C. HARDY.

BOBBINS.

No. 181,436. Patented Aug. 22, 1876.

Fig. 1.

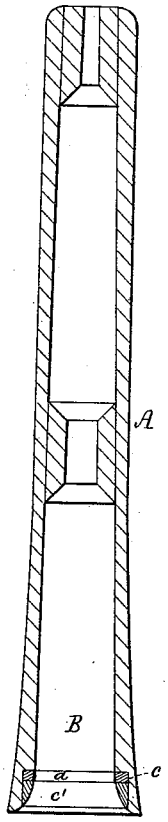


Fig. 2.

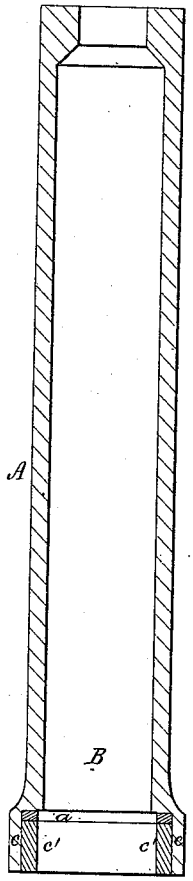


Fig. 5.

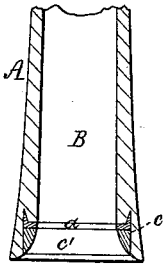


Fig. 3.

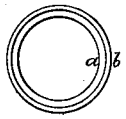
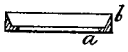


Fig. 4.



Witnesses.
S. U. Piper
J. R. Snow

Charles Hardy.
by his attorney.
R. H. Eddy

UNITED STATES PATENT OFFICE.

CHARLES HARDY, OF NASHUA, NEW HAMPSHIRE, ASSIGNOR TO HIMSELF AND EATON & AYER, OF SAME PLACE.

IMPROVEMENT IN BOBBINS.

Specification forming part of Letters Patent No. **181,436**, dated August 22, 1876; application filed March 10, 1876.

To all whom it may concern:

Be it known that I, CHARLES HARDY, of Nashua, of the county of Hillsborough and State of New Hampshire, have invented a new and useful Improvement in Roving or Spinning Bobbins; and do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 denotes a longitudinal section of a "ring-spindle" bobbin of the "Sawyer" kind provided with my invention. Fig. 2 is a vertical section of what is termed a "roving-bobbin" containing such invention.

It is well known that such bobbins, while being placed on or removed from their spindles, are very liable to be split or broken at or near their bases or lower ends or mouths, or from such upward, and also that they are very liable to become so injured by falling down upon a floor or article, or by being stepped upon by a person.

The object of my invention is to strengthen the bobbin in its weak portion, in order to prevent it from being so injured under such circumstances.

In carrying out my invention I combine with the bobbin A a ring of metal, *a*, inserted in its bore B, as represented, which ring may be plain or be provided with a flange to extend from it in manner as shown in Figs. 3 and 4. The first of the said figures is a top view, and the second a transverse section, of such a flanged ring, the body of it being shown at *a*, and the flange at *b*, the latter being triangular or sharp in transverse section. Fig. 5 is a section of the lower part of a bobbin having the flanged ring.

I form in the body of the bobbin and leading out of its bore, and from the end of the bore upward, an annular chamber, *c*, to receive the ring, whose internal diameter should be of the size of that part of the bore in which the ring is to be placed. Having inserted the ring in the chamber and driven it home, or up to the upper edge of said chamber, I introduce in the said chamber, and below the ring and against its lower edge, a bushing, *c'*, of wood or other suitable material, to fill the part of the chamber beneath the ring, and such bushing I glue or otherwise fasten in place.

A bobbin re-enforced in manner as described, with a metallic ring fixed within it near its mouth or lower end, is rendered very much stronger and less liable to injury than a bobbin of like kind without such addition.

The ring, by being arranged within the interior of the bobbin, prevents, in a great measure, the mouth of the bore from being jammed, or grooved, or scarfed by the spindle during the act of applying the bobbin to such. It also operates to prevent the bobbin-body from being worn by running in contact with the bolster, when said bolster is extended up within the bobbin, as it is with the Sawyer spindle and bobbin. A bobbin made in this manner is also much neater in appearance, and less expensive to make, than a bobbin to whose lower end an annular plate is attached by arms and pins, or by spurs. The use of these means of attachment tends to wear and destroy the base of the bobbin. In my bobbin, moreover, the ring being placed some distance within the mouth, takes a bearing on the spindle at a more advantageous position than a plate placed directly at its base.

I claim—

A bobbin provided with a ring, *a*, inserted within its lower end, and held in place by the bushing *c'*, in the manner and for the purpose specified.

CHARLES HARDY.

Witnesses:
R. H. EDDY,
J. R. SNOW.