

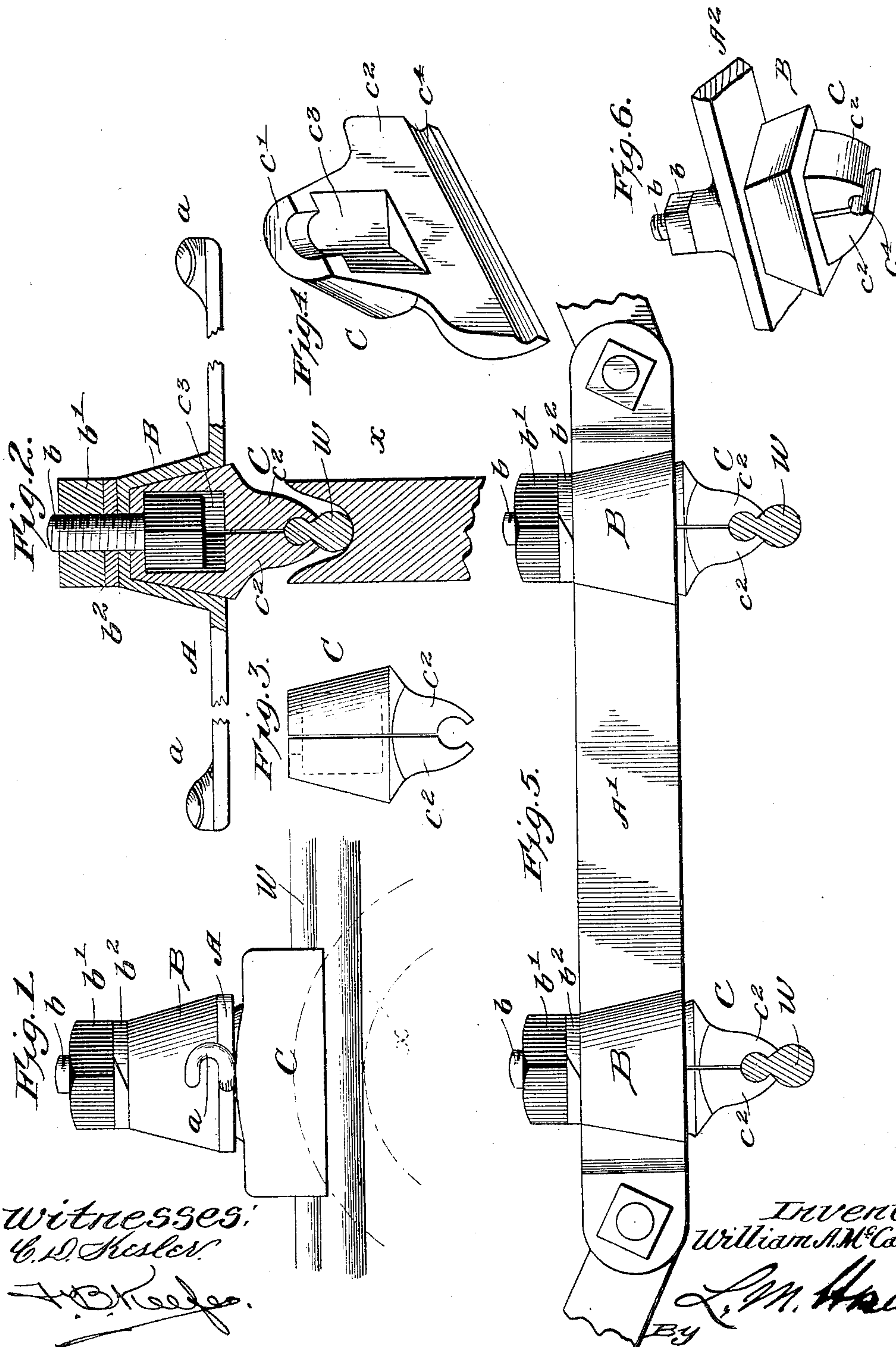
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Patented Oct. 16, 1900.

W. A. McCALLUM.  
SUSPENDING DEVICE FOR TROLLEY WIRES.

(Application filed Feb. 5, 1900.)

(No Model.)



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## SUSPENDING DEVICE FOR TROLLEY-WIRES.

SPECIFICATION forming part of Letters Patent No. 659,823, dated October 16, 1900.

Application filed February 5, 1900. Serial No. 4,113. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. McCALLUM, a citizen of the United States, residing at Cincinnati, Hamilton county, and State of Ohio, have invented new and useful Improvements in Suspending Devices for Trolley-Wires, of which the following is a specification.

My invention relates to suspending devices for the trolley-wires of electric railways, its object being to provide a suspension device free from solder as a means of holding the wire (which is liable to give way under stress of use) and from the disadvantages of tongues or hooks embracing the wire in the contact-path of the trolley-wheel and devices which involve bending the wire out of a straight path into clamping engagement with the "suspending-ear." In my improvement the straight contact-path of the trolley-wheel is unimpeded and the wire, suitably formed for the purpose, is held securely to the ear by a compression-clamp, which is easily and quickly detached and replaced and permits not only unlimited longitudinal adjustment of the clamp in relation to the wire, but also unlimited angular or radial adjustment of the trolley-wire in relation to the brace or other initial support.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my device complete, shown as formed with engaging ears for suspension by a wire between opposite trolley-poles; Fig. 2, a side elevation of the same at right angles with the former view, with the compression-cup and clamping parts and the trolley-wire in cross-section to show details of construction; Fig. 3, a side elevation of the two-part clamp detached; Fig. 4, a perspective view of one of the clamp members; Fig. 5, a side elevation of a common form of supporting-brace, such as used in the "double-trolley" system, showing two compression-cups embodied in the brace; and Fig. 6, a perspective view of a slight modification of the form of the device, showing a compression-cup of rectilinear instead of circular cross-section.

Referring now to Figs. 1 and 2 of the drawings herewith, A designates a socket-piece adapted to engage and be suspended by wire between two opposite "poles" or other fixed

supports (not shown) to carry the trolley-wire W beneath in proper position for the traveling engagement of the trolley-wheel *x*. The socket-piece is provided with ears *a* to engage the cross-wire according to the common practice and is formed with a central socket or compression-cup B, preferably of conical form, flaring open below and perforated above through its top for the passage of a bolt *b*, as hereinafter described.

The two-part clamping device C consists of duplicate halves, each consisting of an upper shoulder *c'*, formed as one-half of a cone frustum divided in a diametrical plane and terminating below in a clamping-jaw *c''*, adapted to fit the contour of a specially-formed trolley-wire. Each half of the clamping device is formed with a squared recess *c'''* within the shoulder, the two recesses forming, when the two parts are placed together, a containing-cavity to receive the head of the holding-bolt *b*, which extends upward through the top of the compression-cup B. A nut *b'*, threaded on the shank of the bolt, holds the clamp C in position in the compression-cup. To enable the clamping device C to hold the wire W, the latter is rolled with longitudinal recesses at opposite sides, and the clamping-jaws are correspondingly recessed at opposite inner sides, as shown at *c''*, Fig. 4, to embrace the wire W at opposite sides, fitting its contour, as shown in Fig. 2, securely retaining it between the jaws.

The function of the device will be readily perceived. The parts being in the position indicated in Fig. 2, the nut *b'* is tightened upon the threaded shank of the bolt *b*, thereby drawing the conical shoulders *c'* of the clamping members upward within the conical compression-cup B, forcing the members of the clamp together and setting the jaws *c''* upon the wire W from opposite sides, holding it tightly between. The main body of the wire W projects entirely below out of the way of the clamping-jaws, furnishing an unobstructed and smooth contact-surface to the trolley-wheel *x*, thereby avoiding all sparking and shocks of vibration to the parts. A spring-washer *b''* may be interposed between the nut *b'* and the top of the compression-cup and serves to lock the nut against vibrations tending to loosen its seat. It will be



seen, therefore, that the holding is absolutely secure unless the parts break, in which case new clamps can be inserted with speed and facility with simple tools and without solder or brazing without bending the trolley-wire or bending any parts to form a clamp. The longitudinal holding-recesses of the clamping-jaws will be varied to fit the contour of the wire used.

10 To adapt my improvement to the double-trolley system, the compression-cups are cast in the connecting-brace A', the parts being otherwise as described.

To adapt the improvement to the style of 15 suspending devices having a downwardly-extending bolt, the loose nut  $b'$  of the bolt is placed in the cavity  $c^3$  and the shank of the bolt inserted from above into the same. In this case the compression-cup B is cast with- 20 out the brace A.

The capacity of radial adjustment of the clamp in relation to the compression will be obvious. To adjust the clamp itself in longitudinal relations with the trolley-wire, it is 25 only necessary to slightly loosen the nut  $b'$ , without detaching the clamp C or the wire W, and tighten the same when the adjustment is made.

The perspective view shown in Fig. 6 represents a compression-cup of rectilineal cross-section and the clamp formed to correspond. In this case the cup is entirely independent of the supporting-brace A<sup>2</sup>, the radial adjust- 35 ability being a function of the device as a whole in relation to its support.

I claim as my invention and desire to secure by Letters Patent of the United States—

1. In a suspending device of the character indicated, a pair of similar clamping members 40 having converging sides forming reduced upper ends and clamping-terminals, a retaining-socket having outwardly-flaring walls shaped to receive the converging sides of the clamping members, and means carried by the 45 latter for drawing the clamping members up-

ward within the socket, substantially as described.

2. In a suspending device of the character indicated, a pair of similar clamping members having converging sides forming reduced upper 50 ends, and clamping means at the lower ends of said members, a retaining-socket having outwardly-flaring walls shaped to receive the converging sides of the said clamping members, and a bolt or holding device 55 embraced by and carrying the clamping members and adapted to draw the latter upward within the socket, substantially as described.

3. In a trolley-wire-supporting device, a two-part clamp, consisting of clamp members 60 each having a semicircular conical shoulder and a clamping-terminal, and formed with a corresponding recess to receive the head or nut of a retaining-bolt, as set forth.

4. A trolley-wire-supporting device, embodying a brace or "ear" formed with one or 65 more compression-cups, the two-part clamp adapted to fit and cooperate with the same as described, and a suspending-bolt uniting the parts, constructed and operating as set 70 forth.

5. In a trolley-wire-supporting device, a two-part clamp, consisting of clamp members each having converging sides, a clamping-terminal, and a recessed face, a retaining-socket 75 shaped to receive the said converging sides of the clamp members, a bolt passed through said socket and having its head arranged in said recesses in the faces of the clamp members, and a nut tapped on the end of said bolt 80 and acting to draw the clamp members upward within the socket, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of witnesses.

WILLIAM A. McCALLUM.

Witnesses:

WALTER A. KNIGHT,  
CHAS. HERBERT JONES.