F. S. DENNEEN.

SUSPENSION DEVICE FOR TROLLEY WIRES AND THE LIKE.

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1,017,741. Patented Feb. 20, 1912.

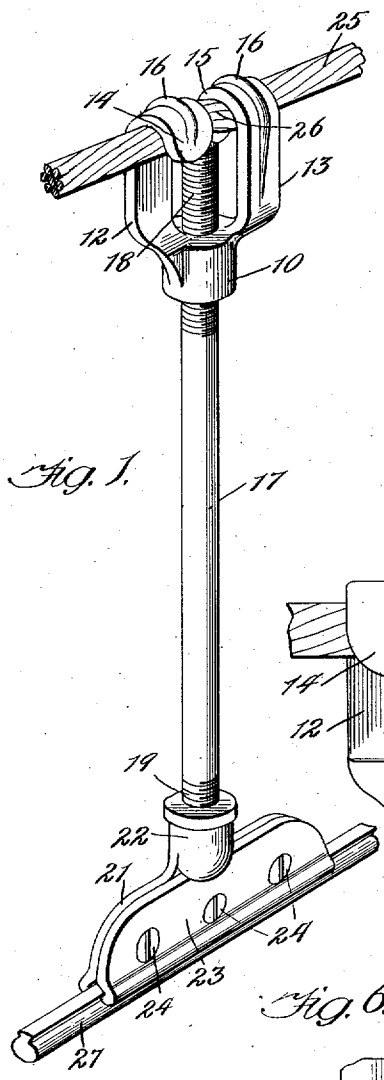


Fig. 1.

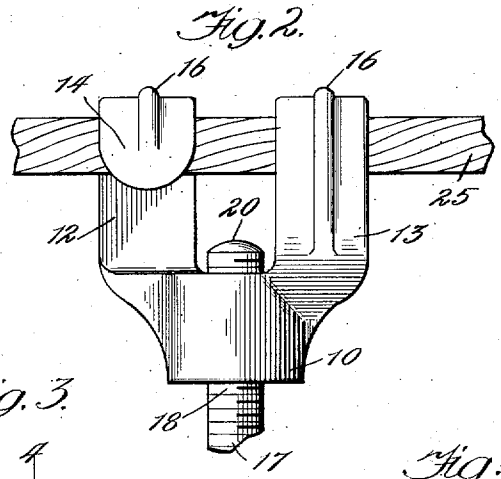
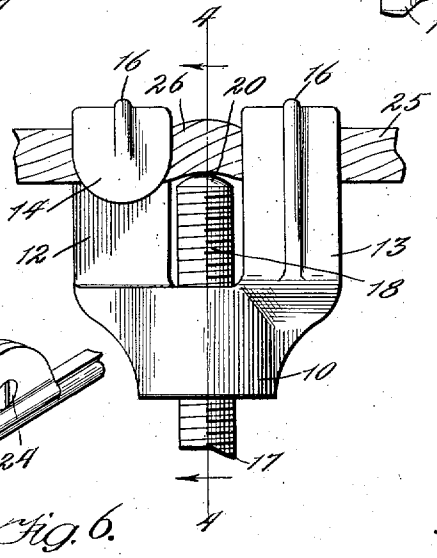


Fig. 2.

Fig. 3.



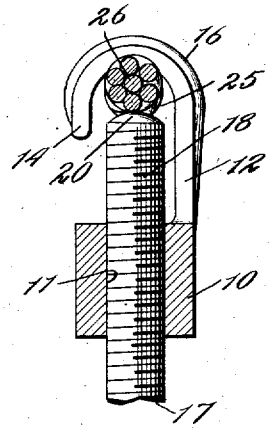
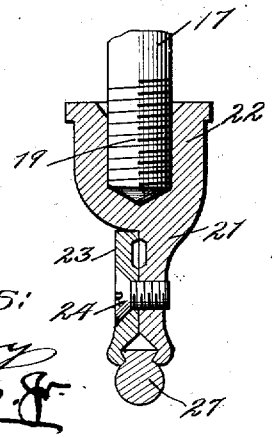
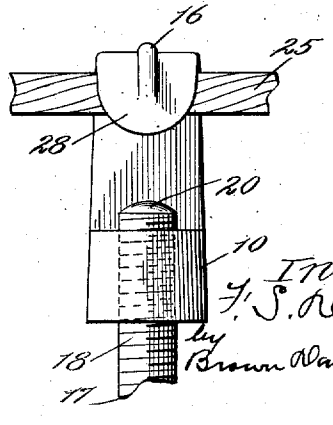


Fig. 4.

Fig. 6.

Fig. 5.





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SUSPENSION DEVICE FOR TROLLEY-WIRES AND THE LIKE.

1,017,741. Specification of Letters Patent. Patented Feb. 20, 1912.

Application filed December 20, 1906. Serial No. 348,683.

To all whom it may concern:

Be it known that I, FRANCIS S. DENNEEN, a citizen of the United States, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Suspension Devices for Trolley-Wires and the Like, of which the following is a specification.

This invention relates to improvements in suspension devices for trolley wires and the like, and the object of the same is to provide an improved device of this character for flexibly suspending the trolley or conductor wire from a messenger wire.

A further object is to provide an improved flexible device of this character having interchangeable parts.

A further object is to provide an improved adjustable device of this character and improved means for securing the same against longitudinal displacement on the messenger wire.

A further object is to provide an improved device of this character which will be simple and cheap in construction, easily applied and efficient in operation.

To the attainment of these ends and the accomplishment of other new and useful objects, as will appear, the invention consists of 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 an exemplification of the invention and in which—

Figure 1 is a perspective view of an improved device of this character constructed in accordance with the principle of this invention. Fig. 2 is a detail side elevation of the clip for engaging the messenger wire. Fig. 3 is a view similar to Fig. 2, showing the manner of clamping or securing the clip against longitudinal displacement on a messenger wire. Fig. 4 is a detail sectional view on line 4—4 of Fig. 3. Fig. 5 is a detail view of a modified form of clip. Fig. 6 is a detail view partly in section, showing a conductor or trolley wire clamp.

With improved constructions of this character the distance between the messenger and the trolley wires is sometimes about five or six feet and this distance often varies. With this improped construction of suspension device it will be apparent that the clip may be quickly and properly attached to the messenger wire by simply swinging the hooks in position over the messenger wire and turning the supporting rod or member until its upper end locks the clip in place and such arrangement has particular advantages as it is unnecessary to climb up to the messenger wire to make the attachment and the time necessary for making the attachment is therefore considerably reduced. With this improved construction it will also be apparent that it is not necessary to have the end of the supporting rod firmly engaging the messenger wire to clamp the support against displacement, for, if desired and under certain conditions, the rod or member may be adjusted with relation to the clip to such an extent that the extremity of the member will stand in close proximity to the free extremity of the hook shaped portion which would permit the supporting device to be adjusted longitudinally on the messenger wire and at the same time the extremity of the member would form an obstruction to prevent accidental displacement of the clip with respect to the messenger wire. It will also be apparent that by increasing the length of the hook shaped portion, a considerable clearance between the end of the member and the wire could be provided to permit quite an appreciable amount of vertical motion and yet keep the clip against disengagement from the messenger and this same feature of lengthening the hook shaped portion will also permit of an appreciable adjustment of the distance between the messenger and conductor wire, which might also be of advantage under certain conditions.

When the end of the member firmly grips the messenger wire so that it can not slip around the same, the messenger wire, the supporting device, and the conductor wire practically form a rigid construction to hold the conductor against swinging, as all tendency of the conductor to swing under these conditions would tend to twist the messenger cable, and as this cable under normal load, is very hard to twist, the swinging tendency of the conductor would be overcome by the resistance of the messenger wire against twisting movement.

Referring more particularly to the drawing and in this exemplification of the invention, the numeral 10 designates the body portion of a clip and said body portion is provided with a vertical aperture 11 passing therethrough and said aperture is prefer-

ably provided with screw threads. Projecting upwardly from the top of the body portion 10 and on opposite sides of the aperture 11 therein, are parallel arms 12, 13, which extend for some distance above the top of the body portion 10. These arms are preferably offset from each other, or arranged out of the same plane, and the extremity of the arm 12 is bent into a hook-shaped portion 14. The extremity of the arm 13 is also bent into a hook-shaped portion 15 and said hook-shaped portion 15 is disposed in an opposite direction to the hook-shaped portion 14. Both of these hook-shaped portions 14 and 15 terminate at points above the top of the body portion 10 and in such relation with respect to each other that the extremity of the hook-shaped portion of one arm will stand in substantially the same plane as the body portion of the other arm. If desired, the arms 12 and 13 may be provided with reinforcing or strengthening ribs 16.

A suitable body portion 17, preferably in the shape of a rod, is provided with threaded extremities 18, 19 and the threaded extremity 18 is of a diameter slightly less than the diameter of the aperture 11 and is adapted to be secured into said aperture through the bottom of the body portion 10 so that the upper extremity 20 of the body portion 17 may be projected above the top of the body portion 10 so as to stand within the space between the arms 12, 13.

A suitable clamp, comprising a main body portion 21 is provided with a threaded portion or socket 22 and said threaded portion is adapted to receive the lower threaded extremity 19 of the body portion 17. A removable member or section 23 is secured to the main body portion 21 of the clamp in any suitable manner, such as by means of screws or bolts 24 passing through said portion 23 and into the main body portion 21.

When the parts have been assembled, this improved device may be applied to the messenger wire 25 by turning the clip into such a position that the arms 12 and 13 will pass on each side of the messenger wire and may be raised to a position until the extremities of the hook-shaped portions 14 and 15 stand above the messenger wire. When in this position, the clip may be partially rotated to such a position that when lowered the hook-shaped portions 14 and 15 will pass over and rest upon the messenger wire 25. After being placed in this position on the messenger wire, the body portion 17 may be adjusted with relation to the clip so that the extremity 20 thereof will engage the messenger wire 15 between the arms 12 and 13 and a further or forced rotation of the member 17 will cause the extremity 20 to deflect or crimp the adjacent portion of the messenger wire 25 as shown more clearly at 26 on Fig. 3 of the drawings, and said deflected or crimped portion 26 will serve as a means to prevent longitudinal movement of the clip on the messenger wire and yet will not interfere with the lateral deflection of the hanger. The conductor wire 27 may be secured to the clamp at the other extremity of the body portion 17 by inserting said wire between the body portion 21 and the removable member 23 of the clamp.

A modified form of the clip is shown in Fig. 5 and comprises a single arm 27 extending above the body portion 10 adjacent one side thereof and the extremity of the arm is bent into a hook-shaped portion 28 and said hook-shaped portion is of such a size and so disposed as to project over the top of the body portion with its outer face substantially in the same plane with the opposite side of the body portion. In this exemplification of the invention the extremity 20 of the threaded portion 18 of the body portion 17 will engage the messenger wire 25 under the hook-shaped portion 28 so as to clamp or bind said messenger wire at this point. It will be seen that this improved construction may be readily applied and being comprised of detachable or separable parts, a body portion of any desired length may be used to connect the clamp and clip to meet the required necessities.

In order that the invention may be fully understood, the details of an embodiment thereof have been thus specifically described.

What I claim is:—

1. In a device of the class described, the combination of a wire, a clip having a hook-shaped portion removably engaging over the wire, said clip having a threaded aperture therethrough and adjacent the hook-shaped portion, a member threaded through said aperture with its extremity in close proximity to the opening of the hook shaped portion and extending in a direction lengthwise of the body or shank of the hook, said member being adapted to be adjusted into engagement with the wire and past the extremity of the hook to coöperate with the hook to clamp the wire and also adapted to be adjusted away from the wire so that its extremity will stand in substantially the same horizontal plane as the extremity of the hook to permit the clip to hang loosely upon the wire and to hold the clip against lateral displacement with respect to the wire, and a conductor clamp supported by the free end of said member.

2. In a device of the class described, the combination of a wire, a clip having a hook-shaped portion removably engaging over the wire, said clip having a threaded aperture therethrough and adjacent the hook-shaped portion, a member threaded through said aperture with its extremity in close proximity to the opening of the hook-shaped por-

tion and extending in a direction lengthwise of the body or shank of the hook, said member being adapted to be adjusted into engagement with the wire and past the extremity of the hook to coöperate with the hook to clamp the wire and with its extremity below the plane of the upper edge of the hook-shaped portion, and also adapted to be adjusted away from the wire so that its extremity will stand in substantially the same horizontal plane as the extremity of the hook to permit the clip to hang loosely upon the wire and to hold the clip against lateral displacement with respect to the wire, and a conductor clamp supported by the free end of said member.

3. In a device of the class described, the combination of a wire, a clip having spaced hook-shaped portions engaging over the wire and with the openings of the hooks oppositely disposed with respect to each other, said clip having a threaded aperture between the hook-shaped portions, a member threaded through the aperture with its extremity in close proximity to the open side of both of the hook-shaped portions and extending in a direction lengthwise of the body or shank of the hook, said member being adapted to be adjusted into engagement with the wire and past the extremity of both of the hooks to coöperate with the hooks to clamp the wire, and also adapted to be adjusted away from the wire so that its extremity will stand in substantially the same horizontal plane as the extremity of both of the hooks to permit the clip to hang loosely upon the wire and to hold the clip against lateral displacement with respect to the wire, and a conductor clamp supported by the free end of said member.

4. In a device of the class described, the combination of a wire, a clip having spaced hook-shaped portions engaging over the wire and with the openings of the hooks oppositely disposed with respect to each other, said clip having a threaded aperture between the hook-shaped portions, a member threaded through the aperture with its extremity in close proximity to the openings of both of the hook-shaped portions and extending in a direction lengthwise of the body or shank of the hook, said member being adapted to be adjusted into engagement with the wire and past the extremity of both of the hooks, to coöperate with the hooks to clamp the wire and with its extremity below the plane of the upper edges of the hookshaped portions, and also adapted to be adjusted away from the wire so that its extremity will stand in substantially the same horizontal plane as the extremity of both of the hooks to permit the clip to hang loosely upon the wire and to hold the clip against lateral displacement with respect to the wire, and a conductor clamp supported by the free end of said member.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 15th day of December A. D. 1906.

FRANCIS S. DENNEEN.

Witnesses:

GEORGE A. MEAD,

J. C. PAINTER.