(No Model.)

# J. L. RICHTER.

## TUBE FORMING MACHINE.

No. 327,721. Patented Oct. 6, 1885.

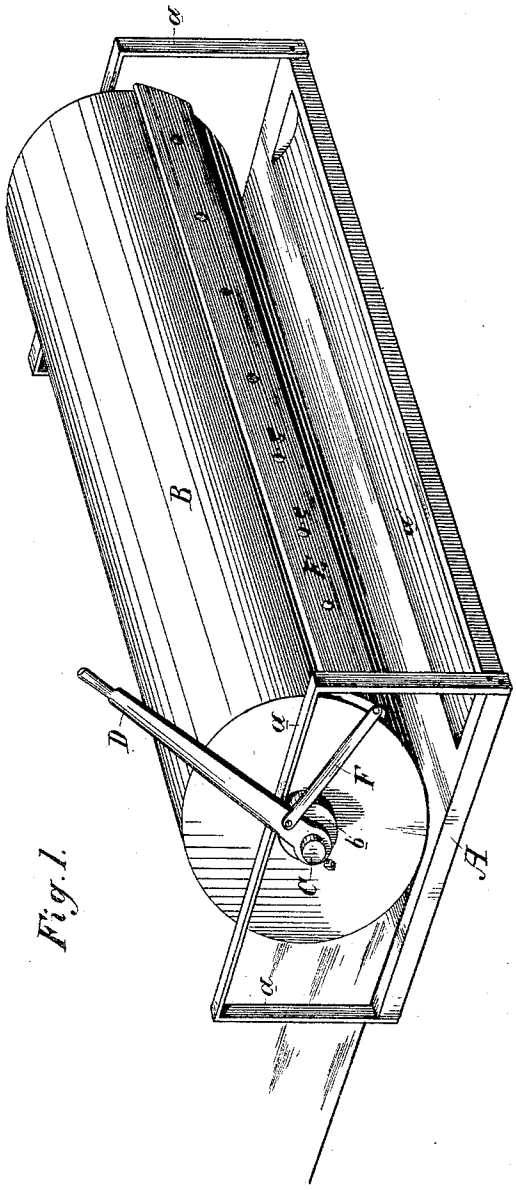



Fig. 1.

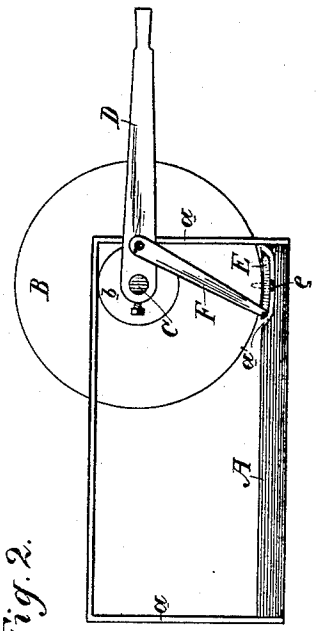



Fig. 2.

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# UNITED STATES PATENT OFFICE.

JOHN L. RICHTER, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO W. W. MONTAGUE, OF SAME PLACE.

## TUBE-FORMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 327,721, dated October 6, 1885.

Application filed July 16, 1885. Serial No. 171,793. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN L. RICHTER, of the city and county of San Francisco, State of California, have invented an Improvement in Tube-Forming Machines; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an apparatus or machine for rolling metal tubes; and my invention consists in a rotating traveling roller moving over the metal sheet within fixed guides, and having a peculiar clamp for securing the edge of the sheet, all of which I shall fully explain by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of my machine. Fig. 2 is an end elevation of same.

The object of my invention is to provide a machine or apparatus adapted to readily and perfectly roll a metal sheet to form a tube or pipe.

A is the bed or base-board, on the ends of which are guide-frames *a*. In the bed-frame is made longitudinally a channel, *a'*.

B is the main roller, resting upon the bed-frame and having upon its shaft C at each end a small wheel, *b*, which is loose upon its journal and travels under the top bar of the end frames, *a*, thereby guiding the roller and holding it down on the bed-frame. To the projecting end of the shaft C of the roller is fixed a lever, D.

E is a bar or plate of the same length as the roller and secured to its periphery by pins *e*, which are fitted loosely enough in their seats to permit said bar or plate to have a slight rocking movement. As shown in Fig. 2, the bar E rests in the channel *a'* of the bed-frame.

A link, F, is pivoted to one edge of the bar E, and is also pivoted to the lever D.

The operation of my machine is as follows: When the roller is at its place of beginning the position is as shown in Fig. 2. A sheet of metal is now taken and laid upon the bed, its edge being placed in between the edge of the clamping-bar E and the periphery of the roller. The lever D is now grasped and raised. The first effect of this is to rock the clamping-bar E, so as to bind tightly the edge of the metal sheet against the roller. The continued movement of the lever D causes the forward movement or travel of the roller B, which, while rotating, also advances over the metal sheet and winds said sheet about its periphery up to a point of forming a half-tube. Then the half-formed tube is taken out and carried to another machine, (forming no part of this application,) in which one edge is depressed equal to the thickness of the metal and of a width sufficient to form the proper lap of the joint. It is then returned to my machine, and its other edge is placed between the clamping-bar E and the roller, and another half-revolution and movement of the roller is made, whereby the tube is completed. In this movement of the roller the loose wheels *b*, by traveling in a reverse direction, avoid friction, and at the same time hold the roller down on the sheet.

In making a complete tube the outer portion of the lapping edge of the tube fits over the part which was depressed, and the whole may be secured together in any suitable manner, depending upon the use to which the tube is to be put.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a tube-forming machine, a bed on which the sheet is laid, a roller adapted to travel on the bed over the sheet, a clamp on the periphery of the roller for securing the edge of the sheet, and suitable guides for holding the roller down on the sheet, substantially as herein described.

2. In a tube-forming machine, the bed A, having guide-frames *a* at each end, in combination with the roller B, the loose guide-wheels *b* on the roller-shaft, and arranged to travel under the guide-frames *a* and hold said roller down, and a clamp on the periphery of the roller arranged to secure the edge of the sheet, substantially as herein described.

3. In a tube-forming machine, the bed A, in combination with the roller B, the rocking clamping bar or plate E on its periphery, the lever D on the roller-shaft, and the link F, connecting the lever with the clamping bar or plate, substantially as herein described.

4. In a tube-forming machine, the bed A, having a longitudinal channel, *a'*, in combi-

nation with the roller B, the rocking clamping-bar E on the periphery of the roller, seated in the channel $a'$ when at rest, the lever D, by which the roller is advanced, and the link F, connecting the clamping-bar with the lever, by which the clamp is effected, substantially as herein described.

5. In a tube-forming machine, the combination of the bed A, having the guide-frames $a$ on its ends, and a longitudinal channel, $a'$, the roller B, the loose guide-wheels $b$ on the roller-shaft bearing under the end frames, $a$, the clamping-bar E on the periphery of the roller, and seated when at rest in the channel $a'$, the lever D on the roller-shaft, and the connecting-link F, between the lever and the clamping-bar, substantially as herein described.

In witness whereof I have hereunto set my hand.

JOHN L. RICHTER.

Witnesses:

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