S. W. WARDWELL.

BOBBIN.

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989,886.

Patented Apr. 18, 1911.

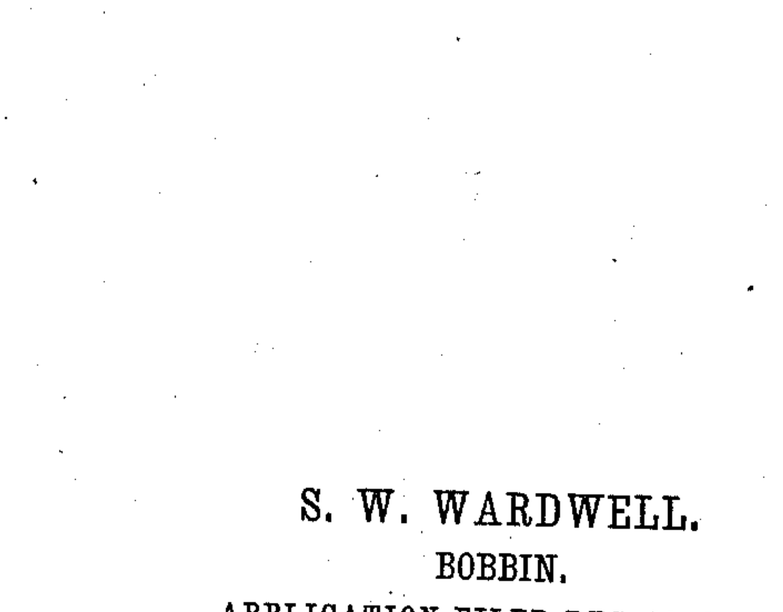

FIG. 1.

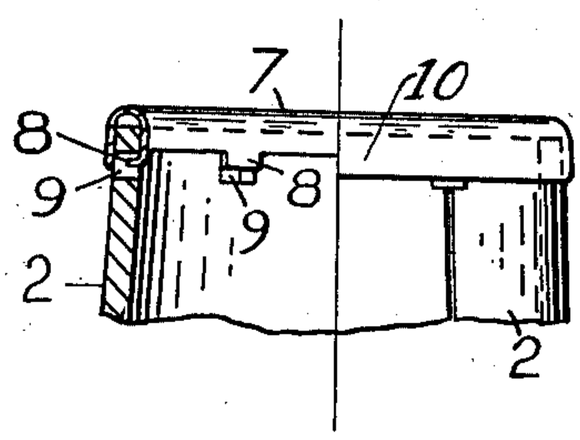

FIG. 3.

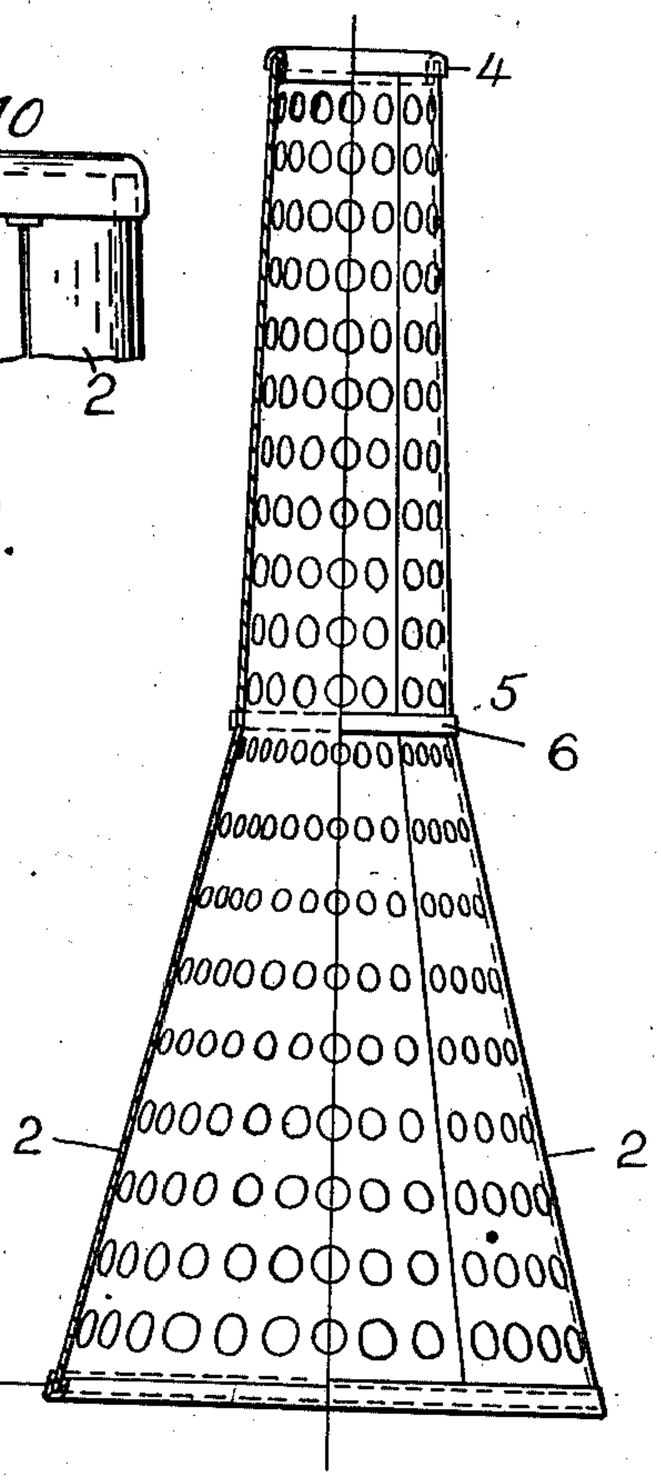

FIG. 2.

WITNESSES:

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UNITED STATES PATENT OFFICE.

SIMON W. WARDWELL, OF PROVIDENCE, RHODE ISLAND.

BOBBIN.

989,886. Specification of Letters Patent. Patented Apr. 18, 1911.

Application filed December 23, 1908. Serial No. 468,982.

To all whom it may concern:

Be it known that I, SIMON W. WARDWELL, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in Bobbins, of which the following is a specification.

My invention is an improved bobbin, particularly devised for use in dyeing, bleaching and kindred processes.

The purpose of my invention is to produce a tube of thin material, so constituted as to provide adequate support for the yarn and sufficiently staunch to sustain without damage the repeated handling to which it must be subjected. The means by which this is accomplished is fully disclosed in the following specification and accompanying drawings which represent respectively—

Figure 1, a plan of my improved bobbin, but shown without perforations in behalf of clearness. Fig. 2, an elevation in part section on the line *a*—*a* of Fig. 1, showing perforations in the staves. Fig. 3, a modified form of ferrule and mode of securing same.

The construction hereinafter disclosed applies particularly to the form known as the "bottle bobbin", the same being composed of two portions, a frusto-conical base and a stem, the latter usually tapered but of a slight degree.

My improved bobbin consists of a plurality of staves or segments 2—2—2 each extending the full length of the bobbin and including both a portion of the base and a portion of the stem, and therefore being formed with two degrees of taper, or inclination to the axis of the bobbin. There are preferably three of these staves, but the number is dependent on the size and proportion of the bobbin. The staves are bound together at the bottom and locked against longitudinal displacement by the ferrule 3 which, fitting within the ends of the staves, extends beneath and about said ends and is spun or otherwise formed tightly down upon their outer surfaces. The upper ends of the staves are similarly secured together by the ferrule 4 which extends within the bobbin and is formed down upon the outer surface. At the waist 5, distortion may be prevented by the hoop 6, though this is not always imperative, especially when the material of the staves is of substantial thickness.

When the bobbins are intended for use in dyeing, bleaching or other fluid treatments, the material of the staves is usually metal, with perforations for passage of the fluid.

Fig. 3 shows a modified ferrule construction in which the ferrule is formed with ears or lugs 8 which register with suitable openings 9 in the staves 2. In assembling the component elements of the bobbin, the staves are first engaged with the lugs 8 as aforesaid, and then the outer flange 10 of the ferrule is spun or otherwise formed down upon the staves as before described.

The advantage of my improved construction is apparent when it is understood that bobbins for the purpose described are some twelve inches in height by five or six inches diameter at the base. To produce such a bobbin in one piece would be costly beyond possibility of commercial use.

Therefore, without limiting myself to the precise form of bobbin or arrangement or character of its components I claim:

1. A compound frusto-conical bobbin composed of a plurality of staves, each stave formed with two different degrees of taper, the staves being bound together at the bottom and locked against longitudinal displacement by a ferrule which extends beneath and about the ends of the staves, and is formed down upon the outer surfaces thereof.

2. A compound frusto-conical bobbin composed of a plurality of staves, each stave formed with two different degrees of taper, the staves being bound together at the bottom and locked against longitudinal displacement by a ferrule which extends beneath and about the ends of the staves and is formed down upon the outer surface thereof, and secured together at the top by a

ferrule which extends within the staves and is formed down upon their outside as described.

3. A compound frusto-conical bobbin composed of a plurality of perforated staves, each stave formed with two different degrees of taper, the staves being bound together at the bottom and locked against longitudinal displacement by a ferrule which extends beneath and about the ends of the staves, and is formed down upon the outer surfaces thereof.

In testimony whereof I affix my signature in presence of two witnesses.

SIMON W. WARDWELL.

Witnesses:

DANIEL MCNIVEN,

GRACE W. BROWN.