

J. S. PRATT.
WIRE BENDER.

APPLICATION FILED NOV. 18, 1908.

931,480.

Patented Aug. 17, 1909.

2 SHEETS—SHEET 1.

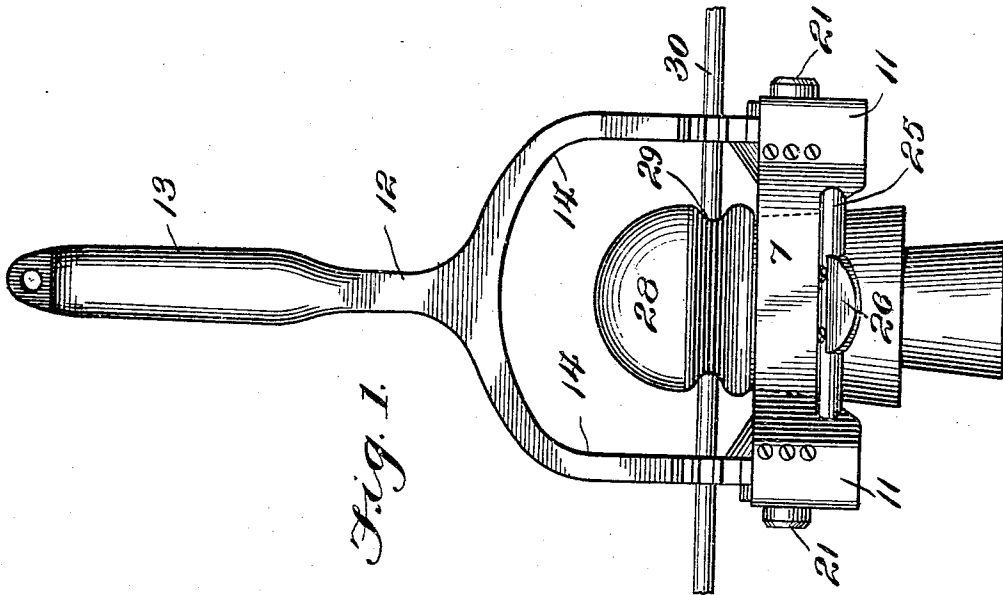


Fig. 1.

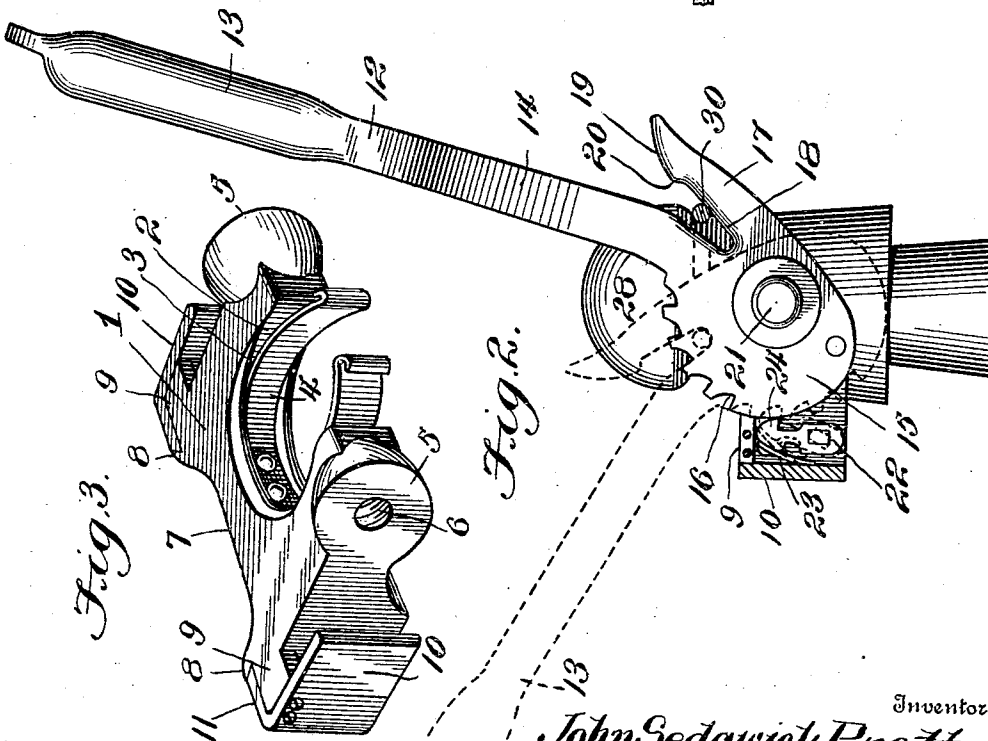


Fig. 2.

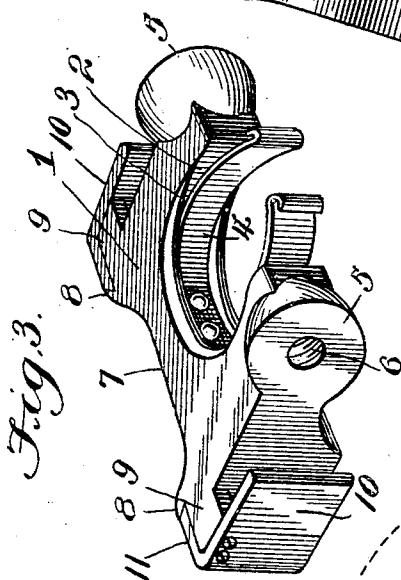


Fig. 3.

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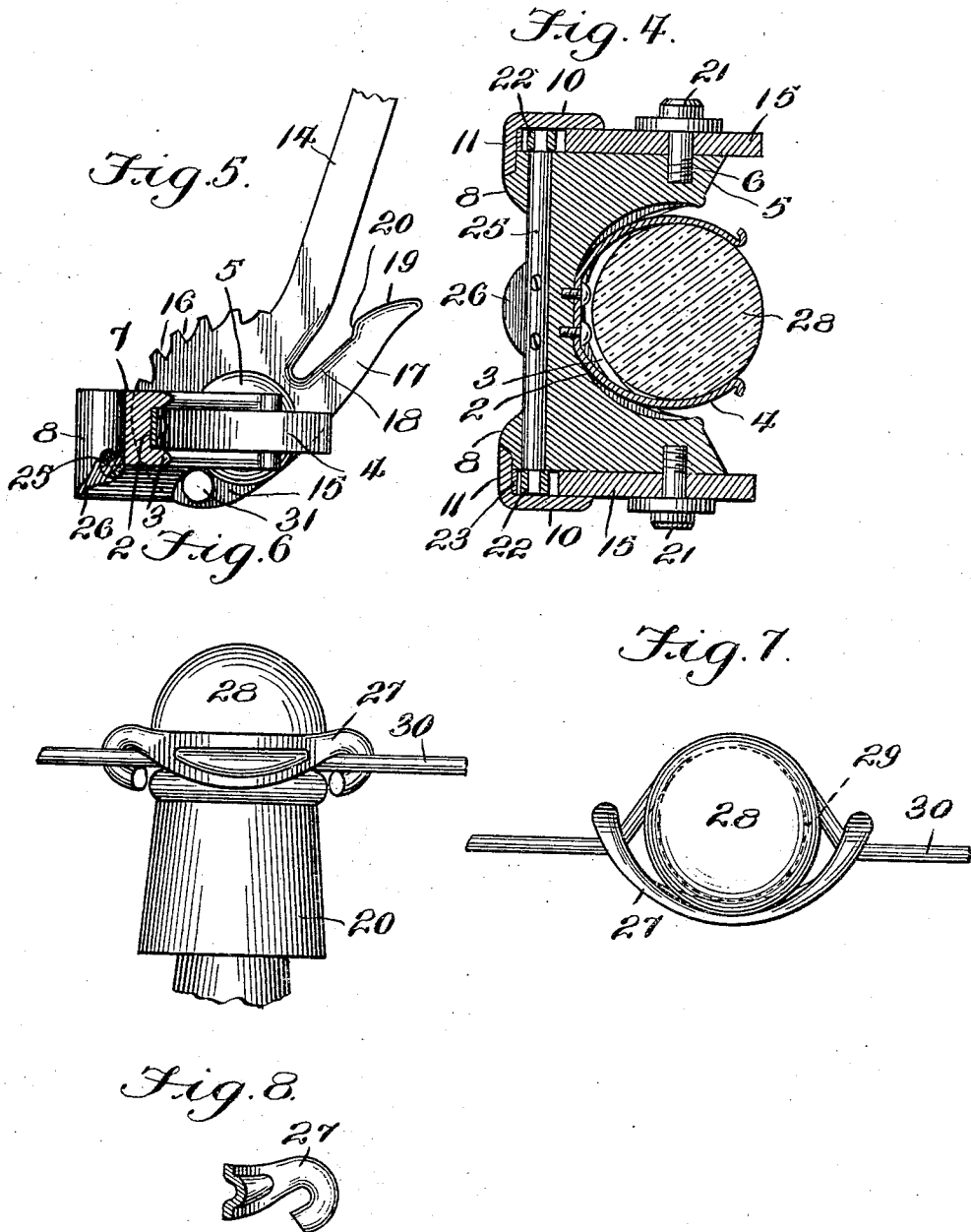
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2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN SEDGWICK PRATT, OF THE UNITED STATES ARMY.

WIRE-BENDER.

No. 931,480.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed November 18, 1908. Serial No. 463,271.

To all whom it may concern:

Be it known that I, JOHN SEDGWICK PRATT, a First Lieutenant, Coast Artillery Corps, U. S. Army, and citizen of the United States, residing at Watch Hill, in the county of Washington and State of Rhode Island, have invented new and useful Improvements in Wire-Benders, of which the following is a specification.

The invention relates generally to an improvement in line wire connectors, and is more particularly directed to an apparatus designed for use in shaping the line wire about the insulator to permit the application thereto of the connector.

The main object of the present invention is the provision of an apparatus designed for speedy and effective removable connection with an insulator and for operation to engage and bend the line wire at opposite sides of the insulator.

The invention will be described in the following specification, reference being had particularly to the accompanying drawings, in which:—

Figure 1 is a view in rear elevation, illustrating the application of my improved wrench to an insulator. Fig. 2 is a side elevation of the same with the dog housing in section, the lever and connected parts being shown in operative position in dotted outline. Fig. 3 is a perspective of the body block of the wrench. Fig. 4 is a horizontal section through the body block, the wrench being illustrated as in place on the insulator. Fig. 5 is a central vertical section of the wrench. Fig. 6 is a rear elevation of a line wire connected to an insulator by the improved connector. Fig. 7 is a top plan of the same. Fig. 8 is a broken perspective showing one end of the connector.

Referring particularly to the drawings, my improved tool comprises a body block 1, which is approximately rectangular in general outline. The relatively forward edge of the block is formed with a centrally arranged recess 2 to receive the insulator, the wall of the recess being partly undercut, as at 3, to receive and house a clamping spring 4. The terminals of the spring project beyond the ends of the wall of the recess, and the spring is so arranged that the block may be readily forced into gripping engagement with an insulator and is readily detached therefrom in an obvious manner. The un-

dercut portion 3 of the recess wall permits the housing of that portion of the spring which is permanently secured to the block and the portions immediately adjacent thereto, by which construction the block is, when engaged with the insulator, adapted to bear directly on the insulator rather than through the spring 4. By this means a more effective resistance to the strain incident to the operation of the wrench is provided than would be possible if the spring formed a direct insulator bearing element alone. At the forward side edges the block is formed to provide semispherical bearing members 5, the plane or straight surface of which is in alinement with the side of the block, as shown, each of the bearing members 5 being formed with a central threaded opening 6, for a purpose which will presently appear.

The relatively rear edge of the block 1 is centrally cut away throughout the height of the block to form a channel 7, the ends of the block in each direction beyond the channel extending rearwardly beyond the channel wall, as at 8. The side edges of the block in alinement with the upper surface of the block and at the rear ends of said edges are each provided with laterally projecting flanges or lips 9, which lips have a materially less thickness than the thickness of the block and project at right angles to the side edges of the block with the upper surfaces of the lips in alinement with the upper surface of the block. Each projecting end 8 is provided with a housing plate 10 of right angular construction, the rear wall of the extended end 8 being cut out throughout its height to snugly receive the shorter arm 11 of the plate 10, the longer arm of said plate engaging the end of the adjacent lip 9 and extending beyond the forward edge of said lip in alinement with and spaced from the side edge of the block. As the plates 10 are co-extensive in height with the similar dimension of the block it is apparent that each of said plates operates to inclose or house a space beneath each lip 9, which space is open at the bottom and at the front, and said plate projects beyond the forward edge of the lip 9 in spaced parallel relation to the proximate side of the block.

12 represents an operating lever formed at one end to provide a handle 13 and beyond the handle divided to provide spaced arms 14. The lower ends of the arms terminate

in disk ends 15 approximately of rounded contour and formed on their rear edges with a series of teeth 16. In advance of the juncture of the arm 14 therewith each disk 15 is provided with a projecting finger 17, the disk intermediate the finger and arm 14 being so formed as to provide a channel 18, the side walls of which channel are slightly divergent outwardly, as clearly shown in Fig. 2. That wall of the finger 17 next the arm 14 is, adjacent its outer end, formed with an offset 19, which diverges sharply with relation to the divergent wall of the arm, the offset forming at the juncture with the operative edge of the finger a slight shoulder 20, as shown. The comparatively large divergence of the operative edge of the offset 19 with the arm 14 provides a flaring mouth for the convenient engagement of the device with the wire, while the shoulder 20 tends to prevent accidental displacement of the wire. The arms 14 are so spaced apart that their proximate surfaces will engage the bearing faces of the members 5 of the block 1, and pivot pins 21 pivotally unite the lever arms to the block through engagement with the openings in the disks 15 of the lever arms and the threaded engagement of the openings 6 in the bearing members 5. In this position it will be noted that the disks lie between the side edges of the block and the forwardly projecting portions of the plates 10, and that the relatively rear edges of the disks 15, particularly that portion in which the teeth 16 are formed, are practically concentric with the pivot 21.

In each of the housings formed by the plates 10 and lips 9 there is mounted a dog 22, normally spring pressed in a forward direction by a leaf spring 23 and having a toothed end 24 adapted to engage any of the teeth 16 of the operating lever. The respective dogs are fixedly mounted upon a rod 25 which extends through the respective housings and the channel 7, the construction providing for the simultaneous and similar operation of the dogs in the movement of the rod. Centrally of the rod within the recess 7 I secure to the rod a thumb piece 26, whereby said rod may be operated at will.

In Figs. 6, 7, and 8 I have shown the preferred form of connector used in attaching the wire, for the securing of which in place the tool forming the subject matter of this application is adapted to be used. This connector 27 is clearly shown and described in a copending application filed in the United States Patent Office November 24, 1908, Serial No. 464,223, and no detailed reference to the construction thereof will be made herein.

In use the improved wrench is applied to the insulator 28 by causing the jaws of the spring clamp to embrace the insulator immediately below the groove 29 therein, it being understood that the wire 30 is stretched

along-side of the insulator in more or less accurate alinement with the groove. The lever 12, which has been moved to the limit of its forward position, as controlled by a stop 31 carried on the disk ends of the arms 14 is in position to freely receive the wire 30 on each side of the insulator, said wire being passed into the channel 18 in the engagement of the block with the insulator. The upper end of the lever is then moved rearwardly causing the finger 17 to force the wire as if to encircle the insulator, forming deep bends in the wire in an obvious manner. As the lever is moved to its final position the dog teeth 24 successively engage the teeth 16 of the disks 15 thus holding the lever in a set position. When the lever has been sufficiently turned to form bends of the desired depth the lever is released, being retained in its position by the dogs, and the connector 27 is applied so that the hooks thereof engage the bend, with the main length of the connector engaging that portion of the insulator opposite that portion engaged by the wire. Pressure upon the thumb piece 26 operates to disengage the dogs to release the lever, permitting its ready and convenient detachment and leaving the wire secured to the insulator by the connector 27.

It is, of course, understood that the distance between the arms 14 of the lever exceeds the length of the connector so that when the lever is in operative position the connector may be freely engaged with the lever-formed bends in the wire without the necessity of disconnecting the lever to permit the engagement.

Having thus described the invention what is claimed as new, is:—

1. An apparatus for shaping line wires about an insulator comprising a block adapted to removably engage the insulator, and means pivotally connected to the block to engage the line wire, said means being operative to form a bend in the wire adjacent the insulator.

2. An apparatus for shaping line wires about an insulator comprising a block adapted to removably engage the insulator, and means pivotally connected to the block to engage the line wire, said means being operative to simultaneously form bends in the wire on opposing sides of the insulator.

3. An apparatus for shaping line wires about an insulator comprising a block adapted to removably engage the insulator, and means pivotally connected to the block to engage the line wire, said means being operative to simultaneously form similar bends on opposing sides of and spaced from the insulator.

4. An apparatus for shaping line wires about an insulator comprising a block, means carried by the block to grip the insulator, a lever mounted on the block, means

carried by the lever to engage the line wire, and means for locking the lever in desired operative position to form bends in the line wire on opposing sides of the insulator.

5 5. An apparatus for shaping line wires about an insulator comprising a block formed with an insulator receiving recess, a clamping spring arranged in said recess, a lever pivotally connected to the block and
10 including spaced arms, fingers carried by the arms to engage the wire on opposing sides of the insulator, and means for locking the lever in position to cause the arms to form bends in the line wire.

15 6. An apparatus for shaping line wires about an insulator comprising a block

formed with an insulator receiving recess, a clamping spring arranged in said recess, a lever pivotally connected to the block and including spaced arms, fingers carried by the
20 arms to engage the wire on opposing sides of the insulator, means for locking the lever in position to cause the arms to form bends in the line wire, and means for releasing the locking means. 25

In testimony whereof I affix my signature in presence of two witnesses.

JOHN SEDGWICK PRATT.

Witnesses:

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GEORGE H. BARTHOLOMEW.