(No Model.)

W. E. CROCKER.

APPARATUS FOR DRAWING TUBES.

No. 263,028. Patented Aug. 22, 1882.

Fig 1.

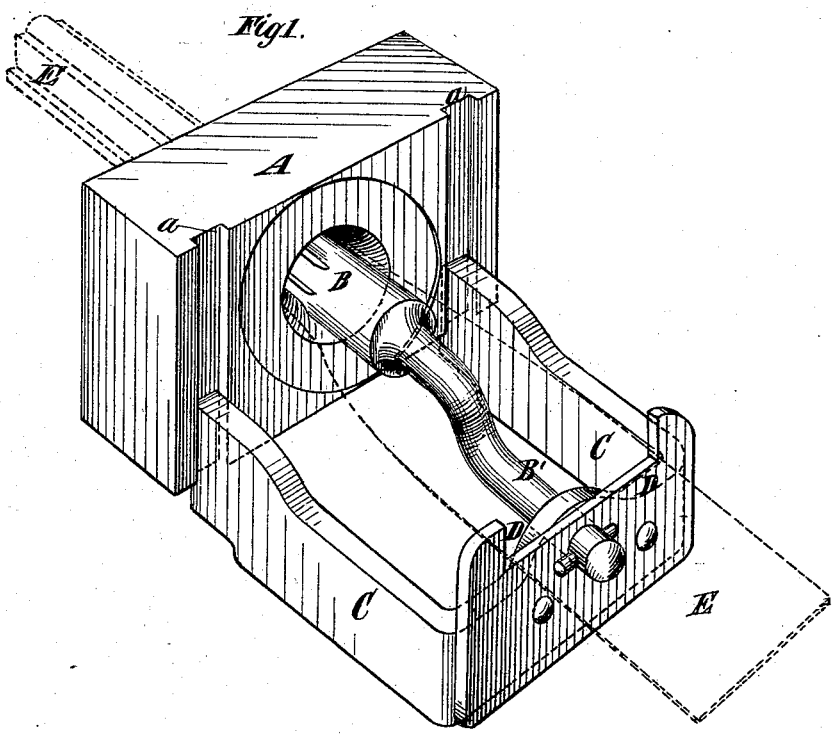
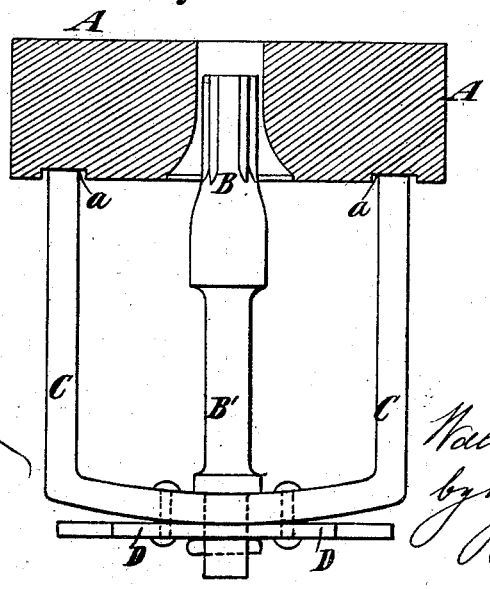


Fig 2.



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UNITED STATES PATENT OFFICE.

WALTER E. CROCKER, OF ATTLEBOROUGH, MASS., ASSIGNOR TO R. F. SIMMONS, EDGAR L. HIXON, AND JOSEPH L. SWEET, OF SAME PLACE.

APPARATUS FOR DRAWING TUBES.

SPECIFICATION forming part of Letters Patent No. 263,028, dated August 22, 1882.

Application filed March 13, 1882. (No model.)

To all whom it may concern:

Be it known that I, WALTER E. CROCKER, of Attleborough, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Drawing Tubes, of which the following is a specification.

My invention relates to apparatus for forming or drawing tubes from strips or plates of metal, said apparatus consisting of a stationary die and a stationary arbor or mandrel, between which the metal strips are drawn, and by which said strips are formed into tubes which only require the soldering or forming of one longitudinal joint to make them complete.

The invention consists in the combination, with a stationary die for drawing tubes having a flaring mouth, of a stationary arbor or mandrel supported outside the die and in rear of its flaring mouth and projecting through the flaring mouth into the die.

The invention also consists in the combination, with a die for drawing metal, of a stationary arbor or mandrel entering the same and having its shank offset, a yoke bearing against the front of the die and supporting the arbor or mandrel, and a gage for guiding the entering strip of metal relatively to the die and arbor or mandrel, and also attached to and supported by said yoke or said die.

In the accompanying drawings, Figure 1 represents a perspective view of a die, together with my improved arbor or mandrel and gage, also showing in dotted outline the strip as it enters the die and the tube as it leaves the die; and Fig. 2 represents a sectional view of the die and a plan of the arbor or mandrel, yoke, and gage.

Similar letters of reference designate corresponding parts in all the figures.

A designates a die, which is of common form, and B designates a short arbor or mandrel, which enters the flaring mouth of the die and is held stationary relatively thereto. In this instance the shank B′ of the arbor or mandrel is offset to one side or out of line with the portion which enters the die, and said shank is supported outside the die and in rear of its flaring mouth in a yoke, C, the two ends of which bear against the face of the die and may fit in grooves or recesses *a* therein.

D designates a gage which is attached to and supported by the yoke C, as clearly shown in Fig. 1.

In carrying out my invention the die A is supported against the draw-bar of an ordinary drawing-bench, and the material to be drawn is prepared in the form of a strip or strips, E, of sheet or plate metal of proper width to form a tube. The end of the strip is then bent into shape to pass through the die, and drawing-tongs are attached thereto. In being drawn between the stationary die and mandrel the strip E is formed into a tube of the same length and of the shape required. The gage D guides the strip E relatively to the arbor or mandrel B, so that the longitudinal seam formed by the meeting edges of the strip will be straight. The making of the arbor or mandrel with an offset shank is very advantageous, for the reason that the gage D may then support the strip near to the die and about in line with the center of the arbor or mandrel proper, and hence the strip will be more readily bent or formed over or on the arbor or mandrel in the operation of drawing. When the strip is supported about in line with the center of the die and arbor or mandrel it may lessen the liability of the longitudinal seam formed by the meeting edges of the strip being crooked, and it also facilitates the bending of the strip down over the sides and underneath the arbor or mandrel.

In the operation of drawing the strip E should always be held in the gage by the workman or otherwise to prevent its shifting and thereby rendering the longitudinal seam in the tube crooked.

In lieu of the gage D being attached to the yoke C, it might be attached directly to the die A.

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

1. The combination, with a stationary die for drawing tubes having a flaring mouth, of a stationary arbor or mandrel supported outside

the die and in rear of its flaring mouth and projecting through the flaring mouth into the die, substantially as herein described.

2. The combination, with a stationary die for drawing tubes, of a stationary arbor or mandrel entering said die and having an offset shank, and a gage for guiding strips as they enter between said die and said arbor or mandrel, substantially as herein described.

3. The combination of the stationary die A, the stationary arbor or mandrel B, having an offset shank, B′, the gage D, and the yoke C, supporting said arbor or mandrel, substantially as herein described.

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