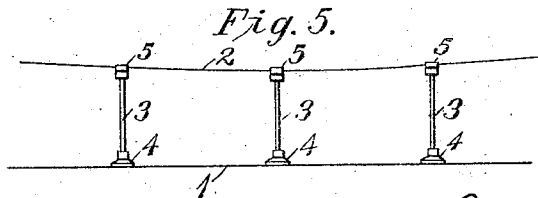
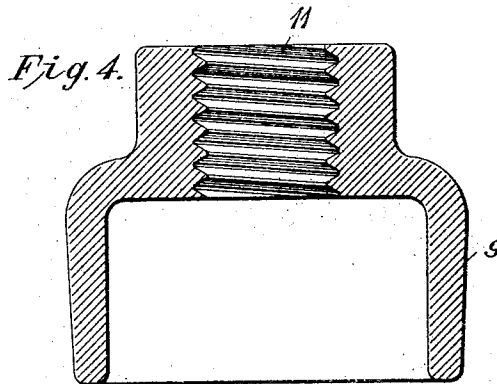
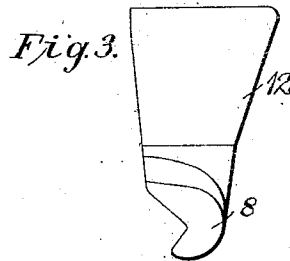
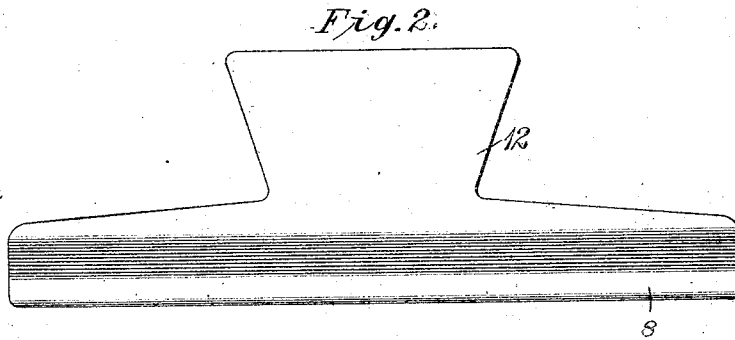
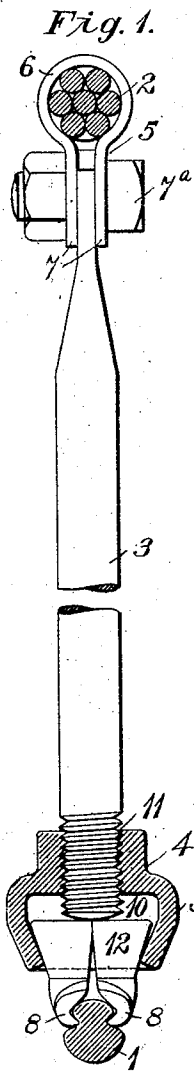


T. VARNEY.
TROLLEY CLAMP.
APPLICATION FILED MAY 6, 1907.

931,355.

Patented Aug. 17, 1909.



WITNESSES:

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TROLLEY-CLAMP.

No. 931,355.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed May 6, 1907. Serial No. 372,165.

To all whom it may concern:

Be it known that I, THEODORE VARNEY, a citizen of the United States, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Trolley-Clamps, of which the following is a specification.

My invention relates to means for suspending electric line conductors, and has special reference to such means as are adapted for use with a catenary form of trolley line suspension and are commonly known as trolley clamps.

The object of my invention is to provide an improved clamping device for securing a grooved trolley conductor to a suitable support that shall be simple and durable in construction and easy of application.

In the construction of overhead lines for supplying energy to electric vehicles and for other purposes, grooved conductors are often employed and, in such cases, trolley clamps are often utilized which comprise suitable jaws and means for holding them in engagement with the trolley conductor. These clamping devices have almost invariably been adapted for assembling as they were applied to the line so that the time required for making the installation was unduly prolonged.

According to my present invention, I employ a trolley clamp which is especially simple and may preferably be completely assembled before it is shipped from the factory. A very short time is thus required to secure the clamp to the conductor in a rigid and permanent manner.

Figure 1 of the accompanying drawings is a sectional elevation of a trolley line embodying my improved clamping device, Figs. 2, 3 and 4 are detail views of the clamping device shown in Fig. 1, and Fig. 5 is a diagrammatic view of a portion of an electric line in which a well known catenary form of suspension is employed.

Referring to the drawings, a grooved trolley conductor 1 is suspended from a messenger cable 2 by means of hanger rods 3 each of which is secured to the former by means of a trolley clamp 4 and to the latter by a cable clamp 5. The cable clamp 5 may be of any suitable construction, such as that illustrated in Fig. 1, which comprises a loop 6 surrounding the cable 2 and provided with two ears 7, the upper extremity of the rod 3

being secured between the ears by means of a bolt 7^a.

The trolley clamp comprises interchangeable clamping jaws 8 and a cup 9, having tapering inner walls at one end which form a substantially frusto-conical chamber 10, a tapped hole 11 being provided in the base wall of the chamber to receive one extremity of the hanger rod 3. The clamping jaws 8 are provided with expanded shanks 12 which, when assembled, form a frusto-conical head that is adjustable within the cup 9. The jaws are forced together, when they are crowded into the smaller part of the chamber 10, by the rod 3 which is pressed against the outer extremities of their shanks. The cup 9 is first formed with substantially cylindrical walls, as shown in Fig. 4 of the drawings, and, after the clamping jaws 8 are so placed that their shanks extend into the cup, the side walls of the cup are forced into the shape which produces the frusto-conical chamber 10 illustrated in Fig. 1. This result may be accomplished under very heavy pressure obtained in a suitable swaging machine. After the parts are formed and assembled as shown in Fig. 1, it is impossible to remove the jaws from the cup, but a sufficient adjustment is permitted to allow the hooked portion of the jaws to engage the grooves in the trolley conductor.

The portion of the jaws which engage the trolley conductor may, of course, be adapted for use with conductors of circular cross-section and other variations in the size and arrangement of the details of the device may be effected within the scope of my invention.

I claim as my invention:

1. A trolley clamp comprising a cup having end walls and downwardly and inwardly inclined side walls, a pair of jaws having expanded shanks, the inner end of each of which is larger than the maximum opening between the adjacent side wall of the cup and the other shank, and means for forcing the shanks against the side walls of the cup to produce a clamping action between the jaws.

2. A trolley clamp comprising a cup having end walls and downwardly and inwardly tapering side walls, a pair of jaws having flaring shanks the ends of which are located in the cup and each of which is larger than the maximum opening between the adjacent side wall of the cup and the other shank,

and means for producing a clamping action between the jaws.

3. A trolley clamp comprising a cup having end walls and downwardly and inwardly tapering side walls, a pair of jaws having flaring shanks the ends of which are located in the cup and each of which is larger than the maximum opening between the adjacent side wall of the cup and the other shank, and a hanger rod which is screw-threaded into the base wall of the cup and engages the ends of the shanks.

4. A trolley clamp comprising a cup having end walls and downwardly and inwardly tapering side walls, a pair of jaws having flaring shanks the ends of which are located in the cup and each of which is larger than the maximum opening between the adjacent side wall of the cup and the other shank, and a hanger rod adapted to both force the jaws together and to suspend the cup.

5. A trolley clamp comprising a cup having end walls and downwardly and inwardly tapering side walls, a pair of jaws having hooked projections, flaring shanks integral therewith the ends of which are located in the cup and each of which is larger than the maximum opening between the adjacent side

wall of the cup and the other shank, and a hanger rod which is screw-threaded into the base wall of the cup and engages the outer ends of the shanks.

6. The combination with a trolley conductor and a trolley clamp comprising a cup having end walls and downwardly and inwardly tapering side walls, a pair of jaws having hooked projections to engage the trolley conductor, flaring shanks integral with said projections which are located in the cup and each of which is larger than the maximum opening between the adjacent side wall of the cup and the other shank, and a hanger rod the lower end of which is screw-threaded into the base wall of the cup and engages the outer ends of the shanks, of a messenger cable, and a messenger cable clamp detachably fastened to the upper end of said hanger rod.

In testimony whereof, I have hereunto subscribed my name this 30th day of April, 1907.

THEODORE VARNEY.

Witnesses:

E. E. ROSE,

BIRNEY HINES.