 6 are connected at their lower ends to the contact-shoes and extend upward within grooves 7 and 8 to the motor carried by the car, as is well known in the art.

To protect the plow from mud and dampness, and also to more effectually insulate the same against leakage of current to the ground, I inclose the lower end of the plow by a covering of insulating material, preferably of rubber, but vulcanite or any analogous fibrous material may be utilized for the purpose. As shown in Fig. 2, the cover consists of two counter-part sheets 9 and 10 of vulcanized rubber, substantially rectangular in form and slightly longer than the width of the plow. The up-

per edges 11 of these sheets are secured to the plow by clamping-plates 12 and 13, bolted on opposite sides of the plow, as shown. The end edges 14 of the insulating-sheets are provided with detachable button-fastenings 15, whereby the covers may be held closely together, but readily disconnected whenever necessary. The space formed by the inner edges of the vertical bars or plates 1 and the inner faces of the clamping-plates 12 and 13 is filled and practically closed by a block 20, of vulcanite or similar fibrous material, the side edges of which are grooved to receive the conducting-wires 5 and 6.

The opening formed at the base of the plow is preferably closed by a suitable block of vulcanite or similar material 20, such as shown in Figs. 1 and 5.

The contact-shoes 4 are secured outside of the insulating sheets or sections, as shown, their securing-bolts 16 passing through the shoes and the sheets 9 and 10 into the base-block 3. It will be apparent that the covering thus provided protects the plow from mud, moisture, and dirt as it travels within the conduit, the only exposed uninsulated surfaces being the outer faces of the contact-shoes 4.

In the modification illustrated in Figs. 3, 4, and 5 the lower edges 17 of the insulating-sheets extend below the plow, and said lower edges as well as the ends of the cover-sections are provided with fastening devices 18. It is not necessary that the rubber covering should be fastened at the bottom, but may be allowed to remain open for the easier inspection of the mechanism inclosed or surrounded thereby. These fastening devices may be of any preferred construction. I have found that an effective fastening is obtained by providing one of the cover-sections with eyes, and the opposite section with buttons; or, if preferred, the two sections may be secured by a lacing-cord 19, as shown in Fig. 3. This modified form of insulators covers the bottom edge as well as the ends of the plow, and thus insulates and protects the plow effectively.

The cover-sections may be readily renewed or opened to permit access to the conductors concealed by them.

It will be understood that the rubber protecting-covering may be made of a single

piece, in the form of a sack, and suitably secured at its upper edges to the plow.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination with a traveling contact or plow for underground electric railways, of insulating-cover sections secured to opposite sides of the plow, and detachably engaged at the ends, and contact-shoes secured upon the outer sides of the cover-sections, substantially as shown and described.

2. The combination with the plow, of an insulating - cover comprising two sections, clamps for securing said sections to the plow, and fastenings for detachably engaging the ends of the sections, substantially as shown and described.

3. The combination with the plow, of an insulating-cover, comprising separable sections secured detachably to the plow, and concealing the latter at its ends and lower edges, substantially as shown and described.

4. The combination with the plow, of a

cover comprising sections of insulating material, secured by clamping-bars to the plow, and by detachable fastenings to each other, substantially as described.

5. The combination with the plow, of an insulating-cover, consisting of a single piece of vulcanized or molded rubber in the shape of a sack, the upper ends of which are detachably secured to said plow, substantially as described.

6. The combination with the plow, of an insulating-cover, comprising separable sections secured detachably to the plow, and concealing the latter at its ends or lower edges, the lower edges of the cover remaining open so as to readily inspect the mechanism surrounded by said cover, substantially as described.

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

SAMUEL L. PHILLIPS.

Witnesses:

J. FRED. KELLEY,
CARRIE L. ACKER.