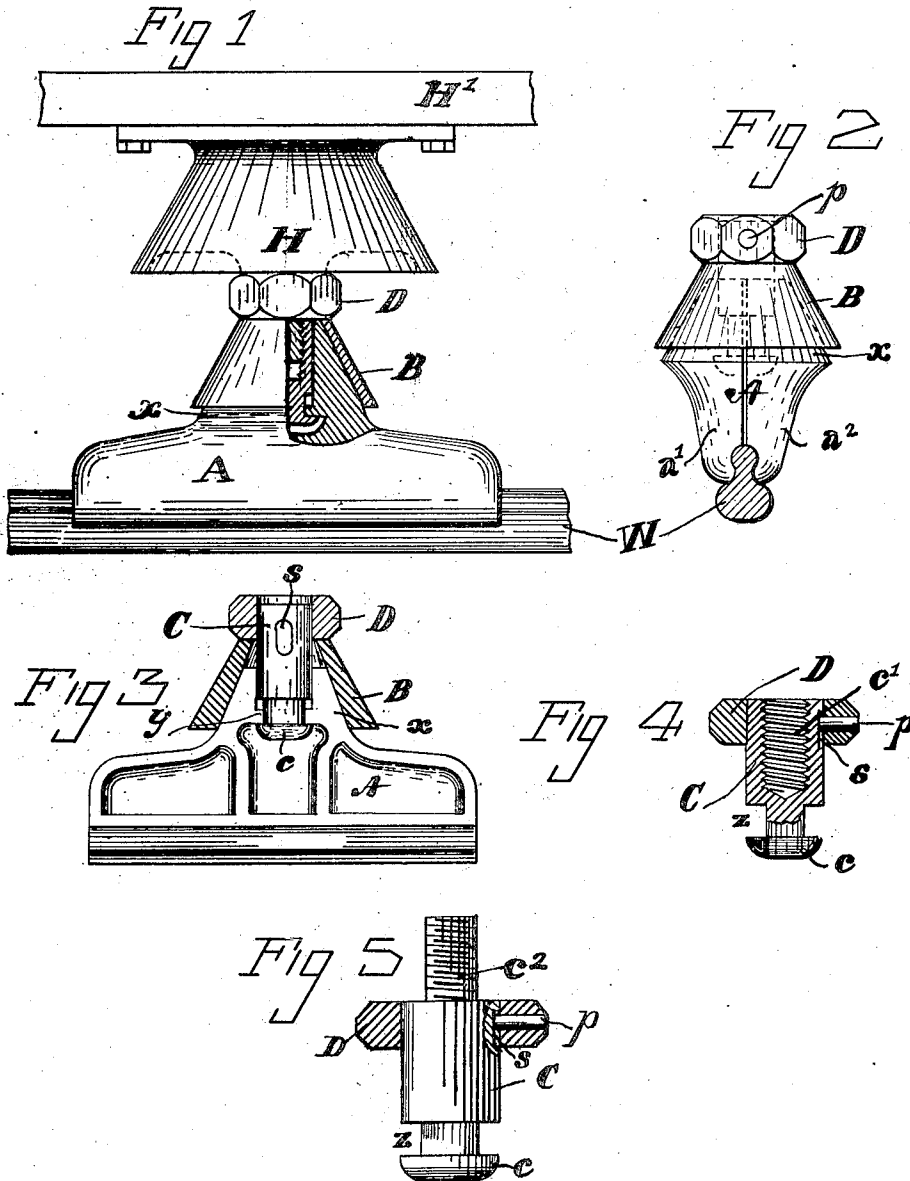


W. A. McCALLUM.
SUSPENDING DEVICE FOR TROLLEY WIRES.
APPLICATION FILED MAY 14, 1908.

934,562.

Patented Sept. 21, 1909.



WITNESSES

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SUSPENDING DEVICE FOR TROLLEY-WIRES.

934,562.

Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed May 14, 1908. Serial No. 432,802.

To all whom it may concern:

Be it known that I, WILLIAM A. McCALLUM, a citizen of the United States, residing at Cincinnati, in the county of Hamilton 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 used to maintain trolley wires of electric railways in position for use, its object being to provide a holding device of simple and effective character adapted to maintain the wire in independently adjustable radial alignment with the hanger or other support; its parts being held assembled in permanent relations yet capable of interadjustment to facilitate attachment to or detachment from the wire or the hanger without impairing the relation specified; thereby greatly facilitating the installation or removal of the device and conserving economy of time and labor, and enabling the manufacturer to produce and the user to deal with the device as an integral article of manufacture; thereby economizing in transportation and handling, and insuring against accidental loss of its parts. The device is also especially suitable for suspending the wire from and in connection with mine hangers and in similar situations.

To this end my invention consists in the device hereinafter more fully described, embodying in combination a two part clamp "ear", a compression ring, a rotatable stem cooperating therewith and adapted to engage the hanger or other support, and a collar upon the stem, used both to rotate the stem and as a holder between the hanger and compression ring in clamping the trolley wire in the ear.

My invention, as constructed in preferred form in use, is illustrated in the accompanying drawings, in which:

Figure 1, is a side-elevation partially in section of the device complete, attached to a common form of hanger secured to the under side of a beam or other support; Fig. 2, an end-elevation, omitting the hanger and support. Fig. 3, a side-elevation omitting the front part of the two-part ear and showing the compression ring and also the stem-collar, in axial section; Fig. 4, an axial section of one form of the stem and its collar showing details of construction; and Fig. 5,

an elevation of the alternative form of the stem.

Referring to the drawings herewith, illustrating my invention in preferred form in which the parts described are designated by 60 letters of reference, the suspending ear A is formed in halves, designed to clamp the trolley-wire W, between their lower extremities—the two parts, a^1 , a^2 , constituting the ear, being duplicate halves divided in the 65 vertical axial plane of the wire. The upper part of the ear thus constituted is formed as a cone-frustum, diminishing upwardly;—the parts being normally held together by a conical compression ring B fitted to embrace 70 and seat upon the conical exterior of the ear; so that, when the ear is drawn upward within the compression ring, the divided halves of the ear are forced together by a wedging action in the compression ring, and the wire 75 W is clamped between them and securely held by corresponding ledges at the lower inner surfaces of the ear-parts, which are formed to seat at opposite sides of the wire, as shown in Figs. 1 and 2. The wire thus 80 held presents at its under surface a straight and unobstructed path for the travel contact of the trolley wheel (not shown).

Extending equally into each of the said ear-parts is a countersunk aperture concentric with the axis of the cone-frustum α , 85 having at its lower portion projecting inwardly an annular ledge y ; and within said aperture is carried a cylindrical stem C, provided with a circumferential groove z , near 90 its bottom, engaged by said annular ledge, permitting rotation of the stem but not vertical movement. The stem C extends upward beyond the upper surface of the cone-frustum α , and beyond the upper surface of 95 the compression ring B, and is there embraced by a collar D, seated upon the upper edge of the compression ring B, and having a slot-and-feather engagement with the stem by means of a radial pin p seated in the collar D and extended into a vertically elongated slot S in the outer surface of the stem C. The collar D may be finished with plane 100 outer surfaces for the engagement of a wrench (as indicated in Figs. 1 and 2); and is thus used as a means of rotating the stem while permitting a vertical movement of the stem itself within its engaging collar. The portion of the stem C below its groove z constitutes a head c , which, as the stem 110

moves upward, engages the ledge y , and thereby carries the parts a^1, a^2 of the ear upward also. The stem B is further constructed to engage a hanger H of usual form, which, in mine service, in car-barns, under bridges, etc., is (as shown in Fig. 1) secured to a support H^1 ; but as will be readily understood it may engage with supports of any kind with slight mechanical adaptation. If the device is to be engaged with a hanger provided with a depending screw, the stem is countersunk and provided with internal screw threads as shown at C^1 in Fig. 4; but if the hanger is provided with a screw threaded aperture (both forms being in common use) the stem is left solid and extended upwardly by a screw threaded bolt-end c^2 , as shown in Fig. 5.

The operation of the device results from the act of attaching to or detaching from the hanger, and is as follows: The parts being suitably proportioned, the collar D embracing the stem C having a slot-and-feather connection therewith in the vertically elongated slot S, and being normally seated upon the compression ring B, if the device is held by means of its compression ring, the stem C will drop down within its collar D to the upper limit of the slot S, thus permitting the ear A to drop down within the compression ring, allowing its divided parts a^1, a^2 to open apart sufficiently to admit the wire W to be inserted in place between the same. If now the supporting hold be transferred to the lower part of the ear A, so as to temporarily hold the ear-parts together upon the wire, the compression ring B will drop down by gravity to its seat upon the conical portion x of the ear (thus holding the divided parts of the ear clamped upon the wire W) and the collar D will likewise drop down relatively to its stem retaining its seat upon the compression ring (the slot S being sufficiently elongated for this purpose). The device being now elevated to engage the suspending bolt of the hanger H, the stem C is rotated by means of its collar D to fully engage and seat the bolt threads with those of the axial aperture c^1 of the stem (shown in Fig. 4). As the seating nears completion, it will be seen that the collar D will contact with the under surface of the hanger, and, as the rotation of the stem continues, the ear carries the compression ring upward against the collar as a stop or abutment, and then the ear is drawn upward within the compression ring to the limit of a frictional seating, holding all parts firmly together. It will be observed, however, that all this does not involve any rotation of the ear itself, which, therefore, except for the frictional contact of the head c of the stem against the ledge y , and of the collar D against the upper edge of the compression ring B, is free to rotate; and may be thus accurately adjusted to any

desired radial relation with the hanger, without detaching the parts.

It is to be noted also that the stem C is of such limited length as not to contact with the under surface of the hanger at any time; thus allowing the collar D to maintain its function as a jam-nut between the compression ring C and the hanger, holding all parts together and maintaining the wire securely clamped at all times.

The detachment of the device involves a reversal of the steps described; and it will be observed that the action is the same whatever be the form of the hanger.

I regard the functional arrangement of the rotatable stem in relation to the ear as one of the important features of my invention and it is obvious that it may be applied to any form of two-part ears with advantage, even when the wire is not itself held between the parts by clamping action.

What I claim as my invention and desire to secure by Letters Patent of the United States, is:

1. A suspending device for trolley wires, said device comprising a two-part holding ear, adapted to receive and clamp a trolley wire, a member mounted on and movable relatively to the ear for retaining the two parts of the latter together in their clamping position, and a member rotatively mounted in the ear, and having means for the attachment of a hanger or support.

2. A suspending device for trolley wires, said device including a two-part holding ear, adapted to receive and clamp a trolley wire; means comprising a compression member mounted on the exterior of the ear, adapted to retain the two parts of the ear in their clamping position; and a stem rotatively mounted in the ear and having a threaded portion to screw into engagement with a hanger or support and to thereby increase the clamping effect of the ear upon the wire.

3. A suspending device for trolley wires, said device having in combination an ear formed of two conformable parts adapted to grip a trolley wire therebetween; a compression ring inclosing the ear, said ring and ear having engaging inclined surfaces; means acting on the ring for retaining the two parts of the ear in their clamping position; and a suspending stem rotatively mounted in the ear and having a threaded portion to screw into engagement with a hanger, said stem having, also, a limited longitudinal movement whereby the ear and ring are moved one relatively to the other, to increase the clamping action of the ear on the wire, coordinately with the screwing of the stem to the hanger.

4. A suspending device for trolley wires, embodying in combination a two-part ear; a ring adapted to fit upon and hold the ear-parts in compression upon the wire; a stem

rotatively socketed in the ear and having a threaded portion, said stem adapted to engage a hanger or other support by its rotation independently of the ear; and a collar embracing said stem above and adjacent to said compression ring; and means for connecting said stem and collar rotatively while permitting a vertical play.

5. A suspending device for trolley wires, embodying in combination a two-part ear; a ring adapted to fit upon and hold the ear-parts in compression upon the wire; a stem rotatively socketed in the ear and having a threaded portion, said stem adapted to engage a hanger or other support by its rotation independently of the ear; and a collar embracing said stem above and adjacent to said compression ring; and means for connecting said stem and collar rotatively with a limited vertical play, which, while permitting a sufficient degree of lost motion between the parts to allow seating or unseating the wire between the clamping jaws of the ear, yet holds them together at all times against complete separation.

6. In a suspending device of the character described, in combination with a two-part ear, and a compression ring for holding the ear parts clamped upon the trolley wire, a

stem socketed rotatively in the ear between said parts and engaging an annular ledge of said socket against vertical intermovement of said ear and stem while permitting rotation of the stem in its socket.

7. In a suspending device of the character indicated, embodying a two-part ear, a compression ring, and a stem socketed rotatively in the ear, said ear having an engaging thread for a hanger or support, the combination therewith of a collar having a slot-and-feather connection with said stem in such arrangement of parts that upon rotating the stem into a screw thread engagement with a hanger or other support, the collar, contacting therewith and with the compression ring, acts as a jam-nut to hold the device firm in relation to the support and forces the compression ring into closer wedging contact against the parts of the ear to firmly clamp the trolley wire.

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

WILLIAM A. McCALLUM.

Witnesses:

A. L. JOHNSTON,
WALTER A. KNIGHT.