

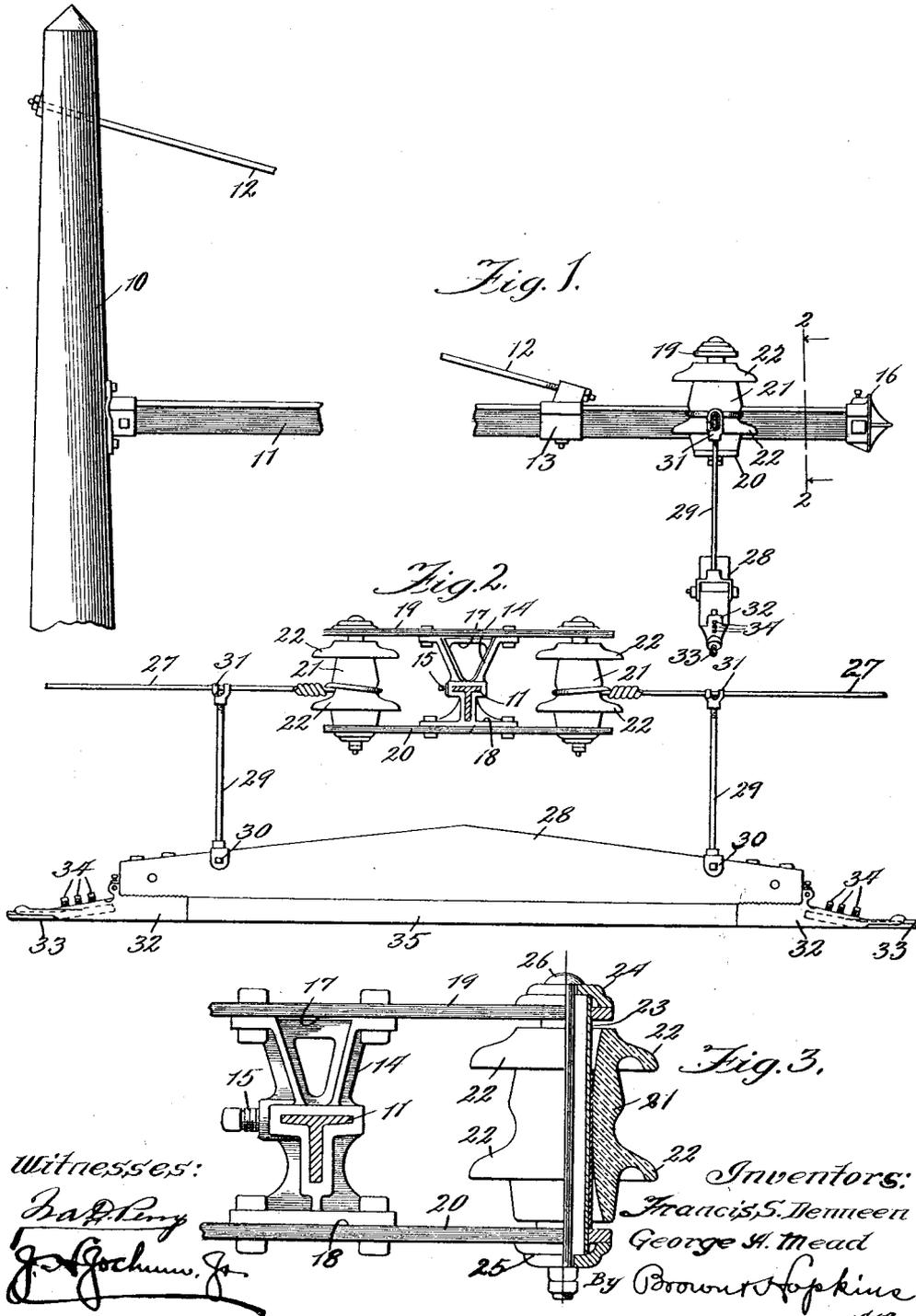
F. S. DENNEEN & G. A. MEAD.
SECTION INSULATOR FOR OVERHEAD STRUCTURES.

APPLICATION FILED FEB. 26, 1909.

1,034,888.

Patented Aug. 6, 1912.

2 SHEETS—SHEET 1.



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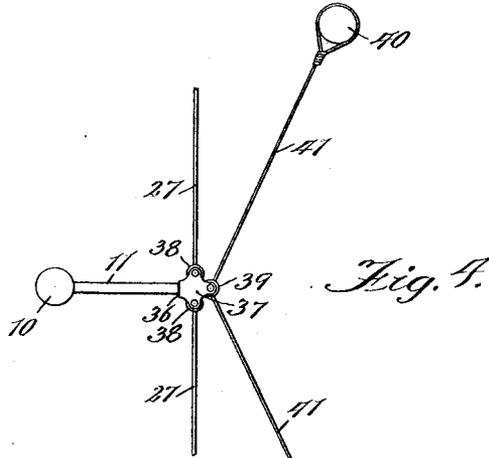


Fig. 4.

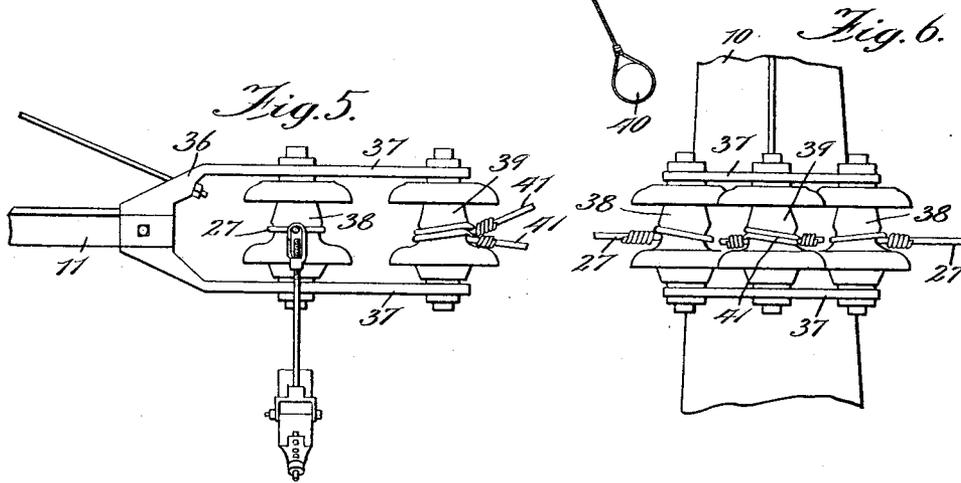


Fig. 5.

Fig. 6.

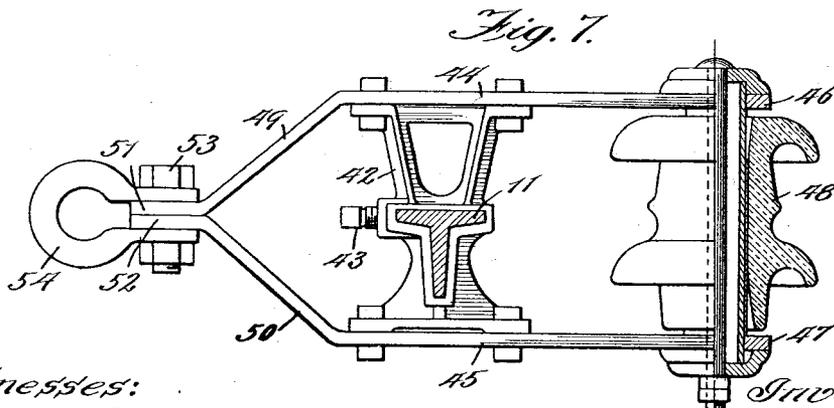


Fig. 7.

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UNITED STATES PATENT OFFICE.

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SECTION-INSULATOR FOR OVERHEAD STRUCTURES.

1,034,888.

Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed February 26, 1909. Serial No. 480,259.

To all whom it may concern:

Be it known that we, FRANCIS S. DENNEEN and GEORGE A. MEAD, citizens of the United States, and residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful improvements in Section-Insulators for Overhead Structures, of which the following is a specification.

This invention relates to improvements in section insulators for messenger and trolley wires in catenary construction, and the primary object of the same is to provide an improved construction of this character for electrically insulating one portion of the trolley and messenger wire from another portion to break the electrical continuity of the trolley wire and messenger wire.

A further object is to provide an improved device of this character which will be simple, durable and cheap in construction, capable of easy repair and effective and efficient in insulating qualities.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings illustrating the embodiment of the invention, and in which—

Figure 1 is a side elevation partly broken away of an improved section insulator constructed in accordance with the principles of this invention. Fig. 2 is a detail sectional view taken on line 2—2 of Fig. 1. Fig. 3 is an enlarged detail view partly in section of the insulator showing the manner of supporting the insulators. Fig. 4 is a diagrammatic top plan view of a modified form of the invention showing the manner of anchoring the insulator. Fig. 5 is a side elevation of the insulating section shown in Fig. 4. Fig. 6 is a detail end elevation of the insulator section shown in Fig. 5. Fig. 7 is an enlarged detail view partly in section similar to Fig. 3 of still another modified form of the invention.

Referring more particularly to the drawings and in the exemplification of the invention shown in Fig. 1, the numeral 10 designates an upright post to which is secured an arm or bracket 11, which latter is preferably irregular in cross section. The arm or

bracket 11 may be supported by a suitable guy-rod 12, one extremity of which is connected to a clip 13 which engages the arm or bracket and the other extremity is secured to the upright or post 10 above the bracket. Adjustably mounted on the arm or bracket 11 beyond the clip 13 is a member 14 which is provided with an aperture or opening conforming in contour to the arm or bracket and through which the latter projects, and a set screw 15 may be provided for clamping the member 14 in its adjusted position on the arm or bracket. A suitable member 16 may be secured to the free extremity of the arm or bracket 11 to prevent displacement of the member 14 with relation to the bracket. The member 14 projects above and below the arm or bracket and is preferably provided with extended faces 17 and 18, to which are respectively secured bars or members 19 and 20 which engage and rest against the faces and project laterally beyond the sides of the arm or bracket 11 and the member 14 to form spaced arms, one located above the other. These members 19 and 20 may be of any desired length to extend any suitable distance beyond the sides of the arm or bracket 11 and arranged between the extremities of the members 19 and 20 and on each side of the arm or bracket 11 is an insulator 21, which is provided with petticoats 22. The insulators are arranged in upright positions so that the petticoats will shed the water and offer dry resistances in moist weather. The insulators may be held in place between the members 19, 20, by means of suitable pins 23 which pass through the members and also through the insulators. These pins may be held against displacement by means of suitable fastening devices 24, 25, engaging the extremities of the pins and a tie-bolt 26 which passes through the fastenings 24, 25, and through the tubular member 23.

In the exemplification of the invention shown in Figs. 1 to 3, the insulator section is arranged within the conductor member 27, the conductor being interrupted and one extremity of the conductor being secured to each of the insulators 21 between the petticoats 22 thereof. A trolley wire section insulator designated generally by the reference numeral 28 is arranged below the conductor or messenger cable 27. This insulator section is constructed of any suitable insulating

material, preferably of wood and is supported from the messenger cable by means of suitable hangers 29, which are secured as at 30 to the insulator section 28 at points remote from the extremities thereof and are removably connected to the messenger or conductor 27 by means of suitable clips 31 which engage the messenger or conductor cable on each side of the insulating section thereof. Secured to the extremities of the insulating section 28 are clamps 32, into which project the extremities of the conductor or trolley wire 33, which latter may be held in position by means of clamping bolts or devices 34. Arranged between the clamps 32 is a suitable spacing member 35 which is secured to the insulator section 28, and is itself constructed of suitable insulating material such as wood or the like.

In the exemplification of the invention shown in Figs. 4 to 6, a yoke 36 is secured to the extremity of the arm or bracket 11 and this yoke is provided with spaced arms 37 extending outwardly from the end of the arm or bracket and arranged one above the other. Secured between the arms of the yoke and remote from the extremities of the arms are insulators 38 similar in construction to the insulators 21. These insulators 38 are arranged in line with each other and the adjacent extremities of the messenger cable 27 are secured thereto. Arranged in front of the insulators 38 and between the extremities of the arms 37 of the yoke 36 is a third insulator 39 which is similar in construction to the insulators 21, which insulator may be employed for anchoring the bracket should the messenger cable on one side of the bracket break. Poles 40 may be suitably placed and spaced from the post 10 and strain or guy wires 41 may be secured to the poles 40 and to the insulator 39 to resist the strain in the messenger, if the latter should break, and to overcome the tendency of the strain on the opposite messenger from pulling the bracket around out of place.

It may be desired to end the messenger wire without continuing it farther and at the same time to insulate the wire. In this event the form of the support shown in Fig. 7 may be employed and which comprises a member 42 similar in construction to the member 14 which is slidingly mounted on the bracket or arm 11 and may be held in its adjusted position by means of the bolt or fastening device 43. The member 42 projects for some distance above and below the arm or bracket 11 and secured thereto are spaced members 44, 45, the extremities 46, 47, of which project laterally for any desired distance beyond the bracket arm 11. An insulator 48 similar in construction to the insulator 21 is arranged in an upright position between the extremities 46, 47 of

the laterally projecting members 44, 45, and is secured in position in a manner similar to that in which the insulator 21 is secured. The extremity of the messenger wire is secured to this insulator. The other extremities 49, 50, of the members 44, 45, are deflected toward each other on the side of the bracket arm opposite to the side on which the insulator 48 is located and the extremities 51, 52 of the ends 49, 50, are brought into engagement with each other and are secured together by means of a fastening device 53, such as a bolt or the like, which passes through the extremities and also through an eye or clip 54 which projects beyond the extremities 51, 52. In this form of the invention, an anchor or guy wire may be secured to the eye or clip 54 and also to an anchor post suitably located.

In order that the invention might be fully understood, the details of the foregoing embodiment thereof have been thus specifically described, but

What is claimed as new is—

1. In an overhead structure for electric railways, the combination of two trolley conductor terminals, an insulating section to which said terminals are secured, two messenger wire terminals, an insulating section provided with upright insulators to which the messenger wire terminals are secured, a support for the last mentioned insulating section and suspension devices connected to the first named insulating section and engaging the messenger wire beyond the second named insulating section for supporting the conductor wire and its insulating section from the messenger wire, the first recited insulating section being supported for free lateral swinging movement, and said suspension devices being adapted for adjustment in a direction longitudinally on the messenger wire.

2. In an overhead structure for electric railways, the combination of two trolley conductor terminals; an insulating section to which said terminals are secured, two messenger wire terminals, an insulating section provided with upright petticoated insulators, to which the messenger wire terminals are secured, a laterally projecting support arm for the last mentioned insulating section, and vertical suspension devices connected to the first named insulating section and detachably engaging the messenger wire beyond the second named insulating section for supporting the trolley and its insulating section from the messenger wire and for free lateral swinging movement, said suspension devices being adjustable longitudinally on the messenger wires.

3. In an overhead structure for electric railways, the combination of two trolley conductor terminals; an insulating section to which said terminals are secured, two mes-

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5 senger wire terminals, an insulating section
to which the messenger wire terminals are
secured, a laterally projecting support arm
for the last mentioned insulating section to
10 which the said insulating section is secured
in a plane at right angles to the said sup-
port arm, and means engaging the mes-
senger wires at points remote from the in-
sulating section for freely suspending the
15 first recited insulating section therefrom,
the said means being adjustable longitudi-
nally of the messenger wire.

4. In an overhead structure for electric
15 railways, the combination of two trolley con-
ductor terminals, an insulating section to
which said terminals are secured, two mes-
senger wire terminals, an insulating section
provided with upright insulators to which
the messenger wire terminals are secured, a

support for the last recited insulating sec- 20
tion and suspension devices connected to the
first recited insulating section and engaging
the messenger wire beyond the second re-
cited insulating section for supporting the 25
conductor wire and its insulating section
from the messenger wire, said suspension de-
vices being adjustable lengthwise of the mes-
senger wire and in directions toward and
away from the said insulators.

In testimony whereof we have signed our 30
names to this specification, in the presence
of two subscribing witnesses, on this 20th
day of February A. D. 1909.

FRANCIS S. DENNEEN.
GEORGE A. MEAD.

Witnesses:

C. H. BECK,
A. M. PALMER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
