

J. RIDDELL.
 SPLICING SLEEVE.
 APPLICATION FILED SEPT. 8, 1910.

1,016,095.

Patented Jan. 30, 1912.

Fig. 1.

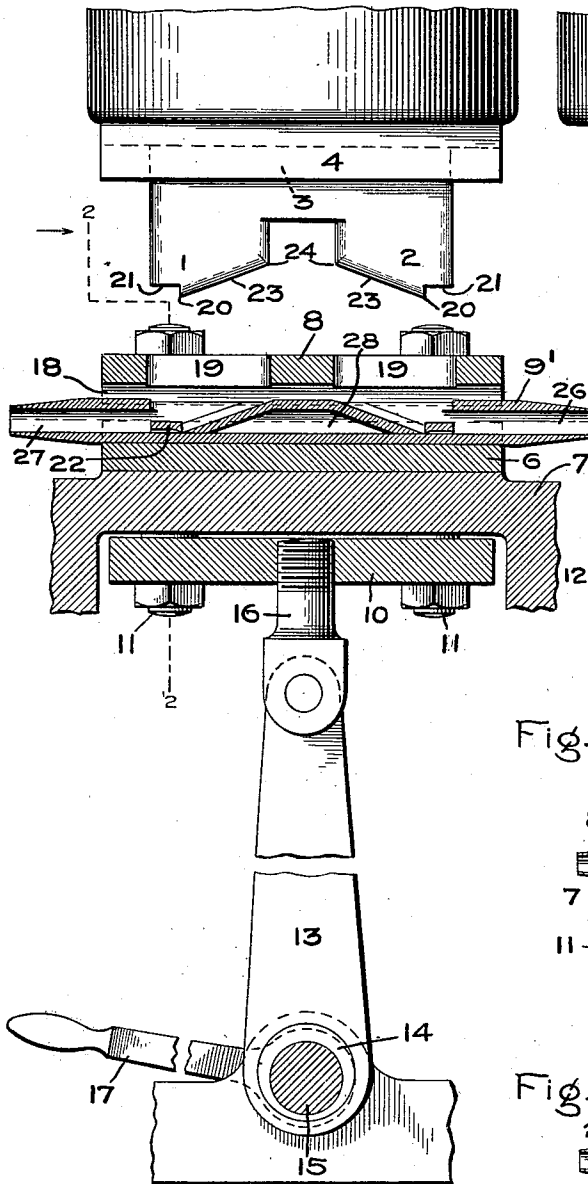


Fig. 2.

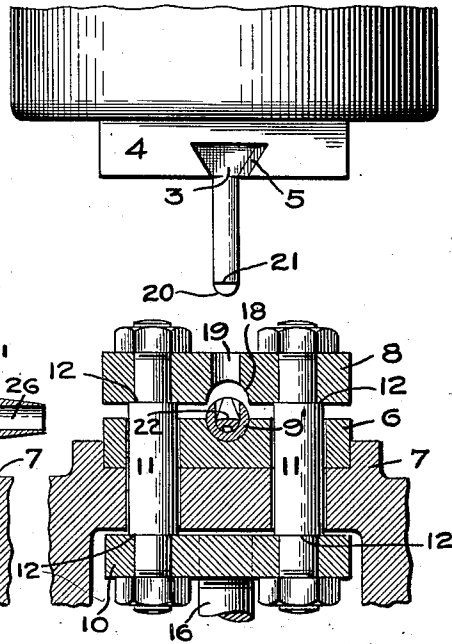


Fig. 3.

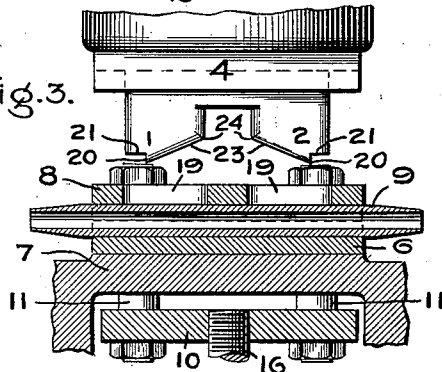
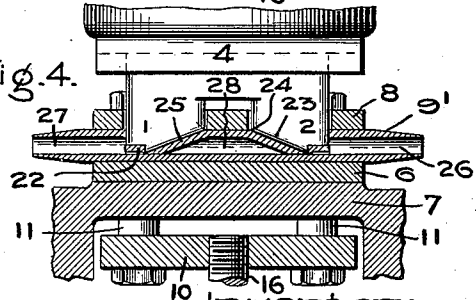


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN RIDDELL, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

SPLICING-SLEEVE.

1,016,095.

Specification of Letters Patent.

Patented Jan. 30, 1912.

Application filed September 8, 1910. Serial No. 581,049.

To all whom it may concern:

Be it known that I, JOHN RIDDELL, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Splicing-Sleeves, of which the following is a specification.

My invention relates to electric railway line material and more specifically to trolley wire splicing sleeves, and its object is the production of better and stronger sleeves at materially less cost of manufacture than the sleeves heretofore in use.

The usual method of making a trolley sleeve consists either in plugging up the central portion of a tubular form, which has previously been cut to the required length, with some suitable material, such as copper or bronze, in the form of a rod, thereby closing the end chambers of the tubular form against each other, and milling slots in the upper side of the form adjacent the ends of the central plug to permit of drawing there-through the ends of the trolley wire to be spliced, or else in drilling and milling a solid bar of metal. Such drilling, plugging and milling operations, especially the latter, are expensive in labor and material. According to my invention I obviate these expensive operations by means of a novel punching operation whereby I am enabled by employment of unskilled labor to simultaneously form the required slots and close the end chambers against each other.

The novel features of my invention will be particularly pointed out in the appended claims, but for a better present understanding of the same reference may be had to the following drawings and description of the same.

Figure 1 shows a front elevation of the punch and a longitudinal section through the cooperating clamps I use in making my new splicing sleeve, together with an eccentric and link for actuating the movable clamp member; Fig. 2 is an end elevation of the punch, and a cross section through the clamps on line 2—2 of Fig. 1; Fig. 3 is a front view of the punch and a longitudinal section through the clamps with a tubular blank clamped in position; and Fig. 4 is a view similar to Fig. 3 showing the punch and clamps at end of punching operation.

As shown in the drawings, two similar

punches 1 and 2 are mounted upon a common head 3, preferably integral therewith, which is dove-tailed to the head 4 of an ordinary punch press and secured by a wedge 5. The cooperating clamping plates consist of a bed plate 6 which rests in a suitable recess in the fixed support 7 and a movable plate 8 supported and reciprocated in a manner hereinafter explained. The bed plate 6, which is preferably not integral with its support 7, has a longitudinal groove 65 semicircular in cross section in its upper side into which fits snugly a tubular blank 9 which is to be punched. The movable plate 8 is a part of a frame work comprising another movable plate 10 rigidly spaced 70 therefrom by four bolts 11 passing there-through. These bolts pass freely through suitable openings in plate 6 and support 7, and have shoulders 12 formed thereon for engagement with the plates 8 and 10. This 75 framework is conveniently reciprocated vertically for clamping the tubular blank 9 in position by means of a connecting link 13 which is connected to an eccentric 14 on a shaft 15 and pivoted to an eye bolt 16 80 screwed into the underside of plate 10.

17 represents a lever for rocking the shaft 15 and thereby reciprocating the plates 8 and 10 for securely clamping the tubular sleeve blanks in position and releasing them. 85

The movable plate 8 has a longitudinal groove 18, semicircular in cross section, upon its underside complementary to the similar groove in plate 6 and these two grooves in the clamping position of the 90 plates 6 and 8 form an annular longitudinal opening in which is securely clamped the tubular blanks 9, it being understood that this cylindrical opening is made approximately equal in diameter to the diameter of 95 the blanks so as to securely hold and support them against distortion during the punching operation. The movable plate 8 has two transverse slots 19 passing there-through approximately equal in width and 100 length to the width and length of the punches 1 and 2 for the reception of the punches during the punching operation.

The punching operation is as follows: With the blank 9 clamped in position, as is 105 shown in Fig. 3, the punches 1 and 2 are brought into operation by any suitable reciprocating means (not shown), these

punches passing through the slots 19 in plate 8 and punching the blank 9 to the completed sleeve 9', as is shown in Fig. 4. Each punch has a knife edge 20 which cuts through the blank 9 intermediate the outer end walls of slot 19 and shoulder 21 which operates subsequent to the operation of edge 20 to cut out entirely the portion or chip 22 from the tube 9'. This chip 22 may be subsequently removed by a slight blow upon the sleeve 9' or upon the chip itself. In addition to the cutting edges 20 and 21, each punch has a stamping or impressing surface 23 slanting backwardly and upwardly from cutting edge 20 at a suitable angle to make its rear extremity 24 flush with the upper surface of the tubular blank 9 when the punch reaches its downward limit. This slanting surface 23 is semicircular in form next adjacent the cutting edge 21 but as it slopes upwardly its surface preferably gradually flattens or becomes less circular. The function of the sloping surface 23 is to shear off the metal along the sides and swage and press in the portion 25 of the sleeve 9' so as to close the end chambers 26 and 27 against each other and form an inclined abutment to facilitate the threading of the trolley wire to be spliced through the punched slots. It should be observed that the central chamber 28, which, prior to my invention, has required to be plugged up, is now free from any such plugging mate-

rial and is closed against the outer chambers 26 and 27 by pressed-in portions 25.

The ends of the wire to be spliced are drawn through the end chambers of the sleeve 9' up through the punched slots and then soldered in position, the ends of wire being removed flush with the sleeve surface.

I do not desire to restrict myself to the particular instrumentalities herein set forth since it is apparent that they may be changed and modified without departing from my invention.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. As an article of manufacture a wire splicing sleeve having a central chamber closed at either end by a bent in portion of the wall of the sleeve blank.

2. As an article of manufacture a wire splicing sleeve having a central chamber closed at either end by a sheared and bent in portion of the sleeve blank.

3. As an article of manufacture a wire splicing sleeve having side slots, and a central chamber with its ends closed by integral tongues.

In witness whereof, I have hereunto set my hand this 6th day of September, 1910.

JOHN RIDDELL.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."