No. 772,456. PATENTED OCT. 18, 1904.

T. P. CHANDLER.

ELECTRICAL CONDUCTOR FOR ELECTRIC RAILWAYS.

APPLICATION FILED APR. 18, 1904.

NO MODEL.

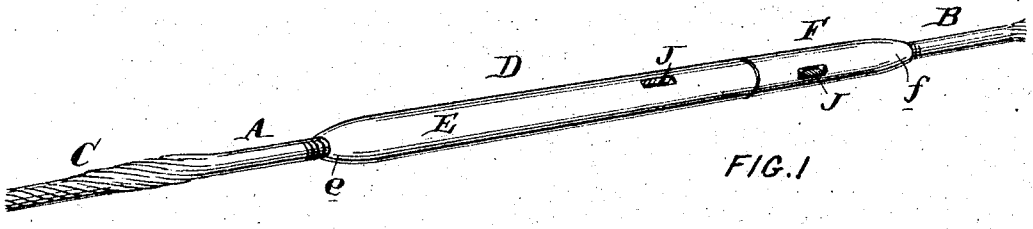


FIG. 1

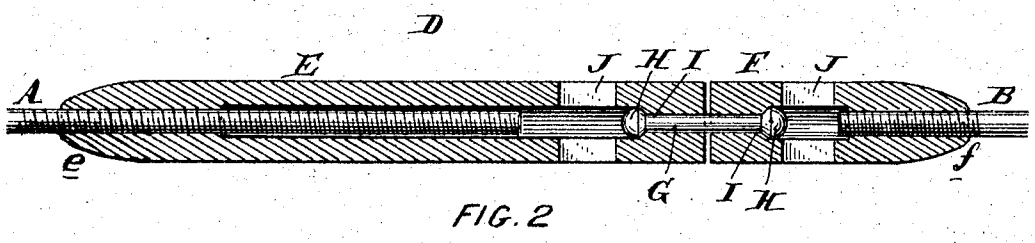


FIG. 2

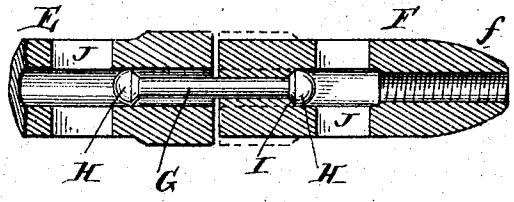


FIG. 3

Attest
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# UNITED STATES PATENT OFFICE.

THEOPHILUS P. CHANDLER, OF PHILADELPHIA, PENNSYLVANIA.

## ELECTRICAL CONDUCTOR FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 772,456, dated October 18, 1904.

Application filed April 18, 1904. Serial No. 203,558. (No model.)

*To all whom it may concern:*

Be it known that I, THEOPHILUS P. CHANDLER, of the city and county of Philadelphia, State of Pennsylvania, have invented an Improvement in Electrical Conductors for Electric Railways, of which the following is a specification.

My invention has reference to electrical conductors for electric railways; and it consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

The object of my invention is to provide a coupling between two sections of conductor which shall have capacity for tightening the conductor and at the same time offer very little obstruction to the passage of the trolley or other wheel of the electrically-propelled vehicle.

In carrying out my invention I provide the adjacent ends of two sections of electrical conductor with screw-threads and combine therewith a tightening-coupling consisting of two parts connected by a swivel-joint and into which parts the respective screw-threaded ends of the conductor-sections are screwed, the said coupling being of substantial cylindrical shape and having its ends tapered to form as little obstruction to the passage of the trolley or other wheel of the electrically-propelled vehicle as possible.

My invention further comprehends details of construction which, together with the features specified above, will be better understood by reference to the drawings, in which—

Figure 1 is a perspective view of a conductor-coupling embodying my improvements. Fig. 2 is a longitudinal section of same, and Fig. 3 is a longitudinal section illustrating one mode of connecting the two parts of the coupling.

A and B are two steel rods having their ends screw-threaded and formed either as terminals of cable conductors C, brazed to them, or as integral ends of conductors formed of heavy wire or rods. The said rods A and B are respectively screwed into the parts E and F of the coupling D. The two parts of the coupling are preferably of different lengths, thus part E being more than twice as long as part F. The screw-threads on the conductor ends A and B are likewise of greater length on terminals A than on terminal B. It is not necessary that the screw-threads in the part E shall extend beyond a short distance near the end, as shown, the tubular space beyond said screw-threads being clearance-space. The two parts E and F of the coupling D are connected by a swivel-joint consisting of a rod G, having heads H H on its ends, said heads being received in the tubular apertures of the parts E F and held therein by the metal being forced down, as at I, back of the heads. The abutting ends of the two parts E F are made flat; but the outer ends of the coupling are tapered, as indicated at *e* and *f*, so as to form no obstruction to the passage of wheels over the coupling. Slots or apertures J may be formed through the parts E F for receiving a bar for the purpose of holding or turning either of said parts in adjusting the tension of the conductor. Ordinarily the part F would be screwed on the rod B tightly and the adjustment be made between the parts A and D, the latter being much longer than the part F.

In making the swivel connection it is necessary that it shall be very strong, and an excellent mode of construction is as shown in Fig. 3. From this figure it will be seen that the parts E F of the coupling are first bored or cored with a hole sufficiently large to receive the head H of the coupling-rod, and after it is inserted, as shown at the left-hand end of Fig. 3, the end of the tubular part E is compressed, so that the outer surface is symmetrical and the diameter of the hole is contracted back of the head, as at I, as shown at the left-hand end of Fig. 3. I do not confine myself to any particular construction of this swivel-joint, as it may be formed in many ways.

While I prefer the construction as shown, the details thereof may be modified without departing from the spirit of my invention.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A coupling-joint for electric conductors,

consisting of the two ends of the conductors each screw-threaded, combined with a coupling formed of two cylindrical tubular parts respectively screwed over the ends of the conductors and united by a swivel-joint.

2. A coupling-joint for electric conductors consisting of the two ends of the conductors each screw-threaded, combined with a coupling formed of two cylindrical tubular parts respectively screwed over the ends of the conductors and united by a swivel-joint consisting of a coupling-rod having its ends provided with heads of larger diameter than the tubular apertures of the adjacent ends of the tubular parts.

3. A coupling-joint for electric conductors consisting of the two ends of the conductors each screw-threaded, combined with a coupling formed of two cylindrical tubular parts respectively screwed over the ends of the conductors and united by a swivel-joint said tubular parts having their abutting ends made flat and their outer ends tapering toward the conductors.

4. A coupling-joint for electric conductors, consisting of the two ends of the conductors each screw-threaded, combined with a coupling formed of two cylindrical tubular parts respectively screwed over the ends of the conductors and united by a swivel-joint, said tubular parts having their outer ends tapered and their body portions provided with transverse slots intermediate of the tapered ends and the swivel-joint.

5. A coupling-joint for electric conductors, consisting of the two ends of the conductors each screw-threaded, combined with a coupling formed of two cylindrical tubular parts respectively screwed over the ends of the conductors and united by a swivel-joint said swivel-joint being formed of a rod having heads on its ends and the tubular parts having their adjacent ends formed with tubular apertures of less diameter than the heads of the rod to hold them.

6. A coupling for connecting two conductors consisting of two tubular parts connected together in alinement with provision of relative rotary motion about an axis parallel to the direction of their length and having the holes in their ends screw-threaded to receive the conductors.

7. A coupling for connecting two conductors consisting of two tubular parts connected together in alinment with provision of relative rotary motion about an axis parallel to the direction of their length and having the holes in their ends screw-threaded to receive the conductors, in combination with two conductor-sections each comprising a cable and a terminal end secured thereto and formed of a screw-threaded rod.

In testimony of which invention I have hereunto set my hand.

THEOPHILUS P. CHANDLER.

Witnesses:

R. M. KELLY,

M. J. EYRE.