

B. B. BETTS.
TROLLEY WIRE HANGER.

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**INVENTOR**

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UNITED STATES PATENT OFFICE.

BENJAMIN B. BETTS, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-THIRD TO
EMIL A. KOLBE, OF SAME PLACE.

TROLLEY-WIRE HANGER.

SPECIFICATION forming part of Letters Patent No. 507,064, dated October 17, 1893.

Application filed December 28, 1892. Serial No. 456,527. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN B. BETTS, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Trolley-Wire Hangers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in "trolley wire hangers" and consists in the novel arrangement and combination of parts, as will be more fully hereinafter described and designated in the claims.

The object of my invention is to improve upon a class of articles, known as trolley-wire hangers, and in connection with certain parts forms a secure fastening for the same by means of which it is suspended from poles or cross-wires.

In the drawings: Figure 1, is a detail elevation of a trolley-wire held in position by means of my invention. Fig. 2 is a perspective view of my improved clamp. Fig. 3 is a vertical detail section taken on a line A—A in Fig. 4. Fig. 4 is a longitudinal vertical section taken on a line B—B in Fig. 3. Fig. 5 is a vertical cross-sectional view of my device, showing a modified means for securing the adjustable jaw. Fig. 6 is a view in perspective of the removable adjustable jaw. Fig. 7 is a plan sectional view taken on line C—C in Fig. 5, and showing the modification in that figure in detail. Fig. 8 is a sectional view with parts broken away of an additional modified means of manipulating the clamping-jaw. Fig. 9 is a perspective view of the wedge and locking-wire as used in the construction shown in Figs. 1, 2, 3 and 4.

Referring to the drawings: As is usual in street railway constructions, supporting posts 1 are made use of and located at determinate distances apart. The poles 1 are preferably located upon both sides of the street or roadway, in alignment and connected by cross-wires, from which depend insulation clamp-holders 2. To these holders 2 are adapted to be secured trolley-clamps 3, constructed after the method of my invention. The clamp 3 comprises a frame 4 and a removable adjustable jaw 5. The portion 4 consists of a

longitudinal curvilinear portion 6 which is adapted to fit upon one side of the trolley-wire 7. The portion 6 extends into an upwardly and outwardly flaring side plate 8, the upper outline of which is tapering from the ends upwardly to a rectangular portion 9, from which depends a plate 10 following the same outline as the plate 8, and both of said sides 8 and 10 forming, together with connecting portions 11 a chamber 12 as shown in Fig. 3. The lower edge 13 of the side 10 is not the same in form as the curvilinear portion 6, but at a point above the lower terminus of said portion 6, is provided with an inwardly projecting portion 14. Into the chamber 12 and providing the other half of the clamping surface to the trolley-wire, is disposed a removable jaw 5, the longitudinal portion 15 of which is the same in cross section as the portion 6 of the plate 8. The upper part 16 of the jaw 5 is substantially the same outline as the interior of the chamber 12, to prevent any longitudinal movement of the jaw 5 within the frame 4. The curvilinear portion 15 is separated from the upper portion or shank 16 by an aligned groove 17, adapted to be engaged by the projection 14 upon the lower end of the plate 10. It will now be seen that when the jaw 5 is in position with the projection 14 engaging the groove 17, that two curvilinear faces 18 and 19 are presented respectively by the lower portion 6 of the plate 8 and by the portion 15 of the jaw 5, and are adapted to engage the conductor 7. It will also be perceived that if some means for keeping the upper portion 16 of the jaw 5 away from the side 8 and toward the side 10 the trolley-wire 7 will be tightly clamped between the faces 18 and 19 and to this end I have designed several means.

In Fig. 9 is shown a view of a wedge 20, the sides alone of which are tapered, all of the taper being upon one side of same with the opposite side rounded off. The wedge 20 is provided in its upper surface with a groove 21 connecting near the broad end of said wedge with an opening 22 extending downwardly through the same. In the manufacture, a wire 23 is placed in the opening 22 and then bent downwardly into the slot 21.

When said wedge is driven through openings 24 in the top 11 of said frame 4, the wire 23 is bent upwardly against said rectangular portion 9 as shown in Figs. 2 and 4, and this prevents the backing out of the wedge from between the upper end of the jaw 5 and the edges of the opening 24. This construction admits of the adaptation of my invention to different sizes of conductors, as the securing of the conductor depends upon the position of the wedge 20, and the farther in that the wedge is driven, the closer together the curvilinear faces, 18 and 19 are brought. The rectangular portion 9 is surmounted by a portion 25 provided with an opening 26, by means of which the same is secured in the clamp-holder 2.

In Figs. 5 and 7 is shown a modified manner of adjusting the jaw 5. The plate 8 is provided near the rectangular portion 9 with a horizontal slot and with a projecting lug 27 located in alignment with the lower edge of said slot and projecting outwardly from said plate. Pivoted to said plate 27 is an eccentric cam 28 having a manipulating handle or arm 29. The main portion of the eccentric 28 extends into the chamber 12 and engages the portion 15 of the jaw 5. When the cam is in position as shown by heavy lines in Fig. 7 the jaw 5 is necessarily held in a rigid position, but when said arm 29 is drawn into position as shown by dotted lines in said figure, the eccentric is out of engagement with the jaw 5 and the same is therefore in position for adjustment.

In Fig. 8 is shown a modification of the means for securing the jaw 5 and consists in providing a thickened portion 30 upon the plate 8 and placing a screw-threaded opening therein and through said plate 8. An adjustable set screw 31 operated in said screw-threaded opening, determines the adjustment of the jaw 5. The frame 4 is notched or recessed at its ends, as shown at 32, to accommodate the end edges 33 of the jaw 5.

The description above given and the annexed drawings will facilitate a clear understanding of the case and the details will readily be seen, and as a whole the hanger embodies features which combine to make it an important and valuable improvement.

All of the parts of my invention are made of some suitable and cast metal and owing to their relation with each other will enable the adjustment of the jaws over the wire when desired.

Having fully described my invention, what I claim is—

1. As an improvement in trolley-wire hangers, the combination, with a casing comprising side plates one of which being provided with a longitudinal curvilinear portion, the other side being provided with an inturned

edge located above said portion, of an adjustable jaw comprising a shank disposed within the casing and provided at its lower end with a longitudinal groove adapted to receive said inturned edge of the casing side, and a curvilinear portion carried by said shank and corresponding to and arranged reversely to the curvilinear portion of the casing, and means for adjusting the shank laterally within the casing; substantially as set forth.

2. As an improvement in trolley-wire hangers, the combination, with a casing provided with a stationary jaw and in its upper end with coincident slots, and an adjustable jaw provided with a shank disposed in said casing, of a wedge adapted to be received by said slots and adjust the movable jaw, and means for locking said wedge in position; substantially as set forth.

3. An improved "trolley wire-hanger" having a fixed jaw, an adjustable removable jaw, a wedge adapted to hold said adjustable jaw in a clamping relation over an electrical conductor, and a wire fitted in said wedge and adapted to be bent upwardly against the fixed jaw, when said wedge is in position, substantially as set forth.

4. An improved "trolley wire-hanger" having a fixed jaw provided with a projecting perforated lug by means of which said hanger is secured to an insulated holder, said fixed jaw provided with an interior chamber, the sides of which converge toward each other at the bottom, the longitudinal curvilinear lower edge of said fixed jaw adapted to fit upon the wire, said fixed jaw provided with slots, a removable adjustable jaw adapted to fit into said interior chamber in said fixed jaw, a wedge adapted to project through said slots between the fixed and removable jaw-plates, and hold the lower curvilinear end of said removable jaw over the other side of said wire, substantially as set forth.

5. An improved "trolley wire-hanger" having a wedge adapted to clamp a removable jaw located within a fixed jaw over an electrical conductor, said wedge tapered upon one side and provided in its upper surface with a slot terminating in a vertical opening in said wedge, an L-shaped piece of wire adapted to normally rest in said slot and opening, and the free end of which is adapted to be bent upwardly, against the fixed jaw and hold the wedge in a determined position to secure the lower curvilinear clamping face of said adjustable jaw against the electrical conductor, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN B. BETTS.

Witnesses:

HERBERT S. ROBINSON,
L. L. TRACEY.