

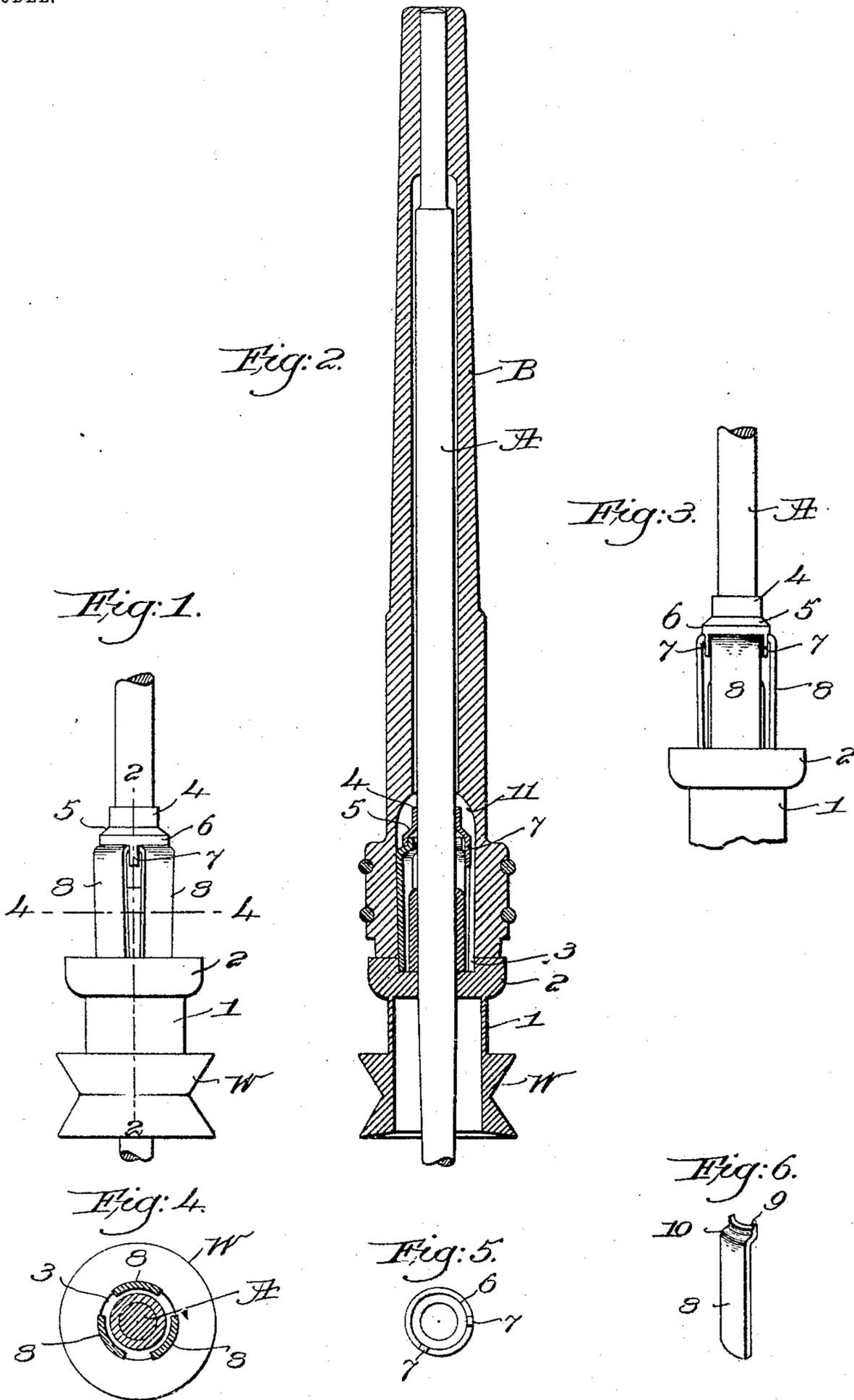
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PATENTED JULY 12, 1904.

C. E. NUTTING.
BOBBIN CLUTCHING MEANS FOR SPINNING SPINDLES.

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NO MODEL.



Witnesses,
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UNITED STATES PATENT OFFICE.

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BOBBIN-CLUTCHING MEANS FOR SPINNING-SPINDLES.

SPECIFICATION forming part of Letters Patent No. 764,757, dated July 12, 1904.

Application filed April 18, 1904. Serial No. 203,560. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. NUTTING, a citizen of the United States, residing in Hopedale, in the county of Worcester and State of Massachusetts, have invented an Improvement in Bobbin-Clutching Means for Spinning-Spindles, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to rotatable spinning-spindles; and it has for its object the production of novel and efficient means for retaining the yarn-receiver or bobbin in operative position on the spindle and driving it in unison therewith during the yarn-spinning operation.

My present invention is of the type wherein the bobbin is retained in position by or through centrifugally-acting clutching members which firmly engage the bobbin and cause its rotation, an apparatus of this type forming the subject-matter of United States Patent No. 734,747, dated July 28, 1903, to which reference may be had.

In actual practice there is at times some tendency of the bobbin to rise on the spindle, and herein I have so constructed and arranged the clutching means that this tendency is overcome in a very simple and effective manner. I have also simplified and cheapened the construction of the various parts, as will be more clearly understood hereinafter, the novel features of my invention being fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a side elevation of a spinning-spindle and its attached whirl with one embodiment of my novel bobbin-retaining means applied thereto. Fig. 2 is a longitudinal sectional view thereof on the line 2-2, Fig. 1, a bobbin being shown in operative position on the spindle. Fig. 3 is a detail in side elevation of the bobbin-retaining means, but viewed from a different position from Fig. 1. Fig. 4 is a transverse section on the line 4-4, Fig. 1, looking down. Fig. 5 is an under side view of the collar sustaining the

upper raceway to be described, and Fig. 6 is a perspective view of one of the clutching members detached.

The rotatable spinning-spindle A of usual construction has rigidly attached thereto a whirl W by means of a sleeve-like extension 1, the latter terminating in an enlarged circular head 2, provided in its upper face with an annular recess or raceway 3, Fig. 2, concentric with the spindle, the head serving as a vertical rest or support for the bobbin B, as shown.

Above the head a collar 4 is fixedly secured to the spindle, said collar having a flaring base 5, terminating in a downturned annular flange 6, and a series of equidistant depending lugs 7 are formed on or integral with the flange, the annular space or clearance between the flange and spindle constituting an upper raceway. I have herein shown three lugs 7, and these lugs are interposed between and separate the upper ends of the loosely-held centrifugally-acting bobbin-clutching members. One of these members is shown separately in Fig. 6, it comprising an elongated body 8 segmental in cross-section (see Fig. 4) and having its upper end inset to form an upturned head 9, the body being rounded externally at 10, where it joins the head. These members are made of sheet metal of uniform thickness and stamped or died out into shape without any upsetting, machining, or other complex and expensive mechanical processes, the body and head being of uniform thickness, as shown. Several of these clutching members are assembled around the spindle, their lower ends being loosely inserted in the raceway 3, while their heads 9 are loosely extended into the upper raceway within the flange 6 of the collar 4, the lugs 7 separating said clutching members at their upper ends. (See Figs. 1, 2, and 3.)

The raceways are broad enough to permit some radial movement of the clutching members while maintaining them coaxial with the spindle, the concave inner faces of the members enabling them to readily fit around the spindle. The upper raceway, however, is constructed to permit a greater outward move-

ment of the upper ends of the clutching members than their lower ends, so that when said members are thrown outward by centrifugal force due to rapid rotation of the spindle the external faces of the members will tend to assume an inverted conical form.

The yarn-receiver or bobbin B, Fig. 2, is cored out at the lower end of its bore, as at 11, and preferably the chamber so formed is made larger at its upper end, so that its walls incline inward toward its lower end. When the bobbin is slipped onto the spindle and down upon the head 2 of the whirl, as shown in Fig. 2, the clutching members readily enter the chamber 11 and immediately are brought into firm frictional engagement with its walls by the action of centrifugal force. As the upper ends of said members are permitted to move outward farther than the lower ends, they act to prevent lifting of the bobbin and retain it firmly upon the support 2. The positive rotation of the clutching members with the spindle is effected by the lugs 7, which engage and act upon the upright side edges of said members near their upper ends. By causing the separating devices 7 to act upon the clutching members at their upper ends I apply the rotating force at the parts of said members which are in principal driving engagement with the bobbin, as has been explained, and not only is the bobbin prevented from rising by such driving engagement at the upper ends of the clutching members, but a firmer drive is thereby effected.

When the spindle is rotating, a bobbin can be readily applied thereto or removed therefrom, as the clutching members yield or move inward as the open end of the bobbin-chamber 11 is moved longitudinally thereover, the convex or curved portions 10 of the clutching members providing an easy passage of the bobbin-head thereover.

It is unnecessary to forcibly crowd or jam the body down into place when applying the same, and by holding the bobbin in the hand the frictional force exerted by the clutching members can be overcome, even when the spindle is rotating, when it is desired to piece up a broken yarn.

While I have shown herein a rotatable spinning-spindle, it will be manifest that my invention is applicable to various types of spinning, twisting, or other rotatable spindles employed in textile apparatus of the same general character, the term "spinning" being used herein and in the claims in a comprehensive sense as including such other forms of rotating spindles.

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

1. The combination, with a rotatable spinning-spindle and an attached whirl, of bobbin-clutching members loosely confined at their

lower ends by the whirl, a collar fixedly secured to the spindle and embracing and cooperating loosely with the upper ends of said members to limit their outward movement, and means on said collar to laterally separate said members and cause their positive rotation bodily with the spindle.

2. A rotatable spinning-spindle having an attached whirl provided with a concentric annular raceway, centrifugally-acting bobbin-clutching members loosely held at their lower ends in the raceway, a collar secured to the spindle and loosely cooperating with and embracing the upper ends of said members, and depending lugs on the collar interposed between and to positively cause the rotation of said members bodily with the spindle.

3. A rotatable spinning-spindle having an attached whirl provided with a concentric annular raceway, centrifugally-acting bobbin-clutching members loosely held at their lower ends in the raceway, a collar secured to the spindle and having an inverted annular raceway to receive loosely the upper ends of the clutching members, and depending lugs integral with the collar and adjacent the periphery of said raceway, to laterally separate said members and act at their upper ends to effect positive bodily rotation of said members with the spindle.

4. The combination with a rotatable spinning-spindle provided with upper and lower annular raceways, of bobbin-clutching members loosely held at their upper and lower ends in the raceways, each member comprising a transversely-segmental, elongated body and a head inset therefrom, said body and head being of uniform thickness, and means adjacent the upper raceway and rotatable with the spindle to project between the upper ends of contiguous clutching members.

5. The combination with a rotatable spinning-spindle having an attached whirl provided with a concentric, annular raceway, of clutch members loosely held at their lower ends in said raceway and adapted to engage and drive a bobbin by or through the action of centrifugal force, each member having an inset, upturned head, a collar fixedly attached to the spindle and having an annular, downturned flange within which the said upturned heads loosely enter, and integral lugs depending from said flange to extend between the upper ends of contiguous clutching members, to separate the same and also positively cause their rotation bodily with the spindle.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES E. NUTTING.

Witnesses:

GEORGE OTIS DRAPER,
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