

A. H. MORTON.
 SPINDLE FOR SPINNING, TWISTING, AND LIKE MACHINES.
 APPLICATION FILED FEB. 2, 1914.

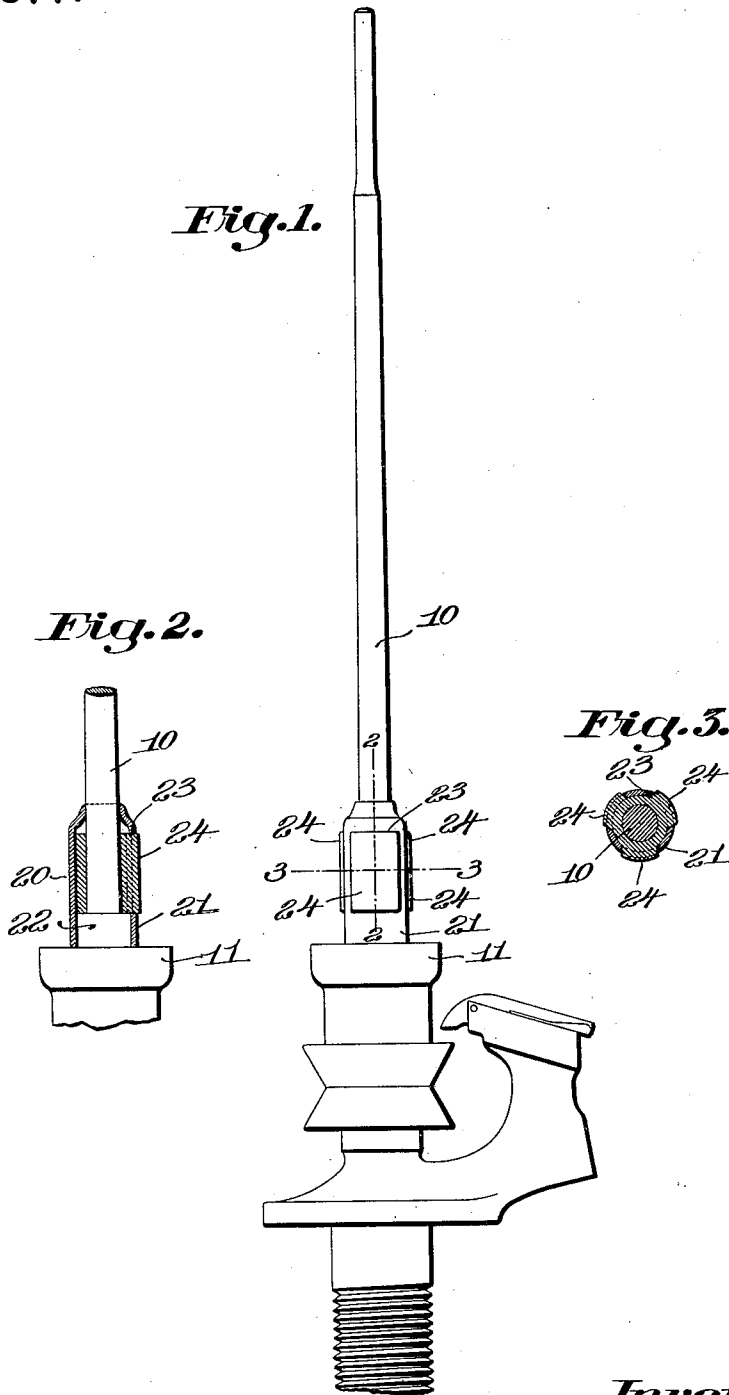
1,101,877.

Patented June 30, 1914.

Fig. 1.

Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

ALBERT H. MORTON, OF LOWELL, MASSACHUSETTS.

SPINDLE FOR SPINNING, TWISTING, AND LIKE MACHINES.

1,101,877.

Specification of Letters Patent.

Patented June 30, 1914.

Application filed February 2, 1914. Serial No. 816,031.

To all whom it may concern:

Be it known that I, ALBERT H. MORTON, a citizen of the United States, residing at Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Spindles for Spinning, Twisting, and the like Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to an improvement in spindles, and more particularly to an improvement in the bobbin and spindle connectors.

The object of the invention is to produce an improved form of connector which will hold the bobbin securely on the spindle in driving engagement and which is simple in construction, durable and cheap.

To the above ends the present invention consists in the improvement in spindles hereinafter described and particularly defined in the claims.

In the accompanying drawings illustrating the preferred form of the invention; Figure 1 is an elevation of a spindle; Fig. 2 is a vertical section on the line 2—2, Fig. 1; and Fig. 3 is a horizontal section on the line 3—3, Fig. 1.

Referring to the drawings, the illustrated embodiment of the invention is described as follows: The spindle blade 10 is provided with the usual bobbin support 11 carrying the whirl in the usual manner, being supported in any convenient spindle bearing. The spindle blade is provided at its base near the bobbin support with a bobbin clutch, indicated in a general way by the reference characters 20. This clutch consists of a metallic shell 21 provided with three openings in its sides of the form illustrated in the drawings. The body of the shell is cylindrical in form, of less diameter than the inside of bobbin and its upper end is necked down and provided with a concentric hole which fits the portion of the spindle blade with which it engages. This affords a concentric support for the shell 21 so as to hold it in correct position at its upper end on the spindle blade. The spindle blade just above the bobbin support is provided with a ring or collar 22 which is formed integral with the bobbin support. The outside of this collar affords a support

for the bottom of the shell which it fits, and thereby concentrically holds it in position on the blade. The several apertures 23 in the shell afford openings through which the cork friction material projects outward to form the friction surfaces 24. The side walls of the apertures are parallel to each other, as shown in Fig. 3, thereby affording provision for supporting the cork where it extrudes through the openings. The friction material consists of a ring of cork, the normal outside diameter of which is greater than the outside diameter of the shell 21. The inside diameter of the cork shell is normally somewhat less than the size of the spindle upon which it fits. The cork is inserted in the shell, after a steaming process by which the cork is rendered flexible and elastic, by the use of some device such as a jig to support the shell having portions which project into and fill the apertures in the shell, so as to render the inner surface of the shell a smooth cylindrical surface, and a tapering device supported in axial alinement therewith, the small end of which is the same size as the internal diameter of the shell into which the annulus of cork is received and through which it is forced into the shell. After the cork has been forced into position in the shell, the shell support is removed and the cork expands out through the apertures in the shell. The hole in the inside of the cork at this time is smaller than the size of the spindle blade which it is to fit, but when the assembled shell and cork ring is forced onto the spindle blade, the blade enters the hole in the cork and as the shell is forced onto the tapering blade it further expands the cork, causing it to be extruded through the apertures in the walls of the shell. The external surfaces 24 of the cork form the friction surfaces which engage the bobbin when it is placed on the spindle, and the cork is supported at all points except where it extrudes through the openings in the shell, so that the construction is durable and not liable to accidental injury. The above-described construction is preferred because it is strong and durable. Other constructions departing therefrom in detail are within the purview of the invention. It is to be observed that the cork forms the only friction surface engaged by the bobbin.

Having thus described the invention, what is claimed is:—

1. A spindle for spinning, twisting and the like machines having, in combination, a blade, a bobbin and spindle connector consisting of a cylindrical shell provided with
 5 openings therethrough, and soft, flexible, non-metallic friction material supported in and projecting from the openings beyond the outer surface of the shell, substantially as described.
- 10 2. A spindle for spinning, twisting and the like machines having, in combination, a spindle blade provided with a bobbin support, a collar mounted on the blade adjacent to the bobbin support, and a bobbin
 15 and spindle connector consisting of a shell having at its lower end a portion adapted to fit the collar and at its upper end a portion adapted to fit the spindle blade provided
 20 with openings in its sides, and soft, flexible, non-metallic friction material supported in said shell and projecting through the openings beyond the outer surface of the shell, substantially as described.
3. A bobbin and spindle connector for use
 25 on spindles for spinning, twisting and the like machines consisting of a cylindrical shell reduced at one end and having an opening therethrough for engagement with the blade of the spindle and having lateral
 30 openings, and soft, flexible, non-metallic friction material supported in the shell and projecting therethrough beyond the outer surface of the shell, substantially as described.
4. A bobbin and spindle connector for use
 35 on spindles for spinning, twisting and the like machines, consisting of a shell provided with openings therethrough, and a soft, flexible, non-metallic, friction device supported
 40 in the shell and having portions projecting through the openings in the shell and beyond the outer surface thereof, substantially as described.
5. A bobbin and spindle connector for connecting bobbins and spindles on spinning,
 45 twisting and the like machines consisting of a metallic shell provided with openings therethrough and secured to one of said members, and a soft, flexible, non-metallic, friction device supported by the shell and having
 50 portions projecting through openings in the shell and beyond the surface thereof to engage the other member, substantially as described.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."