No. 710,151. Patented Sept. 30, 1902.

J. G. IVERSON.

WIRE STRAIGHTENER.

(Application filed May 23, 1902.)

(No Model.)

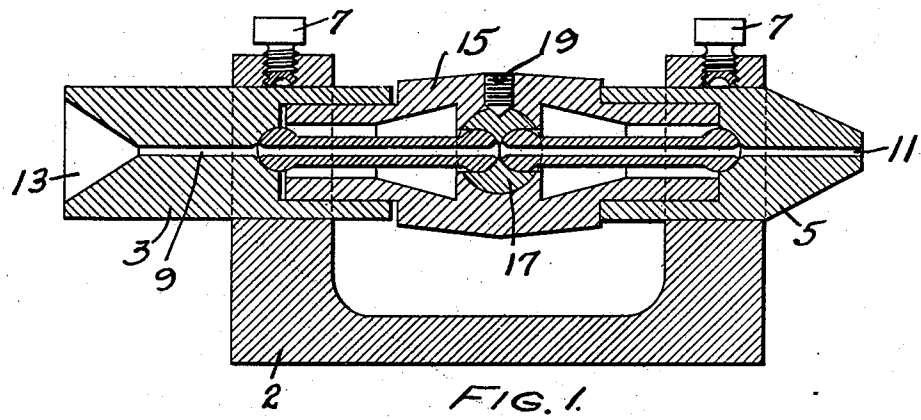


FIG. 1.

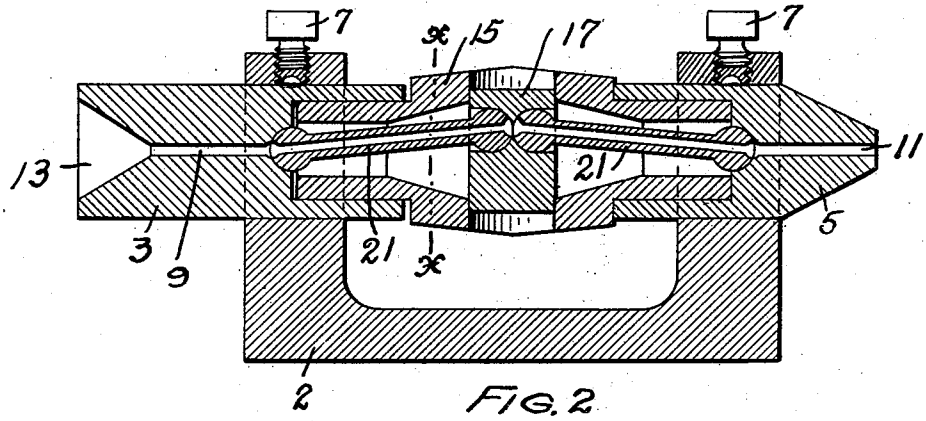


FIG. 2.

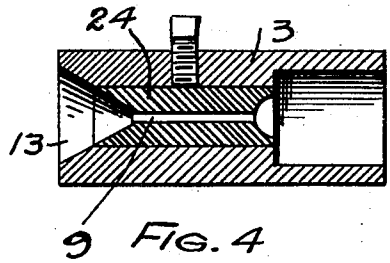


FIG. 4.

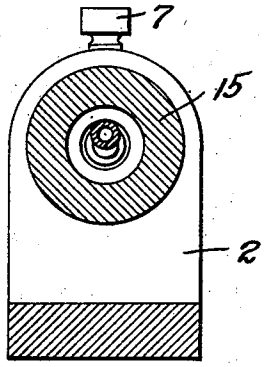


FIG. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

JOHN G. IVERSON, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO CHARLES E. COTTRELL, OF MINNEAPOLIS, MINNESOTA.

WIRE-STRAIGHTENER.

SPECIFICATION forming part of Letters Patent No. 710,151, dated September 30, 1902.

Application filed May 23, 1902. Serial No. 108,613. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. IVERSON, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Wire-Straighteners, of which the following is a specification.

This invention relates to improvements in wire-straighteners; and the objects I have in view are to provide a simple and inexpensive device by means of which wire may be quickly and effectively straightened.

The invention consists generally in a wire-straightener comprising a rotating shell, stationary bearings for said shell, tubes arranged within said shell and forming guides for the wire, and means for adjusting the position of said tubes.

The invention consists, further, in the constructions and combinations hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a longitudinal vertical section of a wire-straightener embodying my invention. Fig. 2 is a similar view with the shell and tubes rotated to a position at right angles to that which they occupy in Fig. 1. Fig. 3 is a transverse section on line $x\,x$ of Fig. 2. Fig. 4 is a detail showing a modification.

In the drawings, 2 represents the base of the machine, which may be of any suitable size and construction. As here shown, it is in the form of a casting having suitable uprights or standards provided with suitable openings in which are secured the bearing-pieces 3 and 5, which are adjustably held in position in the standards by means of suitable set-screws 7. Each of the bearings 3 and 5 is preferably of cylindrical form and fits into a corresponding opening in the standard of the base. These bearing-pieces are longitudinally pierced by the openings 9 and 11, and the bearing-piece 3 is preferably provided with a conical opening 13, communicating centrally with the opening 9. Each bearing-piece has at its inner end a socket adapted to receive the cylindrical end of the shell 15. The shell 15 is mounted in the sockets in the bearing-pieces 3 and 5 and is adapted to be rotated by a belt applied thereto. The shell may be of slightly-greater diameter at the center than at the ends of the outer portion, so as to be adapted to retain the belt in position thereon. A cylindrical opening extends transversely through this shell, and a large opening extends from this cylindrical opening to each end of the shell, a portion of the latter opening being preferably conical, as shown in the drawings. An adjustable block 17 is arranged in the transverse opening in the shell, and this block is adapted to be held in any desired position by means of a set-screw 19. This block is provided at its opposite sides with sockets communicating centrally with each other, and tubes 21, having rounded ends, are supported each with one end in the block 17 and its opposite end in the bearing-piece 3 or 5. A ball-and-socket joint is practically formed between the end of the tube 21 and the block 17 or the bearing-piece 3 or 5. These tubes are arranged loosely within their supports, so that they are free to rotate upon their own axes, and they may be adjusted to any desired inclined position within the limits of the longitudinal opening in the shell. A continuous opening or passage for the wire is formed by the openings 9 and 11 in the bearing-pieces 3 and 5, the opening in the tubes 21, and the opening through the block 17.

The operation of the device is as follows: The wire is fed through the opening 9 into the bearing-piece 3 through the tubes 21 and through the opening 11 in the bearing-piece 5. The block 17 is adjusted so as to set the tubes at the desired inclination. The shell 15 is then rapidly rotated by means of a belt applied thereto, and the block 17, which has previously been adjusted to the position desired, causes the inner ends of the tubes 21 to be in an eccentric position. As the shell is rotated the tubes are carried around with it, each describing the surface of a cone and each being at the same time free to rotate upon its own axis. As the wire passes through the tubes it is subjected to a bending action in all directions and will emerge from the tubes straight. There is no rotary friction between the tubes and the surface of the wire, owing to the fact that the tubes are each free to rotate on its own axis. The bearing-pieces

3 and 5 and tubes 21 are readily removable and extra bearing-pieces and tubes with different-sized openings for different sizes of wire may be provided to be employed with a single shell and adjustable block 17, or the bearing-pieces 3 and 5 may be provided with removable and interchangeable bushings having openings of different diameters for different sizes of wire. I have illustrated this construction in detail in Fig. 4, in which 24 represents a removable bushing.

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

1. The combination, with the rotatable shell, of an adjustable block arranged therein, and tubes each having one end supported in said adjustable block and its opposite end carried by a suitable support, substantially as described.

2. The combination, with the rotatable shell, of an adjustable block arranged therein, and tubes each having one end supported in said adjustable block and its opposite end carried by a fixed support, substantially as described.

3. The combination, with the rotatable shell, of the adjustable block arranged therein, and tubes, each having one end supported in said block and its opposite end carried by a fixed support, each of said tubes being free to rotate upon its own axis, substantially as described.

4. The combination, with the stationary bearing-pieces, of the rotatable shell supported in said bearing-pieces, the adjustable block mounted in said shell, and the tubes, each having one end mounted in said block and its opposite end mounted in one of said bearing-pieces, and each of said tubes being free to rotate upon its own axis.

5. The combination, with the base 2 provided with suitable standards, of the bearing-pieces 3 and 5 adjustably supported in said standards, and provided with central openings 9 and 11, the rotatable shell mounted in said bearing-pieces and provided with the adjustable block 17, the tubes 21 each having one end mounted in said adjustable block and its opposite end mounted in one of said bearing-pieces, and each of said tubes being free to rotate upon its own axis, substantially as described.

In testimony whereof I have hereunto set my hand this 20th day of May, 1902.

JOHN G. IVERSON.

In presence of—
A. C. PAUL,
C. G. HANSON.