No. 646,020. Patented Mar. 27, 1900.

W. DEWAR.

NIPPERS FOR CLOSING METALLIC RINGS UPON RUBBER TUBING.

(Application filed Sept. 5, 1899.)

(No Model.)

Fig. 1.

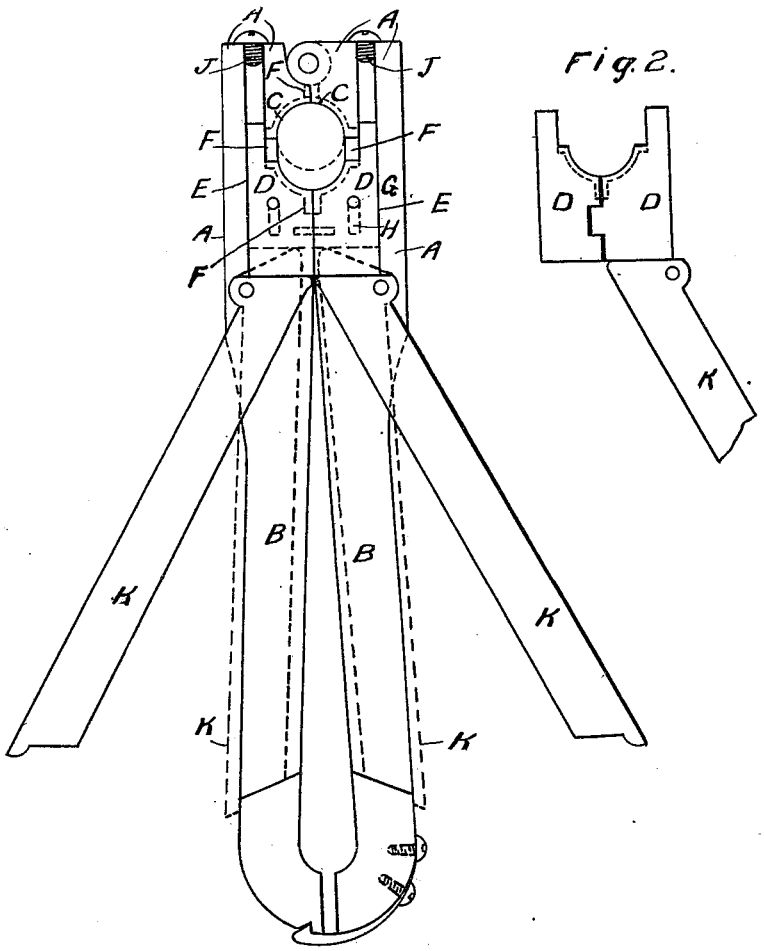

Fig. 2.

Witnesses :-

William Crossley

James Smythe

Inventor

William Dewar

per Hughes & Young

Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM DEWAR, OF GLASGOW, SCOTLAND.

NIPPERS FOR CLOSING METALLIC RINGS UPON RUBBER TUBING.

SPECIFICATION forming part of Letters Patent No. 646,020, dated March 27, 1900.

Application filed September 5, 1899. Serial No. 729,568. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM DEWAR, a subject of the Queen of Great Britain and Ireland, and a resident of 11 Garnet Terrace, Mount Florida, Glasgow, Scotland, have invented new and useful improved nippers for closing metallic rings upon rubber tubing in order to secure the tubing upon metallic connections, the tool being applicable for other purposes, (for which application for patent has been made in Great Britain, dated February 24, 1899, No. 4,101,) of which the following is a specification.

The parts of the improved tool are hereinafter particularly specified in respect to the annexed drawings, and the tool will be described in its application to the closing of metallic rings upon rubber tubing, so as to prevent the escape of steam, water, or gases, although its adaptation to other purposes is manifest.

Referring to the accompanying drawings, Figure 1 is a front view of one form of the nippers with the cover removed so as to show clearly the internal mechanism. Fig. 2 is a view of a modified arrangement of the moving dies to insure the simultaneous advancement of the dies by means of one lever-arm only.

In the form illustrated the tool consists, essentially, of a die-case made in two portions A A, hinged together at the top and formed each at their other ends as a hand lever or grip B B. The adjacent edges of the die-case have at one part recesses C C formed in them for the reception of the metallic closing-ring, each of these recesses being approximately a quarter of a circle and constituting the upper set of dies. Within recesses E E in the die-case two jaws or dies D D are carried, one in each portion of the case, which dies have a motion toward the recessed portions C C of the die-case communicated to them by levers K, connected to the hand-grips B and acting on the dies, as shown by both figures of the drawings. The upper end or ends of the die-operating lever or levers K can on the under side or under sides of either or both of the lower dies D D advance these simultaneously by the actuation of a single lever K, as shown by Fig. 2, because of the meshing of these dies D D (shown in said figure) or either die in advance of the other, as is permissible in the form shown at Fig. 1, wherein an operating-lever K is provided for each die, the advance of the dies taking place after the tool has been placed in position to embrace the metallic ring. These dies D D act to squeeze up the closing-ring in such a manner as to send all the surplus metal in loop form toward two, three, or more recesses F F F F between the pressure-dies D D and recessed portions C of the die-case, where it is acted upon and squeezed into closed-loop form. The guides D D are guided in their path by the sides of the recesses E, formed in the portions A A of the die-case, and also when desired by means of pins G G, which enter slots H H in the dies D D, as shown at Fig. 1, the dies D D being normally held at their position farthest from the recessed portions C C by means of springs I I, inserted from the upper end of the portions A A of the die-case and bearing against stop-pins J J, as shown, and also against extensions on the dies D D.

The action is as follows: The two parts A A of the die-case are opened sufficiently to permit of the dies C C D D embracing the ring and are then brought together by the action of the hand levers or grips B, the closing of the die-operating levers because of the action of the upper end or ends of the lever or levers K upon the under side of the die or dies causing the forward movement of the sliding jaws or dies simultaneously, as shown at Fig. 2, or these may be operated separately, as in the form shown at Fig. 1, the dies squeezing up the ring upon the tubing in such a manner as to send the surplus metal into the various recesses F F F F between the dies.

The dies can be readily extracted and others of different size substituted when desired.

The present invention is intended particularly to overcome the difficulty experienced in closing rubber upon metallic connections by means of twisted wire, which wire was unsatisfactory because of the frequent breakages occurring during the twisting process and the weakening of the wire by such twisting rendering it liable to break at the neck upon increase of resistance to such closing.

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

Nippers for closing metallic rings upon rubber tubing comprising a pair of hand-grips hinged together at the top, dies carried by said hand-grips adapted to be brought together, sliding dies also carried by these hand-grips and lever-arms for actuating the sliding dies substantially as and for the purpose set forth.

WILLIAM DEWAR.

Witnesses:
JAMES JOHNSTON SNEDDON,
JAMES PATTERSON.