J. HOPE.

Calico-Printing Rollers.

No. 196,149. Patented Oct. 16, 1877.

Fig. 1.

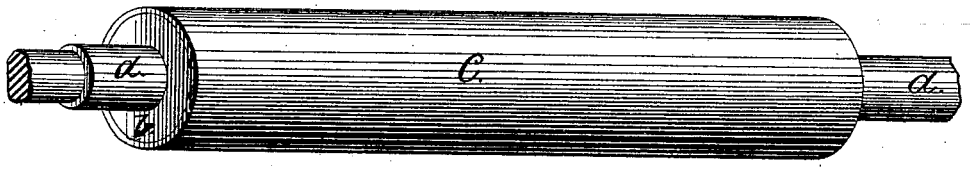
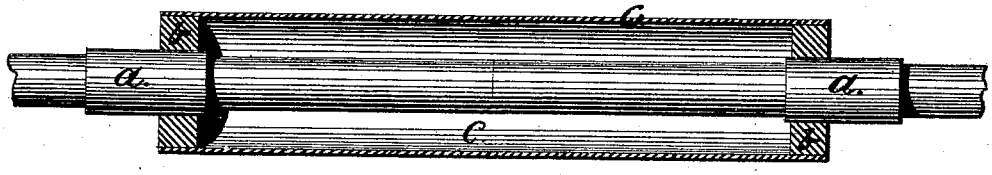


Fig. 2.



WITNESSES.

John L. Calder.

Joseph A. Miller Jr.

INVENTOR.

John Hope

by Joseph A. Miller
Attorney.

UNITED STATES PATENT OFFICE.

JOHN HOPE, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN CALICO-PRINTING ROLLERS.

Specification forming part of Letters Patent No. **196,149**, dated October 16, 1877; application filed January 20, 1877.

To all whom it may concern:

Be it known that I, JOHN HOPE, of the city and county of Providence, State of Rhode Island, have invented certain new and useful Improvements in Mandrels for Calico-Printing Rolls; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 is a view of my improved mandrel. Fig. 2 is a longitudinal section of the same.

The invention has reference to an improvement in mandrels for calico-printing rolls; and consists in securing to a shaft a concentric tube or cylinder, made slightly tapering, and of such diameter that a thin copper shell bored out to fit the mandrel may be secured to the same by frictional contact, and the same mandrel may be used for any number of copper shells.

In the drawings, *a* is a shaft, provided with bearings. *b b* are two annular rings, shrunk or welded on the shaft *a*, or otherwise firmly secured to the same. *c* is a slightly-tapering cylinder or tube, firmly secured to the annular rings or collars *b b*, and thus by them to the shaft *a*.

The cylinder or tube *c* may be shrunk or welded to the annular rings *b b*, and the shaft *a* may be of less diameter between the annular rings *d d* than at the bearings; and as the cylinder or tube *c* is of considerable diameter and firmly secured to the shaft, a mandrel presenting a large surface, of considerable diameter, strong and firmly braced, and lighter than the usual mandrel, is produced, on which a thin copper shell can be placed with little trouble, as a slight taper will secure the same by frictional contact more firmly than on a mandrel of the usual construction.

By the use of this mandrel thin copper shells may be used for calico-printing, and the large investment in copper avoided; and as the copper shells are not permanently secured to the mandrel or to the cylinder or tube *c*, the copper rolls are not injured by the expansion or contraction of different metals. The copper shells, being lighter, are easily handled, and the mandrel, being also lighter and of greater diameter than mandrels of the usual construction, the light copper rolls are more firmly supported at all parts of their surface, and less force is required to bring the same into true frictional contact with the tube or cylinder *c*, and are not liable to be displaced.

I am aware that light or thin copper cylinders have been used, and I am aware that such cylinders have been strengthened by concentric cylinders; but such copper cylinders and the concentric cylinders have heretofore been secured together, and the difference in the expansion or contraction of the cylinders of different metals has caused injury, and at times the destruction of the same; and when such effect is overcome the objection of the greater weight and difficulty of handling the same still remains.

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

A hollow mandrel for calico-printing rolls, consisting, essentially, of a slightly-tapering tube, the ends of which are secured to collars permanently fastened to the mandrel-shaft, substantially as described.

JOHN HOPE.

Witnesses:
JOSEPH A. MILLER,
OSCAR LAPHAM.