T. MAYOR.

BOBBINS.

No. 180,145. Patented July 25, 1876.

Fig. I.

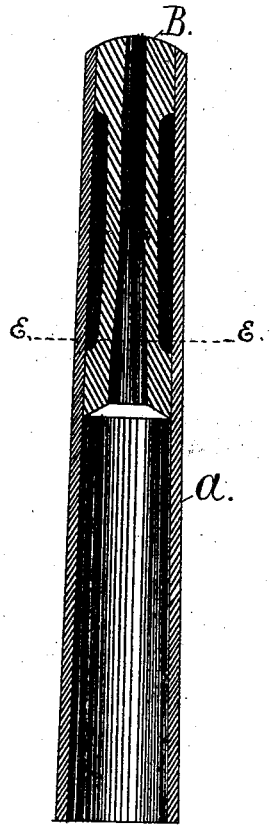

Fig. II.

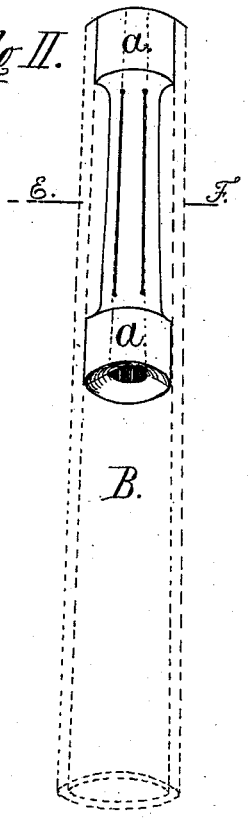

Fig. III

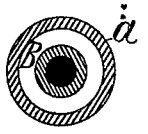

Fig. IV

Witnesses

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THOMAS MAYOR, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN BOBBINS.

Specification forming part of Letters Patent No. **180,145**, dated July 25, 1876; application filed July 18, 1874.

To all whom it may concern:

Be it known that I, THOMAS MAYOR, of the city and county of Providence and State of Rhode Island, have invented a new and useful Improvement in the Construction of Bobbins for Spinning-Machines; 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 drawings, forming part of this specification.

Figure I is a sectional view of the bobbin and bushing longitudinally through their center. Fig. II is a perspective view of the bushing, showing the bobbin in broken lines. Fig. III is a section of the bobbin and bushing at the line E E. Fig. IV is a section of the bobbin and bushing at E F, showing the slits cut into the central part of the bushing.

Similar letters of reference indicate corresponding parts.

The object of this invention is, first, to produce a bobbin that will be lighter than bobbins are as now made; second, a bobbin that will not warp or spring; and third, a bobbin that will not slip on the spindle or rise from its proper seat.

The nature of the invention consists in making a bobbin tubular, of uniform, or nearly uniform, thickness throughout, and placing within the tube a peculiar bushing having some elasticity, so that the spindle, no matter how light, will be firmly held by the same.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same.

The high speed at which spinning machinery is now driven demands that all parts of the same should be as light as possible. Light and thin spindles are, therefore, taking the place of the older, heavier, and thicker spindles. Large saving in power and higher speed are the result. The old construction of bobbin is not so well suited to the light spindles as to the heavier and larger spindles, and much difficulty is experienced in consequence of the bobbins turning loose on the spindle or rising from their proper seat. Bobbins are consequently forced upon the spindles by the operatives, and the light spindles are thus injured.

The object of this invention is to remedy this defect, and consists in placing an elastic bushing into the light tubular bobbin, arranged as shown in the drawings, in which—

a represents the bushing, made preferably of light, soft, and elastic material. The upper and lower ends of the bushing are turned to fit the interior of the bobbin, and the space between the ends is reduced in thickness and split longitudinally into staves, which, being secured to the bobbin and to each other, form springs, which yield when the spindle-blade is inserted, and press firmly against the spindle, regaining their original position when the spindle is withdrawn. The hole in the bushing to receive the spindle is made of less diameter than that of the spindle, to insure the above result. Figs. II and IV plainly show the lines of the cuts by which the bushing is divided into staves or springs, which will allow the spindle to pass between them and still hold the same firmly. The taper of a spindle being very slight, the mere placing of the bobbin on the same exerts a great force, and as the hole for the spindle is reamed slightly less in diameter than the spindle, the several parts of the bushing are forced outward and press tightly against the same. On withdrawing the same from the spindle all parts of the bushing resume their original position. There is, therefore, no tendency to permanently enlarge the bobbin, as is the case with the present bobbins; but bobbins made in this improved method will last much longer than ordinary bobbins.

I do not confine myself to placing the bushing in any particular place in the bobbin, but place the same at either end or the middle, as circumstances require.

The tubular bobbin B, when made as usual, of wood, of uniform, or nearly uniform, thickness, will not be liable to warp and spring when subjected to the ever-varying conditions of moisture to which bobbins are exposed, as bobbins made in the old manner, having half nearly solid wood and the other half a mere shell. They will also dry much quicker and more thoroughly than the old bobbins. The tube may also be made of paper or other suitable material, and the whole bobbin will be much lighter than the solid bobbin.

The great aim in all mills is to produce the finest work at the highest rate of speed, thus improving the quality while also increasing the quantity; but the slightest warping of any part of the bobbin interferes with this result, as the tension becomes alternately slack and tight, thereby breaking the yarn and making the same uneven.

I am aware that the shells of bobbins have been separated into staves by slits made into the same, but such slits weakened the bobbin and soon destroyed the same. I am also aware that bushings similar to mine have before this been placed into bobbins; but such bushings do not yield to the spindle, as they are not separated into staves, and act as cylinders, surrounding the spindle, having little or no elasticity.

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

The combination, with the cylindrical shell B, of the bushing *a*, provided with the spindle-hole of the form described, and divided by slits into separate staves or springs, whereby the bushing may yield to the spindle on its entrance, and press against the same, as and for the purpose described.

THOMAS MAYOR.

Witnesses:

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