

M. W. MANZ AND S. S. MATTHES.

TROLLEY DEVICE.

APPLICATION FILED AUG. 19, 1921.

1,401,999.

Patented Jan. 3, 1922.

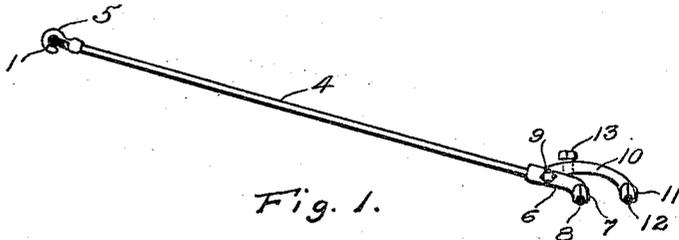


Fig. 1.

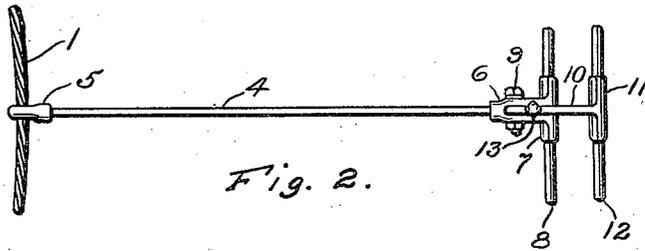


Fig. 2.

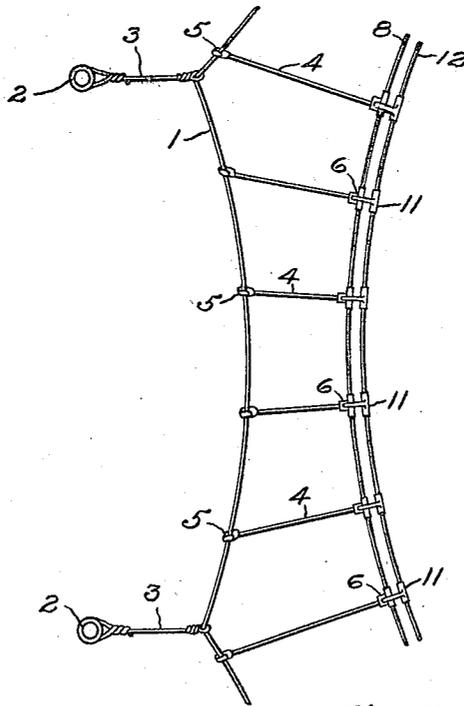


Fig. 3.

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UNITED STATES PATENT OFFICE.

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TROLLEY DEVICE.

1,401,999.

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To all whom it may concern:

Be it known that we, MERRILL W. MANZ and SAMUEL S. MATTHES, citizens of the United States, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful improvements in Trolley Devices, of which the following is a specification.

Our invention relates to trolley systems in which the flexible overhead conductors used in the transmission of current to the vehicle are suspended or supported at short intervals in order to reduce the stress upon the conductors and at the same time offer as smooth an under-run for the current collector as possible, as in the catenary or messenger type of construction.

Our invention is particularly adapted for use on curves where it is desired to maintain proper alignment of two conductors suspended in a practically horizontal plane, with the track below. Such a system is set forth in Patent 1,209,581 issued December 19th, 1916, but our invention offers an improvement over the curve construction shown therein.

Our invention is also applicable to use in a system where two wires positioned in an approximately horizontal plane can be suspended to one side and below the catenary cable as described in Patent 1,055,782 issued March 11th, 1913.

Our invention can also be used for the steadying of two wires on straight line construction to prevent swaying or swinging in a horizontal direction, which is particularly desirable where a wheel trolley is used.

We have illustrated and described in detail the preferred form of our invention but there are various special combinations or arrangements of the various parts which can be made and readily suggest themselves to one skilled in the art and which will embody the features of the invention herein illustrated and described.

In the accompanying drawing, Fig. 1 shows a side or elevation view of our invention as secured to a catenary cable and two overhead trolley conductors.

Fig. 2 shows a top plan view of Fig. 1.

Fig. 3 shows a top plan view of our invention as applied to the supporting of two conductors from a catenary cable on a curve.

In the various drawings the numeral 1 represents a catenary or messenger cable by

means of which the trolley wires are supported. The catenary cable is shown in this particular case as secured to the poles 2 by means of a cable 3. The catenary cable can, however, be supported from an overhead bracket or any of the other well known means for supporting such a cable.

The connecting rod 4 is attached to the catenary cable 1 by means of a hook clamp or other equivalent means 5. To the opposite end of the rod 4 is secured a member 6 having a means 7 for attachment to the conductor 8. The means 7 for attachment to the conductor 8 can be any of the numerous well known clamps, ears, etc., now on the market.

The member 6 is shown as formed with a clevis within which an arm 10 is secured to the member 6 by means of the bolt 9. At one end of the member 10 is means 11 for attachment to the trolley wire 12. The means 11 may be the same as the means 7.

The pivoted member 10 is free to permit the rise and fall of the trolley wire 12 upwardly or downwardly relatively to the trolley wire 8 with the passing of the current collector. The downward movement of the member 10 however, relatively to the member 6 is limited by means of an adjusting screw 13, although this adjusting screw is not necessary and the device is operable without the same. The relative position of the trolley wire 8 with respect to the catenary cable 1 depends upon the vertical and horizontal pull of the conductor 8 and the same is true of the conductor 12 but if the tendency of the conductor 12 is to drop below that of the conductor 8, the adjusting screw 13, if used, will limit the position of the conductor 12 relatively to the conductor 8 in a downward direction.

The freedom of movement of the conductors 12 and 8 relatively to each other has the advantage of permitting the current collector to make contact with both conductors simultaneously.

While we have shown the conductors 8 and 12 spaced apart, this is not necessary as the members 6 and 10 can be so arranged as to permit the conductors 8 and 12 to lie side by side practically in contact with each other.

Having described and illustrated the preferred form of our invention, we claim:—

1. A pull-off device for conductors com-

prising a pull-off member, means at one end to attach to a support and means at the other end to attach to a pair of conductors comprising a pair of members, one of which is rigidly secured to the pull-off member and having means for attachment to one conductor and the other member pivotally mounted on the first said member and having means for attachment to the other conductor.

2. A pull-off device for conductors comprising a pull-off member, means at one end to attach to a support, means at the other end to attach to a pair of conductors comprising a pair of members, one of which is rigidly secured to the pull-off member and having means for attachment to one conductor and the other member pivotally mounted on the first said member and having means for attachment to the other conductor and means to limit the relative movement of the pivoted member relative to the other member in one direction.

3. A pull-off device for conductors comprising a pull-off member, means to secure the pull-off member to a support and means secured to the pull-off member for attachment to a plurality of conductors and permitting independent relative vertical movement of the conductors.

4. A pull-off device for conductors comprising a pull-off member, means to secure the pull-off member to a support and means secured to the pull-off member for attachment to a plurality of conductors to maintain the conductors in spaced relation and permit independent relative vertical movement of the conductors.

5. A pull-off device for conductors comprising a pull-off member, means to secure the pull-off member to a support and means secured to the pull-off member for attachment to a plurality of conductors to maintain the conductors in spaced relation in a horizontal direction and permit independent relative movement of the conductors in a vertical direction.

6. A trolley device for supporting trolley conductors comprising means for securing the device to a support and means secured to the device and to the conductors to maintain the conductors in a spaced relation and permit independent relative vertical movement of the conductors at the point of attachment.

7. A trolley device for freely supporting a plurality of conductors on a curve and in a horizontal plane and permitting independent relative movement of the conductors in a vertical direction.

8. A pull-off device for conductors comprising a pull-off member, means secured to the pull-off member for attachment to a plu-

65 rality of conductors to maintain the conductors in a spaced relation and permit independent relative vertical movement of the conductors and means secured to the pull-off member for attachment to a support and permitting the conductors to rise and fall with the passage of a collector.

9. A pull-off device for conductors comprising a pull-off member, means to secure the pull-off member to a support and permit the pull-off member to rise and fall in a vertical plane about the point of support, means secured to the pull-off member for attachment to a pair of conductors, said means provided with means pivotally securing one conductor to the aforesaid means to permit the rise and fall of the conductor relatively to the other conductor in a vertical direction about the point of pivotal connection.

10. A pull-off device for conductors comprising a pull-off member, means at one end to attach to a support and means at the other end to attach to a pair of conductors comprising a pair of members, one of which is secured to the pull-off member and having means for attachment to one conductor and the other member pivotally mounted on the first said member and having means for attachment to the other conductor.

11. A pull-off device for conductors comprising a pull-off member, means at one end to attach to a support, means at the other end to attach to a pair of conductors comprising a pair of members, one of which is secured to the pull-off member and having means for attachment to one conductor and the other member pivotally mounted on the first said member and having means for attachment to the other conductor and means to limit the relative movement of the pivoted member relative to the other member.

12. The combination with a catenary cable and a pair of trolley conductors, of means to support the two conductors to one side and below the catenary cable and permit the conductors to rise and fall relatively to the catenary cable and permit the conductors to rise and fall relatively to each other and independent of the rise or fall relatively to the catenary cable.

13. A trolley device for supporting a pair of horizontally disposed conductors lying side by side, comprising a member for attachment to a support and means to attach to one of the conductors to hold it in fixed relation to the attaching member and means to attach to the other conductor permitting vertical movement relatively to the attaching means.

In testimony whereof we affix our signatures.

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