

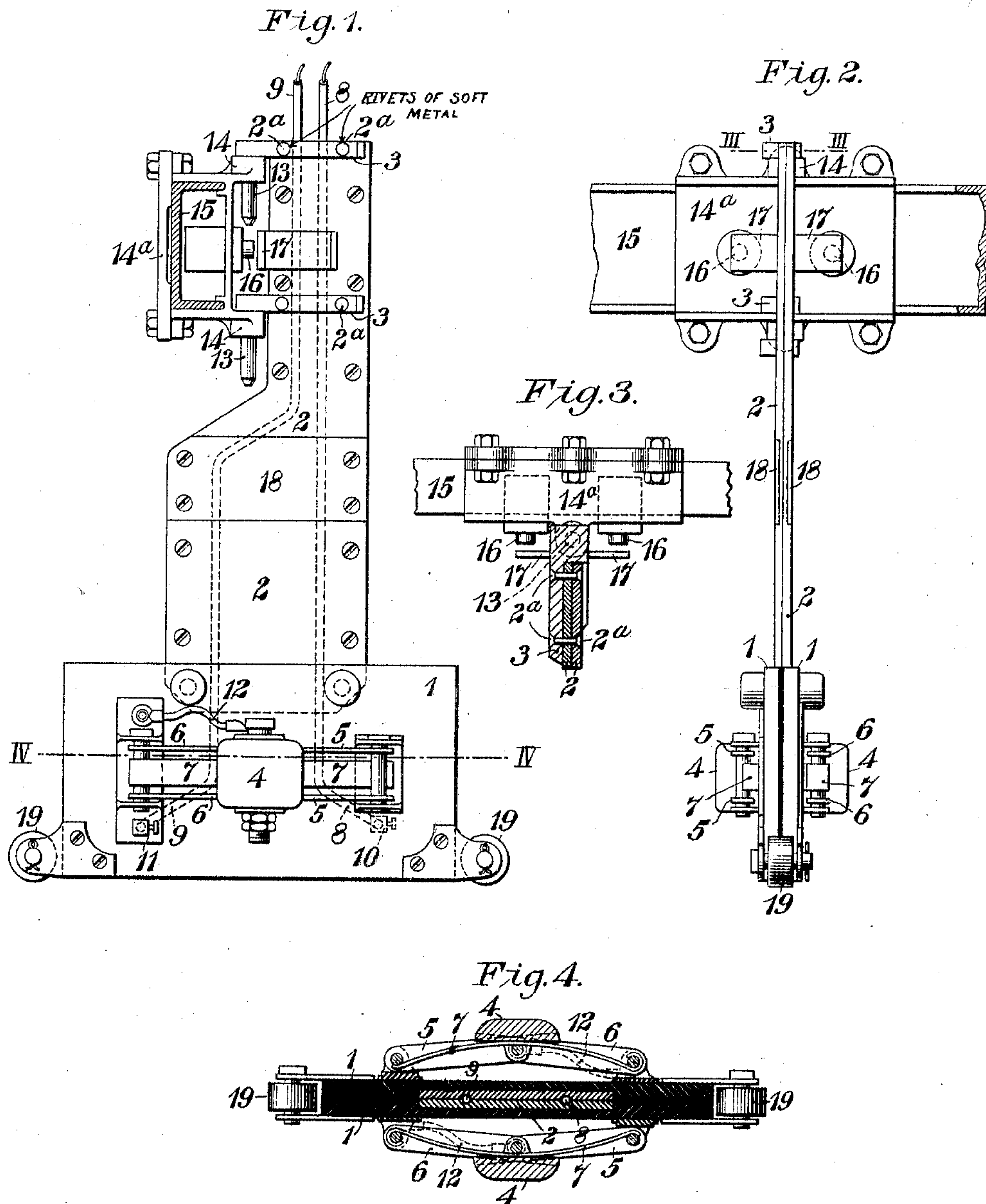
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PLOW FOR ELECTRICALLY PROPELLED VEHICLES.

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NO MODEL.



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PLOW FOR ELECTRICALLY-PROPELLED VEHICLES.

SPECIFICATION forming part of Letters Patent No. 776,682, dated December 6, 1904.

Original application filed November 16, 1900, Serial No. 36,695. Divided and this application filed February 20, 1902. Serial No. 94,939. (No model.)

To all whom it may concern:

Be it known that we, RICHARD CLERE PARSONS, director, REGINALD BELFIELD, electrician, and WILLIAM CHAPMAN, electrical engineer, subjects of the King of Great Britain, residing at London, England, have invented a new and useful Improvement in Plows for Electrically-Propelled Vehicles, of which the following is a specification, this application being a division of an application, Serial No. 36,695, filed by us November 16, 1900.

Our invention relates to electric railways in which the current is supplied to the propelling-motors from conductors which are suitably supported in open or slotted conduits, and particularly to means for conveying the energy from the supply-conductors to the vehicle-motors.

The object of our invention is to provide a current-collecting device or plow which shall be simple in construction and durable in use and which shall be so mounted as to be capable of having both a pivotal and a sliding movement laterally and also a vertical movement with reference to the portion of the car or track on which it is supported.

A further object of the invention is to provide means whereby the plow may become readily detached from its support in case it encounters an obstruction which prevents its further normal movement.

Our invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the plow and a sectional view of a beam on which it is supported. Fig. 2 is an end elevation of the parts shown in Fig. 1. Fig. 3 is a horizontal sectional view taken on line III III of Fig. 2, the contact portions of the plow being omitted. Fig. 4 is a horizontal sectional view taken on line IV IV of Fig. 1.

We have not illustrated a complete vehicle or track, nor have we shown any portion of a conduit in which the plow operates, since

these parts may be of usual construction so far as our present invention is concerned.

The lowest portion of the plow, which is located within the conduit, is made of two plates of insulating material 1, firmly secured to two flat plates 2, preferably of steel, which project through the slot and at their upper ends are provided with brackets 3. Said brackets may be secured to the plates 2 by rivets or pins 2^a, of copper or other metal, which will readily shear when the plow meets with an obstacle, thereby causing the plow to become detached and obviating damage to the car. These rivets or pins are so made as to be easily replaced, the damage repaired, and the plow restored to its original condition. The contacts 4 consist of metal shoes, preferably cast-iron, carried on two pairs of horizontal links 5 6, pivoted to the insulating-plates 1, and a horizontal flat spring 7 is provided for the purpose of pressing the contacts outward and causing them to engage with the conductors in the conduit. One end of each spring 7 is preferably turned round the pin supporting one pair of links 6, for example, the other end merely passing behind the pin supporting the other pair of links. The insulated connecting-wires 8 9 are located between the vertical plate 2, one of them passing to a terminal 10 on one side of the lower portion of the plow and the other passing to a terminal 11 on the opposite side of the lower portion. These terminals are connected by flexible connections 12 with the contact-shoes 4, so as to avoid the resistance due to loose mechanical joints.

The brackets 3, secured to the upper part of the plow, are provided with pins 13, which project through orifices in suitable lugs 14 on a slider 14^a, that is mounted on a transverse beam 15 of the car, so as to slide along the same. The pins 13 being in vertical alignment, a certain amount of angular movement of the plow round a vertical axis can take

place, this being limited by buffers 16 engaging with projections 17, or springs may be adopted for a similar purpose. The vertical plates 2 are preferably provided with wearing-strips 18, of hard steel, which engage with the edges of the slot-rails. (Not shown.)

For those parts of the road where for any reason a shallow conduit is used the lowest part of the plow is provided with rollers 19, which run on the floor of the conduit at these places and cause the plow to project farther above the road-surface, the pins 13 being made of sufficient length to permit this to occur without the plow becoming disengaged from its supporting-slider 14^a. Since the slider 14^a can move transversely along its beam 15, variations in the distance of the slot from the car-rails are compensated, and by reason of the angular movement permitted slight deviations of the slot will not cause binding or seizure of the plow therein.

The construction of the plow shown in the drawings is specially designed for use in those cases where both conductors are located in the conduit and two insulated connections are required to be made through the plow to the car. It will be readily understood, however, that a similar device can be used where only one conductor is provided in the conduit, the return connection being by way of the car-rails. In such a case alterations in detail may be desirable, the general principles of construction, however, remaining the same.

We claim as our invention—

1. A current-collecting device for open-conduit electric railways, in combination with the portion of a car from which said device is supported and an intervening connecting member that is rigidly fastened to the current-collecting device by soft-metal bolts or rivets, whereby the collecting device may become detached by shearing the bolts or rivets when its movement is obstructed.

2. The combination with an electrical-vehicle plow and supporting means therefor, of soft-metal fastening-pieces for rigidly securing the plow to its support in such manner that the pieces will be sheared off when normal movement of the plow is prevented.

3. The combination with a plow for electric vehicles, of supporting means therefor and copper fastening-pieces for rigidly securing the plow to said supporting means.

4. The combination with a plow for electrically-propelled vehicles provided with a pair of vertically-alined pivot-pins, of a support having sockets to receive said pins and flexible conductors for leading current from the plow to the vehicle.

5. The combination with a transverse, rigid beam constituting part of an electrically-propelled vehicle, of a slider mounted upon said beam having a pair of vertically-alined sockets and so as to be capable of movement along the same, a plow for conveying energy to the

vehicle and provided with a pair of vertically-alined pins fitting into the sockets in the slider.

6. The combination with a plow for conveying energy to an electrically-propelled vehicle, of a vertical, pivotal connection between the plow and a portion of the vehicle to permit horizontal, angular movement of said plow and buffers mounted upon said portion of the vehicle in position to be engaged by projecting parts of the plow to limit such horizontal, angular movement.

7. The combination with a plow for conveying energy to an electrically-propelled vehicle, of a laterally-disposed beam supported by the vehicle, a member mounted to slide freely along said beam, and an automatically-adjustable means for removably suspending the plow from the laterally-movable member and permitting both vertical and horizontal movements of the plow with respect to the car and to the track.

8. The combination with a plow having contact-shoes spring-supported at its sides, of automatically-adjustable means for removably connecting the plow to the vehicle and permitting both vertical and horizontal movements thereof with respect to the car and to the track, and rollers at the bottom of the plow to engage the bottom of the conduit.

9. The combination with a plow for conveying energy to an electrically-propelled vehicle, of a laterally-disposed beam mounted on the vehicle, a slider mounted on said beam, and means for removably suspending the plow from said slider and permitting both vertical and angular, horizontal movements of the entire plow with reference to the vehicle.

10. The combination with a transverse beam and a slider mounted thereon, of a plow suspended from said slider by vertical pivots of such length as to permit of bodily movement of the plow vertically as well as laterally.

11. The combination with a transverse beam and a slider mounted thereon, of a plow suspended from said slider by vertical pivots and buffers for limiting the angular movement of the plow on its pivots.

12. The combination with a plow for an electrically-propelled vehicle, of a laterally-movable support constituting a part of the vehicle, a vertical, pivotal connection between said support and the plow and means carried by the support for limiting the angular, horizontal movement of the plow.

In testimony whereof we have hereunto subscribed our names this 4th day of February, 1902.

RICHARD CLERE PARSONS.
REGINALD BELFIELD.
WILLIAM CHAPMAN.

Witnesses:

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HARRY PHILLIPS.