

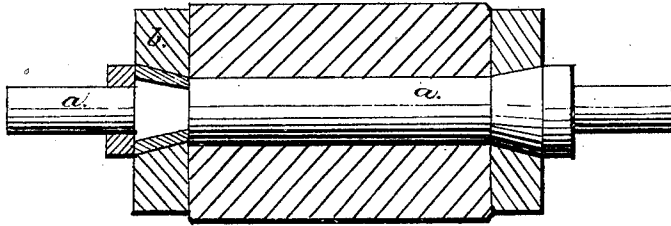
*T. Hardcastle,*

*Wringer Roll.*

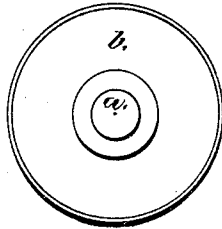
*No. 90447.*

*Patented May 25, 1869.*

*FIG. 1.*



*FIG. 2.*



**WITNESSES:**

*Stinchman*  
*W. J. Clark*

**INVENTOR:**

*Thos. Hardcastle*  
*per*  
*Mumfco.*  
*attys.*

United States Patent Office.

THOMAS HARDCASTLE, OF THE BRADSHAW WORKS, NEAR BOLTON, ENGLAND.

Letters Patent No. 90,447, dated May 25, 1869.

IMPROVED COMPOSITION-BOWL FOR MANGLES, WASHING-MACHINES, &c.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern :

Be it known that I, THOMAS HARDCASTLE, of the Bradshaw Works, near Bolton, in the county of Lancaster, England, have invented certain new and useful Improvements in the Manufacture of Bowls for Mangles, Washing-Machines, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 represents a longitudinal section of a roller provided with my improved bowl.

Figure 2 is an end view of the same.

The nature of my invention consists in manufacturing bowls for starching and other mangles, washing-machines, squeezers, calenders, and other purposes, of cocoa-nut fibre, or coir, or other fibres of palm-trees.

In performing my invention, the fibres are first made into cakes, or disks, of the requisite thickness and diameter, in a mould, during which operation they are moistened, or dampened; the fibres are then slightly pressed in a screw or other press, of the usual construction.

These cakes, or disks are then placed on an iron

centre, or roller, as shown at *a*, in figs. 1 and 2, and compressed in a powerful hydraulic press, the ends of the bowl being secured by iron washers *b*, as now customary in making cotton or paper bowls. The surface of the bowl is then turned up in a lathe and polished.

These bowls are found exceedingly hard and durable, and they are not liable to injury by moisture.

Having thus described my invention,

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

1. The application of cocoa-nut fibre, or coir, or other fibres of palm-trees, to the manufacture of bowls for starching and other mangles, washing-machines, squeezers, calenders, and other purposes.

2. As new articles of manufacture, bowls, or rollers, for washing-machines, mangles, and other purposes, when provided with a covering made of cocoa-nut fibre, or coir, or other fibre of palm-trees as set forth.

In testimony whereof, I have hereunto set my hand, before two subscribing witnesses.

THOMAS HARDCASTLE.

Witnesses:

H. B. BARLOW, Jun.,  
Patent Agent, Manchester.

MICHAEL DOWNES.