

W. M. HASTINGS.

BOBBIN.

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912,564.

Patented Feb. 16, 1909.

FIG. 3.

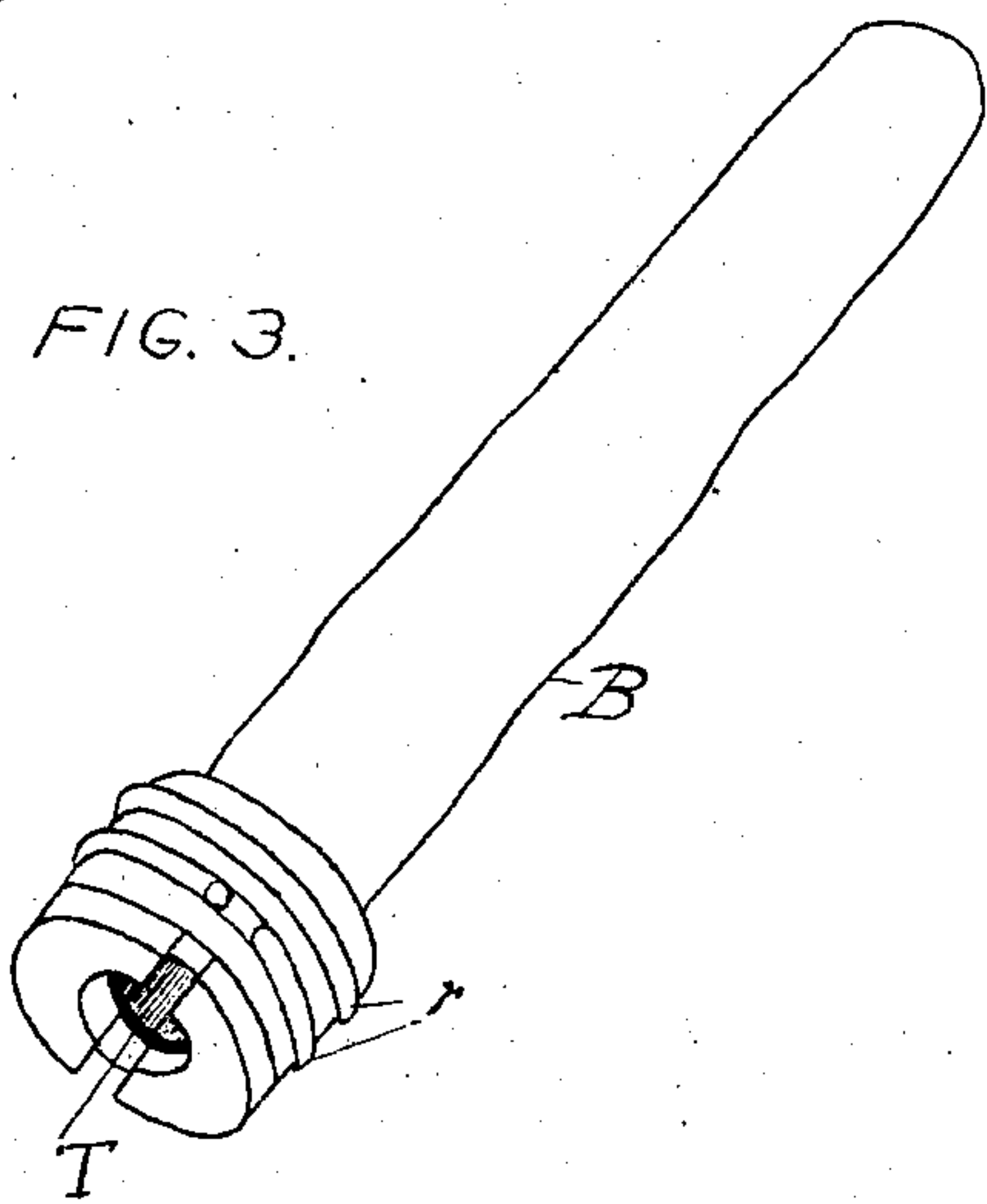
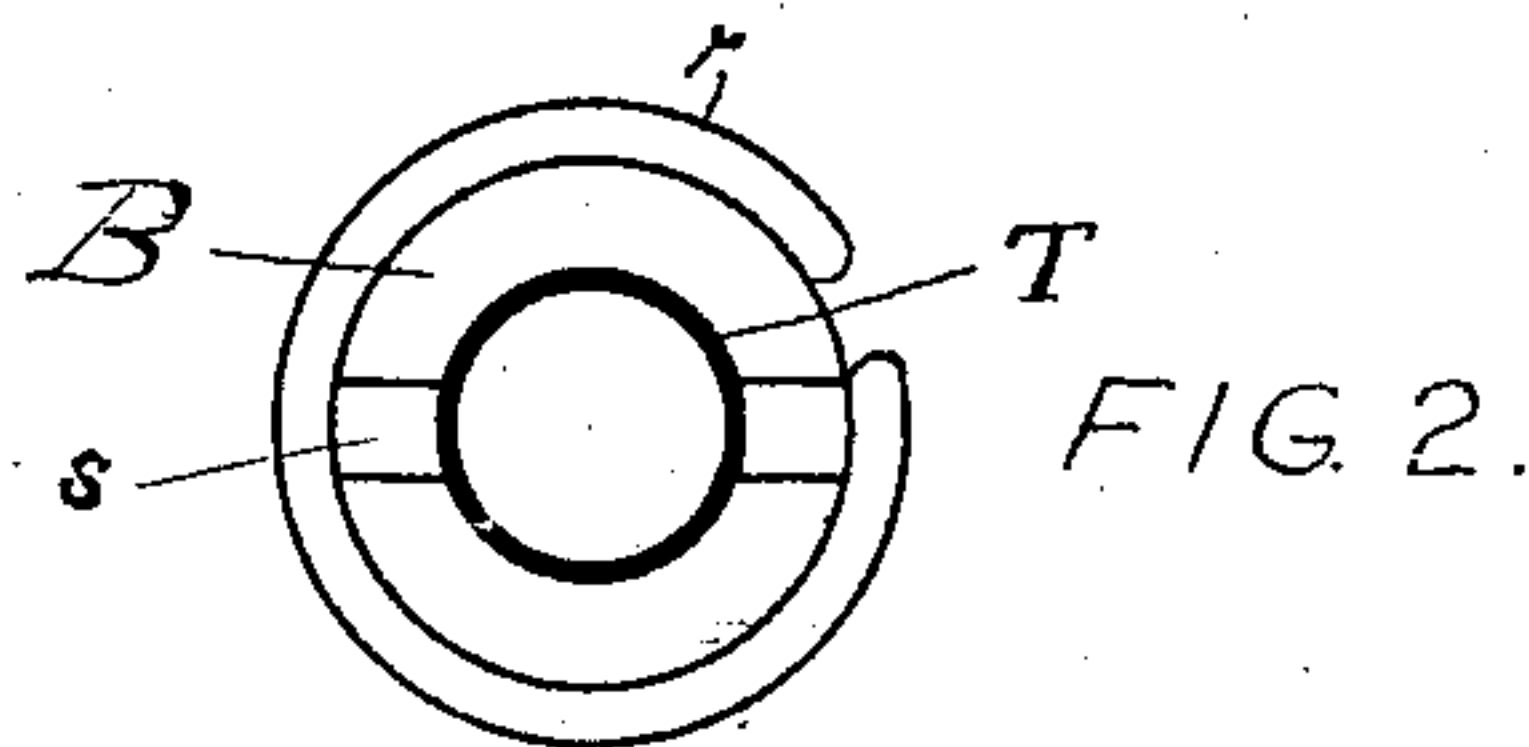
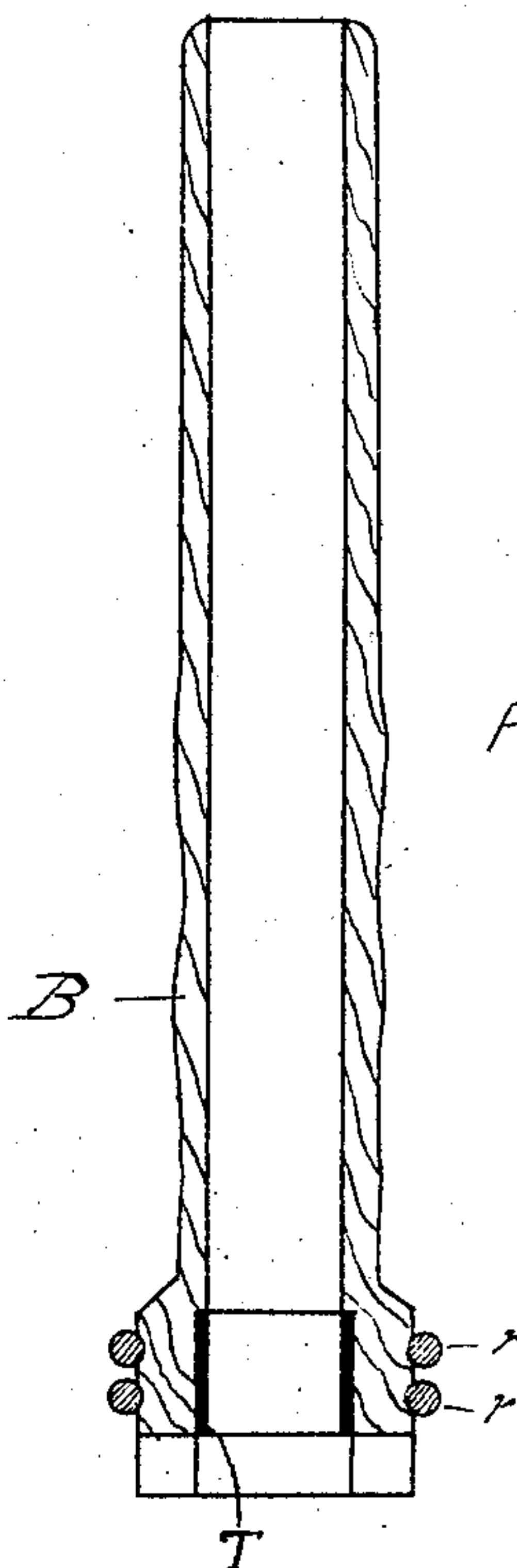


FIG. 1.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## BOBBIN.

No. 912,564.

Specification of Letters Patent.

Patented Feb. 16, 1909.

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*To all whom it may concern:*

Be it known that I, WALTER M. HASTINGS, a citizen of the United States of America, and a resident of Methuen, in the county of Essex and State of Massachusetts, have invented an Improvement in Bobbins, of which the following is a specification.

The invention relates to bobbins of wood or other absorbent material. Such bobbins are liable to expand and contract with atmospheric changes and because of this, to split and become useless, and this effect is produced in an extreme degree when the yarn is steamed after it is wound upon the bobbins, thus subjecting them to frequent wetting and drying, as is almost universally the case with worsted yarn. To prevent such splitting, heretofore one or more elastic rings have been sprung upon the lower end of the bobbin, as set forth in the patent of L. C. Baldwin, No. 366,196, July 12, 1887; but the use of such elastic rings is open to serious objection, for their contractile force upon the wood is, when first applied, from 30 to 40 pounds each, and although they prevent the splitting of the bobbin when frequently wet and dried, the contractile force of the rings compresses the material of the bobbins as it dries, and thus reduces the diameter of the bore, so that very soon it becomes so small that it will not fit down in proper position on the spindle or cap-tube used when spinning worsted yarn, and it is necessary to ream out the bore from time to time. Further, after repeated shrinking and reaming the bobbins become so small exteriorly that the elastic rings are loose upon them, which is very objectionable when the bobbin is put into the shuttle for weaving.

My improvement obviates these last named objectionable features, and consists of the combination with a bobbin of one or more exterior elastic rings and one or more interior integral tubes or rings of non-hygroscopic material, such as metal, with a bore of substantially the size of that of the bobbin, inserted therein in a position substantially coincident with that of the elastic rings upon the exterior thereof. Such tubes or rings are made of sufficient strength to reinforce the bobbin and enable it to resist the contracting force of the elastic rings. Thus the bore of the bobbin remains constant, the trouble and expense of reaming or reaming is obviated, and the period of usefulness of each bobbin is

indefinitely extended. It is suggested in the Baldwin patent referred to, that the elastic ring may be inserted within the bore of the bobbin. This might accomplish the result suggested of withstanding any strain from without if the bobbin is stepped upon; but such an application of the elastic ring would aggravate the tendency of the bobbin to split when wetted and dried. The combination of external contracting rings and an internal tube or ring is one of great practical value, for by the coöperation of the parts in firmly holding the lower end of the bobbin, the life of the bobbin is greatly prolonged. A suitable material from which to make these reinforcing rings or tubes, is brass, as it is sufficiently strong, is easily made and is less liable to corrode than iron, and the compressing force of the exterior elastic rings will hold the tubes in place without other retaining means; and besides, these interior tubes prevent the bobbin from being compressed to such an extent as to cause the elastic rings to become loose.

In the drawings forming a part of this specification, Figure 1 is a longitudinal section of the bobbin with the exterior elastic rings and an interior reinforcing tube; Fig. 2 is a plan view of the bobbin, looking at the bottom end; Fig. 3 is a perspective view of the bobbin, showing a portion of the interior reinforcing tube.

The several parts of the bobbin with the improvement are indicated as follows:—B, the quill of wood or other light absorbent material; *r, r*, the elastic rings, preferably of steel, sprung upon the enlarged exterior of the base of the quill; T, the interior reinforcing tube, the position of which should be substantially coincident with that of the exterior resilient rings, in order to resist their compressing contractile force and prevent the contraction of the bore of the bobbin, and the shrinking of the material thereof. In bobbins intended for use with tapering spindles the interior tube may be of a size to fit the spindle and serve as a bearing thereon.

The interior tube T is a cylindrical metal bushing or sleeve which is driven into place and which registers with the external rings *r, r*, as shown in Fig. 1, so as to squarely resist their compressing contractile force. The tube is held in place frictionally by reason of its close fit and the contractile force of the external rings *r, r*. No portion of the in-



ternal tube 'I' extends far enough beyond the base of the bobbin or quill B so as to be in danger of receiving any displacing blow during the use of the bobbin. It is for all substantial purposes wholly within the bore of the bobbin. Indeed, in the specific bobbin illustrated, which has a transverse driving slot s to retain the bobbin in position during spinning, the internal ring is wholly within this slot so as not to conflict therewith.

I claim:—

1. A bobbin of wood or other absorbent material having one or more open resilient rings upon the exterior of its lower end and an opposed interior metallic reinforcing tube within the lower end of the bobbin, no portion of said interior tube extending substantially beyond the extreme lower end of the bobbin.

2. A bobbin of wood or other absorbent material having one or more open resilient rings upon the exterior of its lower end and

an opposed interior metallic reinforcing tube within the lower end of the bobbin, said interior tube being wholly within the bobbin and opposite to all of the external rings.

3. A bobbin of wood or other absorbent material having one or more open resilient rings upon the exterior of its lower end, a transverse slot in the lower end of the bobbin, and an internal reinforcing tube wholly within the bobbin and the slot thereof and opposite all of the external rings.

4. A bobbin of wood or other absorbent material having one or more rings upon the exterior of its lower end and an opposed interior metallic reinforcing tube held frictionally in place within the lower end of the bobbin, said interior tube being wholly within the bobbin and opposite the external rings.

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Witnesses:

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