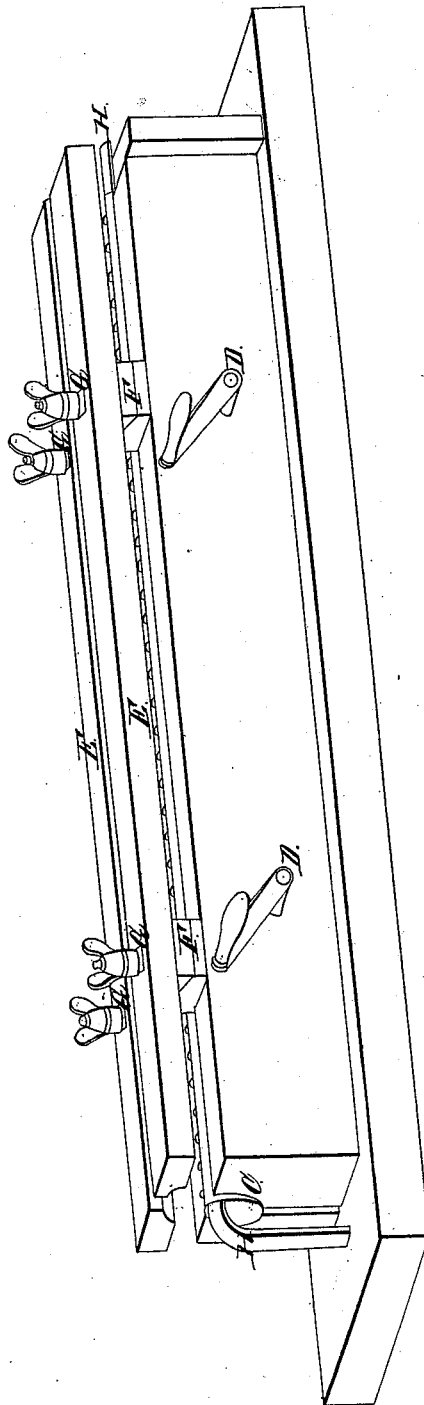
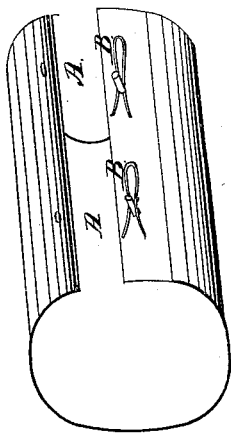


*J. Ball.*

*Riveting Pipes.*

*N<sup>o</sup> 4,319.*

*Patented Dec. 20, 1845.*



# UNITED STATES PATENT OFFICE.

JONATHAN BALL, OF NEW YORK, N. Y.

## MACHINERY FOR RIVETING PIPES.

Specification of Letters Patent No. 4,319, dated December 20, 1845.

*To all whom it may concern:*

Be it known that I, JONATHAN BALL, of the city, county, and State of New York, have invented a new and Improved Mode of  
5 Riveting Sheet-Iron and other Metals into Pipes for Stoves and other Purposes; and I do hereby declare that the following is a full and exact description.

The nature of my invention consists in  
10 providing mechanical means by which pipes of any diameter required may be riveted the full length that the material for which can be obtained, instead of being made in short pieces to favor the former mode of  
15 riveting.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

I roll my pipe into form by rollers made  
20 upon the ordinary principle. The length being increased to six or eight feet. The edges of the metal which have been punched for the rivets before rolling are left apart an inch or more see letter A, in  
25 the accompanying drawings. The rivets are then put with facility into the holes the whole length of the pipe from the inside. Each rivet being held firmly in the hole by a small metallic spring, made of wire see  
30 letter B. I form clamp by taking two pieces of hard timber three or four inches thick and seven or eight wide and near the length of the pipe to be riveted I form a half circle in each at the top of the inner edges. The  
35 circle formed when the parts are together is a little less than the pipe to be riveted see letter C. I form two or more screws which pass through the timbers last described below the hollow or circle by which the parts  
40 are forcibly closed or opened see letter D. In order to use these clamps for all the various sizes of pipes to be made I form two cap pieces of hard timber three or four inches wide and one or more inches thick.  
45 One of these pieces is firmly bolted onto the

top of each side of the clamp see letter E. The bolts being through the side pieces of the clamps with the heads underneath extend above the caps two or three inches. The upper end of the bolts are provided  
50 with a screw and nut which admits of their being raised the required height and are supported underneath by small blocks of wood or metal see letter F. The holes through the caps through which the bolts  
55 pass are elongated crosswise to admit of their being carried in or out to suit the diameter of the pipe to be riveted see letter G. I form a mandrel of cast or wrought iron of sufficient length to pass through the hollow  
60 of the clamps lengthwise, which is firmly affixed at one end to the bench see letter H. The screws of the clamps being turned to open them, the pipe above described is shoved onto the mandrel within the hollow  
65 of the clamps the heads of the rivets resting on the mandrels. The springs are then removed from the rivets, when by turning the screws of the clamps the holes in the opposite side of the pipe are forced on to the  
70 points of the rivets ready for the hammer of the workman.

By this invention pipes are made much faster than by the former mode of riveting, and in pieces or joints three times longer,  
75 thus promoting economy, safety, and its appearance.

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

The mode of holding the rivets in the  
80 holes by the use of the springs in combination with the mandrel or the clamps in their construction and application as they are set forth in the accompanying specifications and drawings.

JONATHAN BALL.

Witnesses:

NATHAN STEPHENS,  
GEORGE C. PHILLIPS,