

UNITED STATES PATENT OFFICE.

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TO THE CENTRAL UNION BRASS COMPANY, OF ST. LOUIS, MISSOURI.

SPLICER FOR TROLLEY OR OTHER WIRES.

SPECIFICATION forming part of Letters Patent No. 622,747, dated April 11, 1899.

Application filed November 2, 1898. Serial No. 695,284. (No model.)

To all whom it may concern:

Be it known that I, MONTRAVILLE M. WOOD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Splicer for Trolley or other Wires, of which the following is a specification.

This invention relates to splicers for trolley and other wires.

10 The object of the invention is to provide a splicer of simple and improved construction and economical in manufacture wherein abutting ends of trolley or other wires and the like may be suitably, conveniently, and efficiently
15 coupled, wherein the coupling-joint is protected from dust, dirt, water, or other matter, and wherein efficient electrical contact is secured.

Other objects of the invention will appear
20 more fully hereinafter.

The invention consists, substantially, in the construction, combination, location, and arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally specifically
25 pointed out in the appended claims.

Referring to the accompanying drawings and to the various views and reference-signs appearing thereon, Figure 1 is a view in central longitudinal section of a splicer embodying the principles of my invention. Fig. 2 is a transverse sectional view of the same on the line 2 2, Fig. 1, looking in the direction of the arrows. Fig. 3 is a transverse sectional view
30 of the same on the line 3 3, Fig. 1, looking in the direction of the arrows. Fig. 4 is a detached detail side view of the splicer-cap. Fig. 5 is a central longitudinal sectional view of the same. Fig. 6 is a detail view, in side elevation, of the two parts of the splicer-casing detached from each other. Fig. 7 is a view
40 in longitudinal section of one of the parts of the splicer-casing. Figs. 8 and 9 are modified forms of the invention.

45 The same part is designated by the same reference-sign wherever it occurs throughout the several views.

In carrying out my invention it is my purpose to provide a splicer specially adapted for
50 use as an emergency splicer for trolley-wires, but the principles of which are equally well

adapted for use in other relations, and wherein in the case of the use thereof as a trolley-wire splicer the construction is but slightly larger than the wires to be sliced and which
55 is neatly finished, so as to offer no obstruction to the passage of the trolley-wheel therealong. To this end I provide a casing, preferably formed in two sections A B, of suitable conducting material. Each of these parts of
60 the casing comprises an extended tubular sleeve, preferably tapered toward the outer ends thereof both exteriorly and interiorly, so that at the outer ends thereof the internal diameter of such sleeves is just large enough
65 to permit the free entrance therethrough of the ends of the trolley or other wires C to be spliced or joined. The sections A B of the casing may be detachably joined together in any suitable or convenient manner at their
70 inner or abutting ends. In the particular form shown, to which, however, the invention is not limited or restricted, the proximate end of each section A B is interiorly threaded, as indicated at D, Fig. 7, said interior threads
75 adapted to be screwed upon the exterior threads of a sleeve E, Fig. 1, until the ends of the sections A B abut against each other, as shown in Fig. 1. By this construction it will be readily seen that the two sections of
80 the casing may be readily, easily, and with facility detached or separated from each other.

Reference-sign F designates what I shall term the "splicer-cap." Preferably, and as shown, this cap is made of suitable metal—
85 such, for instance, as steel—and is closed at one end and slightly tapered from the closed end toward the open end thereof, as clearly shown in Figs. 4 and 5. Preferably, and as shown, this cap is slitted in the sides thereof,
90 as indicated at G. The internal diameter of this cap is preferably made very slightly smaller than the external diameter of the ends of the trolley or other wire to be spliced for a purpose presently to be more fully explained.
95 If desired, and as shown at H, Fig. 5, the internal surface of cap F may be suitably scored, grooved, or roughened in order to exert a more efficient gripping action upon the end of the trolley or other wire to be spliced.
100

The operation of the invention is as follows: A splicer-cap F is introduced into the larger

open end of each section A B of the splicer-casing with the smaller open ends of such caps presented toward the smaller or reduced ends of the sections of casing, respectively.

5 The end of the trolley or other wire is then inserted in the smaller or reduced end of the section of casing. When this end engages the open reduced end of the splicer-cap by reason of such wire being of slightly-larger
10 external diameter than the internal diameter of the end of the splicer-cap, as above explained, the split jaws of said cap are slightly forced apart when pressure endwise of the wire to force it into the casing is exerted, thus
15 enabling the end of the wire to be forced into the cap, whereupon the spring-jaws of the cap tightly grip and clamp down upon the end of the wire. The two sections of the splicer may then be suitably joined together—
20 as, for instance, by screwing the same up upon threaded sleeve E. Now when a separating strain is exerted upon the trolley or other wire in a direction tending to draw said wires apart—that is, out of the sections of casing—
25 by reason of the gripping of the caps F upon the ends of the wires said caps are carried along with the wires until the external conical surface of said caps engage the internal tapering conical surface of the casing-section, whereupon the separating strain exerted upon
30 the ends of the wires serves only to clamp the splicer-caps down upon the ends of the wires more firmly.

Thus it will be seen that I provide an exceedingly simple and efficient splicer for trolley or other wires wherein efficient electrical connection is provided for, and by employing the caps F with solid ends it will be seen that
40 dirt, moisture, or other matter which would tend to impair the efficiency of the electrical contact is wholly excluded from the joint.

Of course it is obvious that the caps may be inserted in the enlarged ends of the casing-sections and the sections assembled by
45 screwing the same together or otherwise assembling the same before the ends of the wire to be spliced or connected together are inserted in the ends of the casing-sections.

Another advantage resulting from the use
50 of a cap having a solid end is that when the end of the wire is inserted in the cap it abuts against the solid wall of the cap, and hence by exerting pressure lengthwise of the wire the cap may be unseated from its conical seat
55 in the casing, thus enabling the splicer to be readily and easily removed when required.

In order to increase the efficiency of the electrical connection between the two sections of casing, I may, if desired, arrange a
60 spring J within sleeve E with the respective ends thereof bearing against the solid heads of the splicer-caps F. This spring also serves the purpose of maintaining the caps yieldingly seated in the conical bore of the sections of casing, so that when the ends of the
65 wire to be joined are inserted in the ends of the casing yielding opposition is encountered

by reason of such spring, the acting of such spring assisting the automatic gripping action of the caps upon the ends of the wire. 70

While, as above stated, my invention is particularly adapted for use as an emergency splicer for trolley-wires, it is to be understood that the principles of the invention are equally well adapted for use in other relations. It
75 is also obvious that many variations and changes in the details of construction and arrangement would readily suggest themselves to persons skilled in the art and still fall within the spirit and scope of my invention. 80
I do not desire, therefore, to be limited or restricted to the exact details shown and described; but,

Having now set forth the object and nature of my invention and a form of construction
85 embodying the same and having explained the function and mode of operation thereof, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent of the United States, is— 90

1. A splicer for trolley or other wires, comprising a tubular casing tapered in internal diameter, and a splicing-cap, closed at one end, arranged within said casing, said cap also tapering externally and adapted to receive in the open end thereof the end of the wire to be spliced, the end of the wire adapted to abut against the solid end wall of the cap, as and for the purpose set forth. 95

2. A splicer for trolley or other wires, comprising a sectional tubular casing, said sections adapted to be secured together, and each section tapering internally from the adjacent ends thereof toward their farthest ends, and a splicing-cap, closed at one end, and tapering toward the other end, arranged within the tapering bore of each section of said casing, said caps adapted to receive and fit over the ends of the wire to be spliced, as and for the purpose set forth. 100 105 110

3. A splicer for trolley or other wires, comprising a sectional tubular casing, and means for detachably securing said sections together, each section tapering in internal diameter from the proximate ends thereof toward the farthest ends, in combination with splicing-caps, closed at the inner ends thereof and split at the other ends thereof, to form spring clamping portions, said caps adapted to receive the ends of the wire to be spliced, as and
120 for the purpose set forth.

4. A splicer for trolley or other wires, comprising a sectional tubular casing, and means for detachably securing said sections together, each section tapering in internal diameter from the proximate ends thereof toward the farthest ends, in combination with splicing-caps, closed at the inner ends thereof and split at the other ends thereof, to form spring clamping portions, the interior surface of said splicing-caps being scored, ruled or corrugated, said caps adapted to receive and grip the ends of the wire to be spliced, as and for the purpose set forth. 125 130

5. A splicer for trolley or other wires, comprising a casing internally tapered from mid-way the length thereof toward its ends, splicing-caps, solid at one end and exteriorly tapering toward the other end, said caps arranged within said casing with the open ends thereof presented toward the ends of said casing, said caps adapted to receive the ends of the wire to be spliced, as and for the purpose set forth.

6. A splicer for trolley or other wires, comprising a casing internally tapered from mid-way the length thereof toward its ends, splicing-caps, solid at one end and exteriorly tapering toward the other end, said caps arranged within said casing with the open ends thereof presented toward the ends of said casing, said caps adapted to receive the ends of the wire to be spliced, and a spring interposed between said caps and normally exerting tension thereof to separate said caps, as and for the purpose set forth.

7. In a splicer for trolley or other wires, an exteriorly-threaded sleeve, tubular splicer-sections interiorly threaded at one end thereof and adapted to be screwed upon said threaded sleeve, said sections being interiorly tapered from the proximate ends of said sections toward their outer ends, exteriorly-tapering splicing-caps arranged to be received in the tapered bore of said sections, said caps being closed at the inner ends thereof and adapted to receive and grip the ends of the wire to be clamped, and a spring interposed between said caps and normally tending to seat the same, as and for the purpose set forth.

In witness whereof I have hereunto set my hand, this 28th day of October, 1898, in the presence of the subscribing witnesses.

MONTRAVILLE M. WOOD.

Witnesses:

FRANK T. BROWN,
MAURICE KANE.