

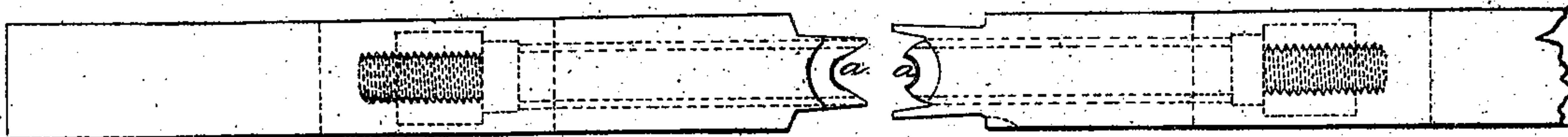
*J. Eaton.*

*Marking Cop Tubes.*

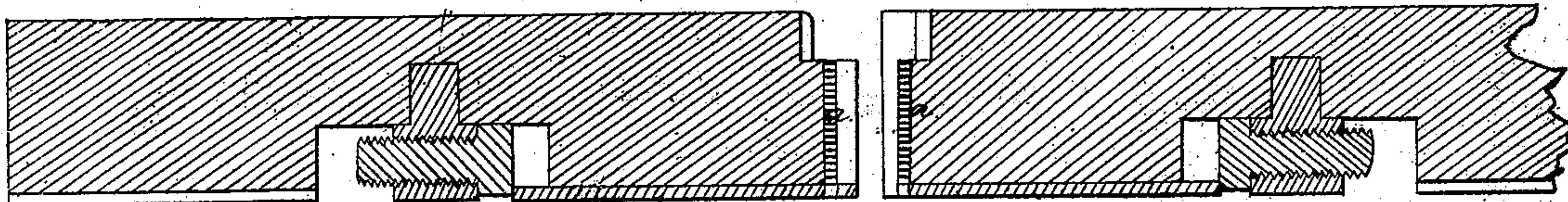
*N<sup>o</sup> 19,910.*

*Patented Apr. 13, 1858.*

*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



# UNITED STATES PATENT OFFICE.

JAS. EATON, OF TOWNSEND HARBOR, MASSACHUSETTS.

## COP-TUBE.

Specification of Letters Patent No. 19,918, dated April 13, 1858.

*To all whom it may concern:*

Be it known that I, JAMES EATON, of Townsend Harbor, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Cop-Tubes for Mule and other Metallic Spindles, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making  
10 part of this specification, in which—

Figure 1 is a plan of the dies which I employ; Fig. 2 a longitudinal section through the same; Fig. 3 an end view of the dies; Fig. 4 a view of the finished tube; Fig.  
15 5 a section through the same.

Within a few years past metallic tubes to receive the foundation of the cop have been extensively used, in place of the paper quills heretofore employed for the purpose. The  
20 objection is made to them however that they occasionally fall out of the cop, and thus the latter is destroyed. They are also liable to adhere to the spindle when the cop is doffed from the mule, and this is the occasion of a  
25 further loss to the spinner.

To remedy these defects, and to produce a metallic tube that will not fall from the cop however much it may be handled is the object of my present invention which consists in corrugating or grooving the exterior of the tube, which operation I perform at the time the tube is struck up, and by the same dies by which it is formed, the threads of the cop are thereby enabled to cling to the tube, and to adhere to it so closely that  
35 the two cannot be easily separated until the cop be entirely unwound.

To enable others skilled in the art to un-

derstand my invention, I will proceed to describe the manner in which I have carried it out.

In the accompanying drawings figures 1, 2 and 3 represent the dies employed to make my tube. These dies are constructed and operated in a manner similar to those made  
45 use of in the addition to Letters Patent granted to Nathl. Whitmore June 12 1847, and to myself January 30th 1855, their general construction need not therefore be further described. In order to adapt them to  
50 the making of the grooved tube the semi-cylindrical portion *a*, of the operating end of each die is furnished with projecting knife edges which rise about 1/100 inch from the surface or thereabout, and as the  
55 tube is struck up in the manner described in the before mentioned addition to the Whitmore Patent, these knife edges strike into the surface of the sheet metal and groove it upon its exterior surface as represented in Fig. 4. The whole is thus per-  
60 formed at one and the same operation, the tube leaving the machine formed and grooved ready for use.

What I claim as my invention and desire  
65 to secure by Letters Patent as a new article of manufacture is—

A metallic cop tube having corrugations or grooves upon its surface formed by corresponding knife edges or their equivalents  
70 upon the face of the die in which the tube is made as set forth.

JAMES EATON.

Witnesses:

SAM COOPER,  
JOHN S. CLOW.