

J. W. WRIGHT.
 TOOL FOR BENDING RINGS.
 APPLICATION FILED OCT. 20, 1911.

1,020,244.

Patented Mar. 12, 1912.

2 SHEETS—SHEET 1.

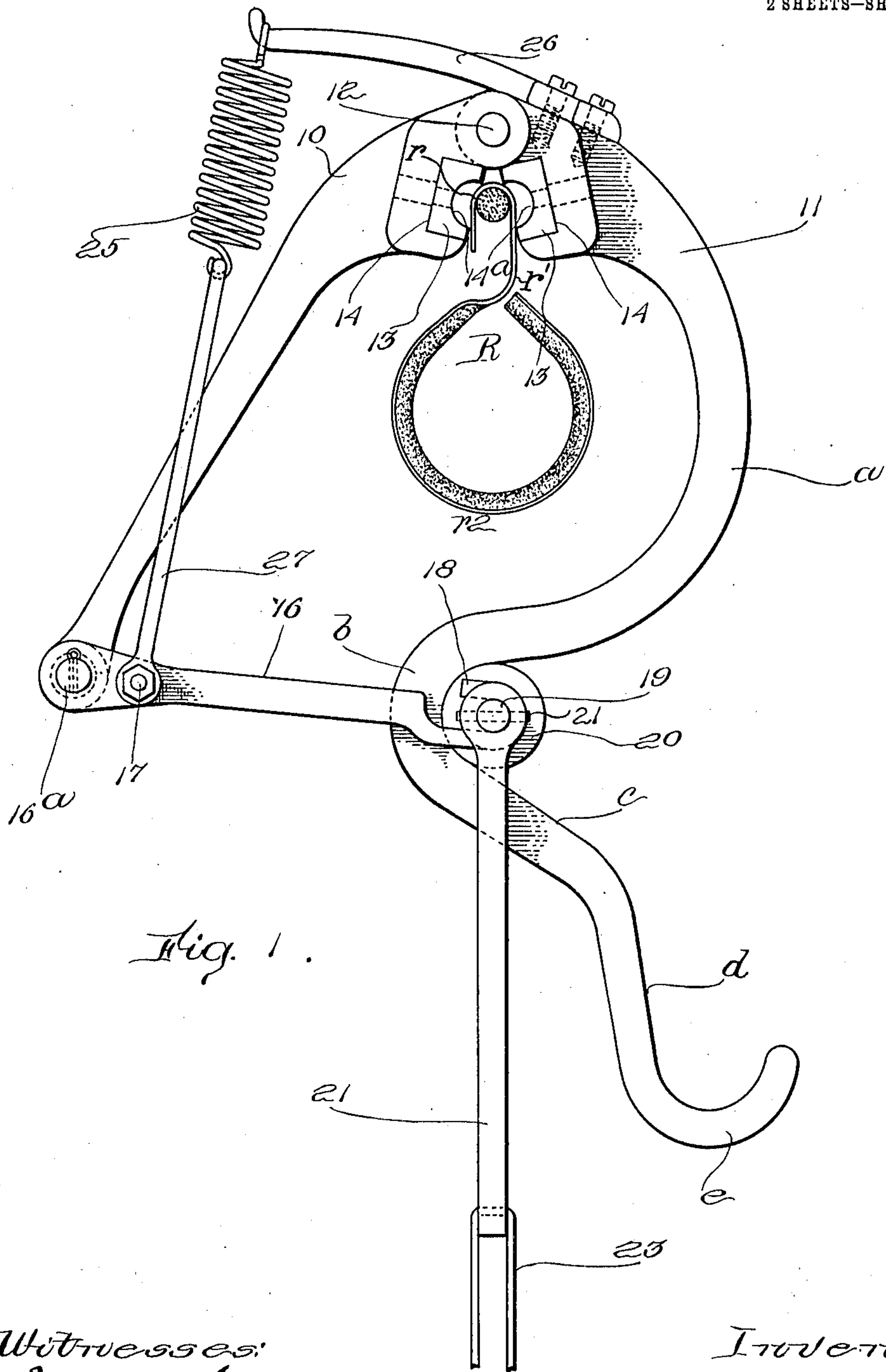


Fig. 1.

Witnesses:
 Frank C. Lockwood
 Joseph A. Gately

Inventor:
 John W. Wright
 by Thomas D. Lockwood Atty.

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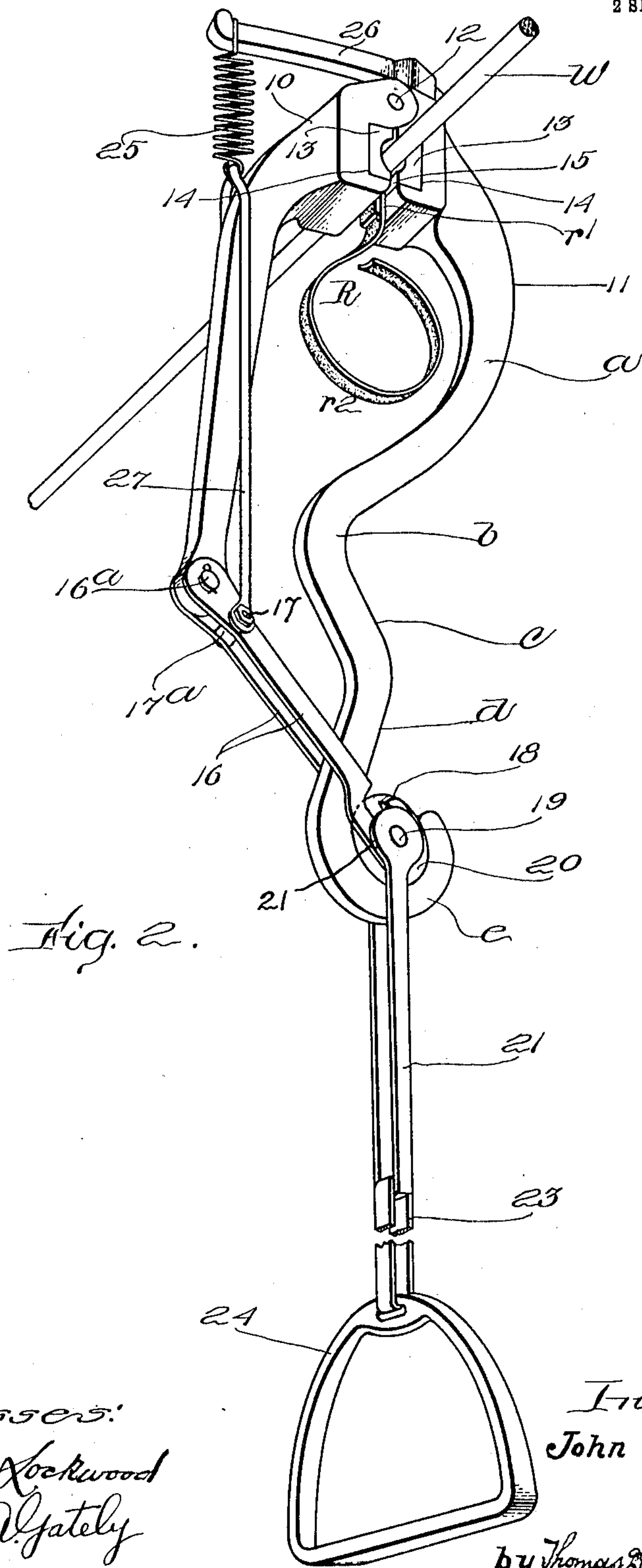


Fig. 2.

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UNITED STATES PATENT OFFICE.

JOHN W. WRIGHT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO AMERICAN TELEPHONE AND TELEGRAPH COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF NEW YORK.

TOOL FOR BENDING RINGS.

1,020,244.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Application filed October 20, 1911. Serial No. 655,735.

To all whom it may concern:

Be it known that I, JOHN W. WRIGHT, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Tools for Bending Rings, of which the following is a specification.

Telephone cables and other electrical transmission conductors are often hung upon a support or messenger wire by a ring, which is provided with a practically closed loop to receive the cable and with a hook to place over the messenger wire, this hook thereafter being bent to furnish a closed loop embracing the wire. This bending operation is ordinarily performed by construction men with the aid of such tools as pliers, but, since the rings are designed to resist bending to prevent their opening in use, this is extremely difficult and fatiguing, and it is impossible to secure uniformity in the shape of the loops or the tightness of their closure. By the present invention, a tool is furnished which enables a workman with little expenditure of effort to close the rings on the messenger wires rapidly and accurately.

In the accompanying drawings, in which similar characters designate like parts in all views, Figure 1 is a side elevation of one embodiment of my invention, parts being broken away and the messenger wire and a ring being shown between the jaws, and Fig. 2 is a perspective view of the same on a somewhat smaller scale.

The reference numerals 10 and 11 designate a pair of arms pivoted to one another at 12, and being provided near the pivotal point with operating means or jaws. These jaws are preferably furnished by hardened blocks 13, 13, situated in recesses 14 in the arms, and having in their opposed faces semi-circular depressions 14^a, 14^a, corresponding in form to the exterior of the closed loop r of the ring which is to be operated upon, such a ring appearing at R in the drawings. The space at 15 between the inner edges of the blocks allows a connecting portion r^1 of the ring to pass inwardly between the jaws. The use of the separable blocks 13 enables them to be changed, so that the tool can be used with rings of different form and size, and also gives an opportunity for inexpensive repair in case of breakage of the contact portions.

The arm 11 at its free end extends beyond the arm 10. It first curves away from the associated member at a to give a suitable space to receive the conductor-holding loop r^2 of the rings, and then is bent reversely in substantially semi-circular shape, as appears at b . From the curve b a portion of the arm 11 is inclined from the arm 10, having at its outer edge a cam surface c . Beyond this there is a more gradual incline with a cam surface d , and finally a substantially curved or semi-circular portion e . To the outer extremity of the arm 10 at 16^a is pivoted a link 16, conveniently formed by separated side members connected by a bolt 17, and spaced from one another by a thimble 17^a surrounding the bolt, the threaded extremities of which project through the link. The opposite end of the link is hooked at 18, and in the bearing furnished by these hooks is rotatably mounted a short shaft 19 upon which turns a roll 20. The relation between the diameter of the roll and the curved portions b and e of the arm 11 is such that the roll fits within the depressions in the arm, providing a means for limiting the travel of the link and the movement of the jaws toward and from one another. Between these extremes, the travel of the roll over the cam incline c causes the link 16 to draw the arm 10 rapidly toward the arm 11, and then upon the passage of the roll over the surface d the movement of approach continues more slowly and with increased leverage. To impart outward movement to the roll and thus actuate the arms, a member 21 of elongated U form is attached to it by eyes which receive the ends of the shaft 19. Pins 22 secure this hanger 21 to the shaft. To the hanger may be fastened any convenient extension member to which the actuating force may be applied. In the present instance a flexible loop 23 is illustrated, at the lower extremity of which is a stirrup 24. To return the arms to their normally separated position after the application of the force, a spiral spring 25 is provided connecting an extension 26 of the arm 11, this extension being shown as separable to permit ready renewal, to a double link 27 straddling the arm 10 and conveniently engaging the ends of the bolt 17 outside the link 16.

In using the tool the workman first

presses the arms together, so that the roll 20 passes to and is then lifted out of the depression *e* over the end of the arm 11 to completely free the latter from engagement 5 with the link 16. This allows the tool to be placed over the messenger wire *W*. The link 16 is then slipped over arm 11 with roll 20 resting in depression *b*. The open loop *r* of the ring *R* being hung upon the messenger wire, the jaws of the tool are put over 10 it (Fig. 1), and the workman with his foot upon the stirrup draws the roll out of the depression *b* and over the cam surface *c* of the arm 11. The resulting closure of the 15 jaw depressions upon the ring, under the influence of the cams *c* and *d* bends the end of the loop *r* toward the connecting portion *r*¹, first quickly and then slowly and with great and gradually increasing force. When the 20 roll reaches and is stopped by the depression *e* the ring is set in its final form (Fig. 2). Upon the removal of the foot from the stirrup the spring raises the roll from the depression *e*, separating the jaws. The tool is 25 then moved along the wire to the next ring and the operation repeated. Obviously, this may be done with little effort upon the part of the workman and with considerable speed, and yet all the loops securely closed in un- 30 varying form.

I claim as my invention, and desire to secure by Letters Patent:

1. A ring bending tool comprising a pair of pivoted members having jaws, one of 35 said members being provided with a cam surface and the other member having means contacting with the cam surface to actuate the members, the cam surface being inclined to move the jaws first rapidly toward one 40 another and then more slowly.

2. A ring-bending tool comprising a pair of pivoted members having jaws, one of said members being provided with a cam 45 surface and with a stop at the end of said surface and the other having means contact-

ing with the cam surface and stop to limit movement of said jaws.

3. The combination with pivoted arms having jaws, one of which arms is provided with a cam surface and with an extension 50 over the other arm, of a link pivoted to said other arm and having means cooperating with the cam surface, and a spring connecting the arm extension and link.

4. The combination with pivoted arms 55 having jaws, one of which arms is provided with a cam surface which is first inclined abruptly from the other arm and then more gradually therefrom, of a link pivoted to said other arm and having means cooperating 60 ing with the cam surface.

5. The combination with pivoted arms having jaws, one of which arms is provided with a cam surface and with a depression at 65 each end of the cam surface, a link pivoted to the other arm, and a roll rotatable in the link and movable over the cam surface from one depression to the other.

6. A ring bending tool comprising a pair of outwardly spring pressed pivoted mem- 70 bers provided with ring bending jaws, one of said members being provided with an operating link adapted to engage the companion member to close said jaws and to swing over the end of said member to admit 75 work to said jaws.

7. A tool for bending rings about messenger wires comprising a pair of pivoted members adapted to be supported upon the messenger wire, and actuating means for mem- 80 bers including a hanger to which the actuating force may be applied.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this sixteenth day 85 of October, 1911.

JOHN W. WRIGHT.

Witnesses:

C. O. WILSON,
T. HENY.