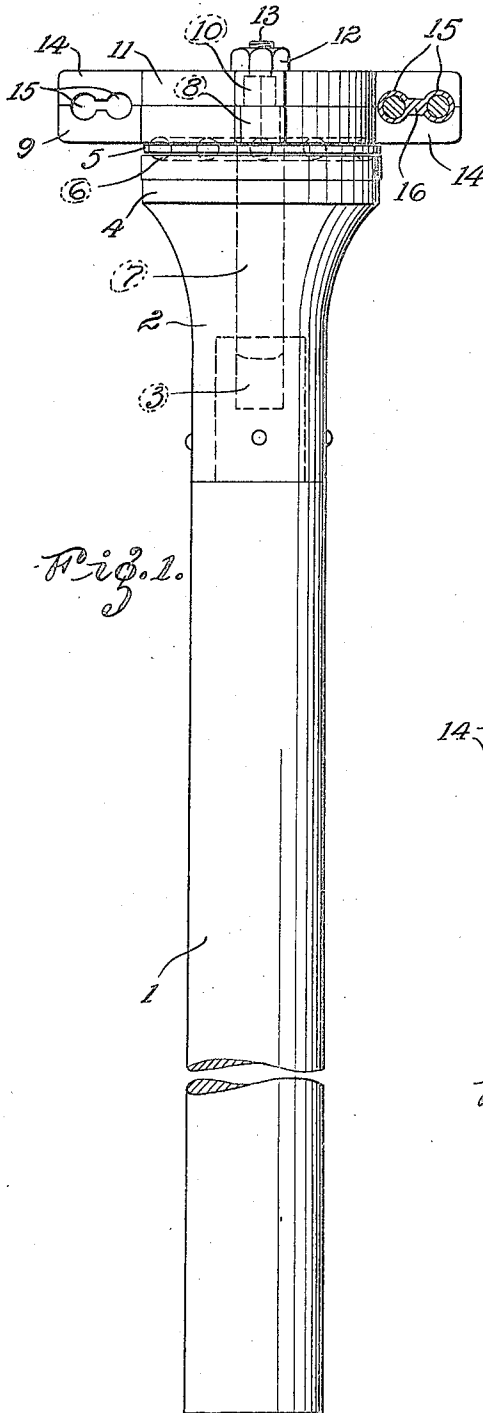
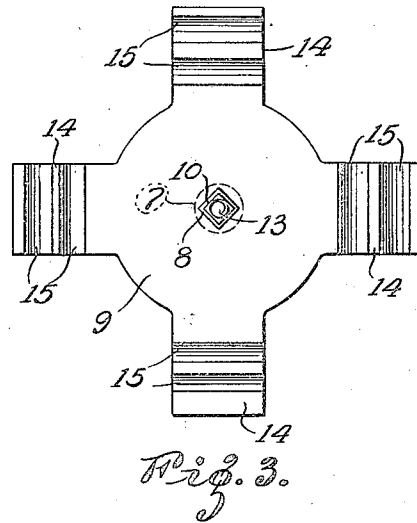
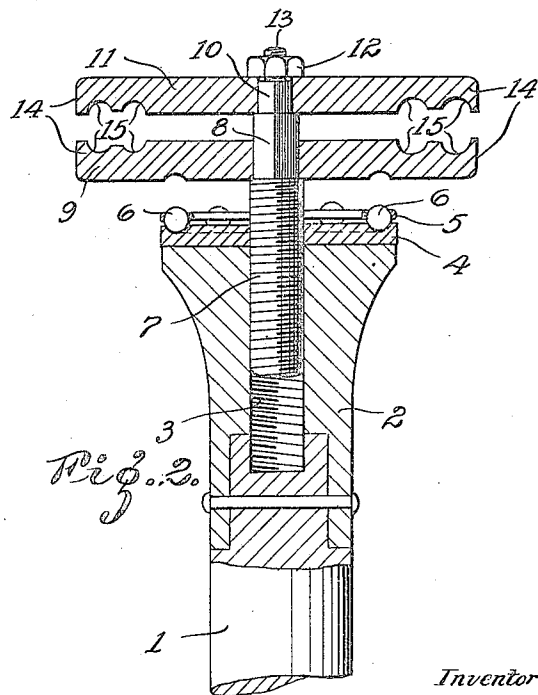


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CLAMPING DEVICE FOR USE IN SPLICING LIVE WIRES.
FILED JUNE 22, 1921.

2 SHEETS-SHEET 1



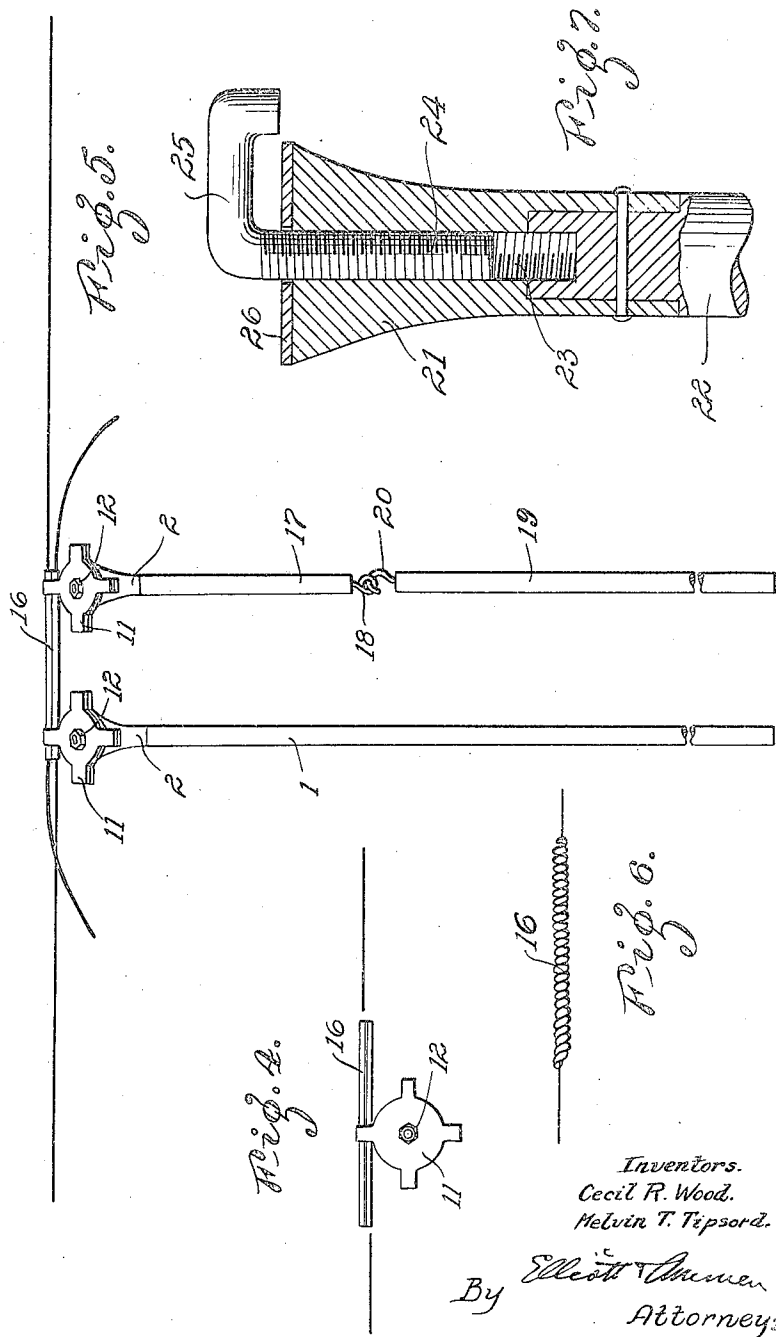
Inventors.
Cecil R. Wood.
Melvin T. Ripserd
By *Elliott & Lamm*
Attorneys.

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2 SHEETS-SHEET 2



Inventors.
Cecil R. Wood.
Melvin T. Tipsord.
By *Elliot M. Allen*
Attorneys

UNITED STATES PATENT OFFICE.

CECIL R. WOOD AND MELVIN T. TIPSORD, OF TAYLORVILLE, ILLINOIS.

CLAMPING DEVICE FOR USE IN SPLICING LINE WIRES.

Application filed June 22, 1921. Serial No. 479,702.

To all whom it may concern:

Be it known that we, CECIL R. WOOD and MELVIN T. TIPSORD, citizens of the United States, residing at Taylorville, in the county of Christian and State of Illinois, have invented new and useful Improvements in Clamping Devices for Use in Splicing Line Wires, of which the following is a specification.

This invention relates to a line wire clamping device and is particularly adapted for use in joining the ends of wires carrying high tension currents. These wires carry currents of very high voltage, frequently exceeding thirty thousand volts and the workmen are required to keep from close approach to the wires, the nearest distance of approach permitted being usually twelve feet. When a main line wire has broken, it is desirable to splice such wire without shutting off the current, as all branch lines would thus be put out of commission and a large number of towns and villages be deprived of current. In order to accomplish this, the workmen use long poles of specially treated wood and the wire is manipulated from the ends of these poles. It is to a clamp adapted to be manipulated by one of such poles that the present invention relates.

It is the object of the invention to provide a clamping member which will enable the clamping effect to be produced with the minimum amount of exertion on the part of the operator and without tearing or abrading the wires or the tubes in which the ends of the wires are usually inserted.

It is a further object of the invention to provide a clamping member of the class described which shall provide for clamping wires of different sectional areas.

With these objects in view the invention resides in a clamping member having the novel features of construction and operating in the manner hereinafter described.

In the accompanying drawings—

Figure 1 is a view in elevation of a pole screwed up on the improved clamping member so as to grasp a double tube with the wires therein between two of its clamping arms;

Figure 2 is a sectional view of the top part of the pole, showing the clamping member separated;

Figure 3 is a plan view of one of the clamping members;

Figure 4 is a view on a reduced scale, viewed substantially from the top of Figure 1 and showing a tube held by the clamps and wires about to be inserted into opposite ends of the respective tubes;

Figure 5 shows the position of the parts with two clamping members secured to opposite ends of the tube, one of them being designed to be rotated to twist the tube after the wires have been inserted therein;

Figure 6 illustrates the appearance of the joint after the tube with the wires therein has been twisted; and

Figure 7 is a view similar to Figure 2 but illustrating a modified construction.

Numeral 1 indicates a pole having a socket member 2 secured on its upper end and provided with a central screwthreaded aperture 3. Mounted on the upper end of the socket member 2 is a thrust plate 4 on the upper side of which in turn is mounted a ring 5 provided with balls 6 which run in a groove in the plate 4. Plate 4 is centrally apertured to correspond with the aperture 3. The numeral 7 indicates a screwthreaded shank having at its upper end a squared portion 8 on which is slidably mounted a lower clamping member 9 and above the squared portion 8 is a second reduced squared portion 10 on which is mounted the upper clamping member 11 which is clamped in position by a nut 12 screwed on a reduced screwthreaded end 13 of the shank. The clamping members are of the form shown in Figure 3, which illustrates the lower clamping member. Each of these members 9 and 11 is provided with four radially projecting arms 14, each of which arms is provided on its inner face with two transverse grooves 15 for receiving the tube, the grooves 15 being of different sizes in the respective arms to enable the clamp to accommodate different sizes of tubes or wires. One of these tubes is indicated in Figure 4 at 16, and consists simply of two copper tubes connected together along their longitudinal extension, in the manner of the two barrels of a shotgun.

In practice, to join two ends of a wire, a tube is secured between the appropriate arms of the clamping member as shown in Figure 3, and the wires are inserted in the two barrels of the tube from opposite ends. The wires are stretched in the usual way so that the ends project a considerable distance from opposite ends of the tube 16, as shown in

Figure 4, and then one of the clamping devices is applied to the one end of the tube, that to the left in Figure 4, and by turning the pole 1 the socket member 2 is screwed up on the shank 7 to cause the ball-bearing thrust plate to engage the under side of the clamping member 9 to firmly grip the tube 16 and the wires therein. A second clamping member is then applied to the right end of the tube. This clamping member is to be used to twist the tube and is provided with a short pole 17 about three feet in length, having an eye 18 at its lower end.

With the parts in the position shown in Figure 4, while one of the operators holds the pole 1 firmly, another operator uses a pole 19 having a hook 20 on its end, and inserts the latter in the eye 18. He then pushes this upward to twist the tube 16 and by repeating this operation from opposite sides of the wire, the tube is gradually twisted until it has the appearance shown in Figure 5.

This joint is recognized as the ideal connection of wires and is not in itself new. However, it has heretofore been found extremely difficult to make this joint in a high tension wire without shutting off the current. The main difficulty has been that with such clamping members as have been used, one of the members frictionally engages the wire or the tube in the clamping operation, resulting often in tearing the tube and also in weakening the wire by abrasion, so that the joint was insecure. One of the salient features in the present device is the fact that the two clamping members 9 and 11 cannot rotate relative to each other and the ball-bearing thrust plate when the socket member 2 is screwed up on the shank 7 engages the bottom of the lower clamping member without friction and it is very easy to get the maximum clamping effect with but very little exertion on the part of the operator and without any abrasion whatever on the tubes or wires.

In the modification shown in Figure 7 we dispense with the use of two clamping members and employ the top of the head of the pole itself to co-operate with a clamping member having screwthreaded engagement in the end of the head and interpose between this clamping member and the top of the head a metal washer for the purpose of preventing contact of the head with the wire or tube clamped. In said Figure 7 the numeral 21 indicates a metal head mounted on the end of a pole 22 and provided with a screwthreaded aperture 23 opening from its outer end and located centrally thereof into which is screwed a threaded shank 24 of a clamp 25. Mounted on the top of the head 21 to encircle the stem 24 is a washer 26 which may be an ordinary flat metal washer in the form of a ring. It will be seen that in the

use of this form of the invention, the clamping member 25 is placed over the wire and when the pole 22 is turned the head 21 will be screwed up on the stem 24 and the wire will be gripped between the washer 26 and the clamping member 25. The provision of the washer, of course, prevents frictional engagement of the top of the head 21 with the wire and thus tends to prevent abrasion of the latter. Furthermore, it enables the head 21 to be unscrewed from engagement with the wire without such liability to bend and break the wire as occurs when the top of the head is in direct engagement therewith.

We claim:—

1. A clamping device for use in splicing line wires, comprising two clamping members non-rotatable with respect to each other and mounted to have relative movement toward and from each other, a pole on which said clamping member is mounted, and means for moving one of said clamping members relative to the other.

2. A clamping device for use in splicing line wires, comprising two clamping members non-rotatable with respect to each other, and mounted to have relative movement toward and from each other, a pole on which said clamping device is adapted to be mounted, and means for moving one of said clamping members relative to the other by manipulating said pole.

3. A clamping device for use in splicing line wires, comprising a screw-threaded spindle, a pair of clamping members non-rotatably mounted on one end of said spindle and adapted to have relative movement toward and from each other, and a pole having a screw-threaded aperture for engaging the screwthreaded portion of said spindle and adapted by turning to be screwed upward thereon to bring its end into engagement with one of said clamping members whereby upon further turning, to draw the clamping members toward each other.

4. A clamping device for use in splicing line wires, comprising a spindle having a screwthreaded end portion, a pair of clamping members non-rotatably mounted on the opposite end portion of said spindle and having relative movement on the spindle toward and from each other, and a pole having an anti-friction bearing on its end and provided with a screwthreaded aperture for engaging with the screw-threaded portion of said spindle whereby upon turning the pole it will be screwed upward on said spindle to bring said anti-friction bearing into rotatable engagement with the under side of one of said clamping members whereby to draw said clamping members together.

5. A clamping device for use in splicing line wires comprising two clamping members having a plurality of independent comple-

mental clamping sections provided with corresponding grooves of different sizes as respects the different sections, and means for producing relative movement between the
5. clamping members.

6. A clamping device for use in splicing line wires, comprising two clamping members having a plurality of complementary clamping sections provided with corresponding
10 ing grooves of different sizes as respects the different sections, a support on which said clamping members are slidably and non-rotatably mounted with respect to each other, and means engaging said support for pro-

ducing relative movement between the 15 clamping members.

7. A device for use in manipulating line wires, comprising a clamping member having a screwthreaded stem, a pole having a head provided with a screwthreaded aperture 20 receiving said stem and an anti-friction device mounted on the top of said head and encircling said stem.

In testimony whereof, we have hereunto set our hands.

CECIL R. WOOD.
MELVIN T. TIPSORD