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J. J. PICHETTE

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RETAINING MEANS FOR SPINDLE ADAPTERS

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Fig. 1.

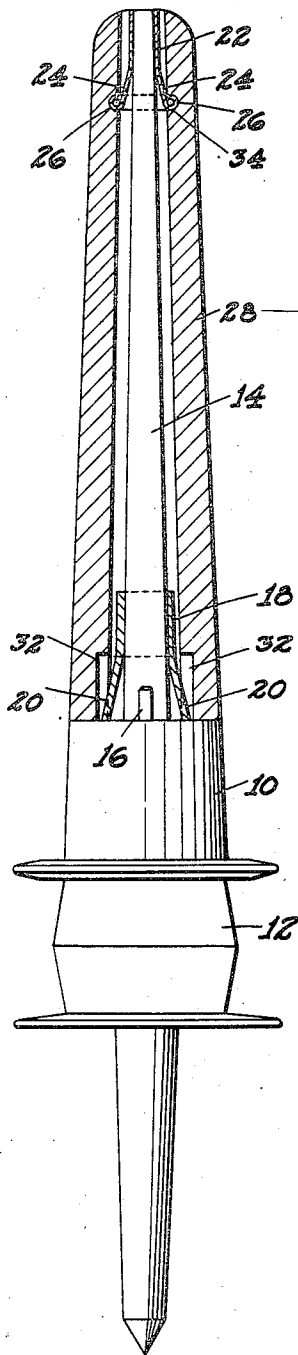
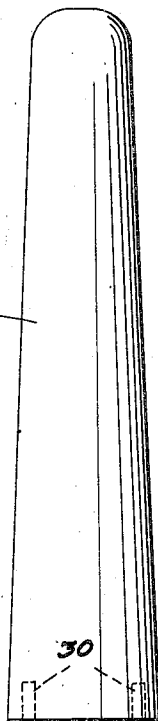


Fig. 2.

Fig. 5.

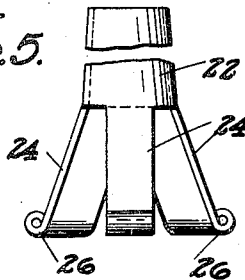
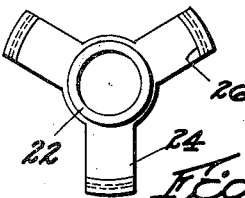


Fig. 6.

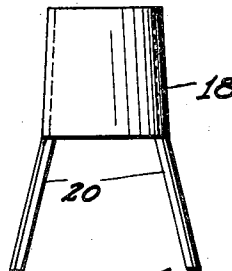


Fig. 4.

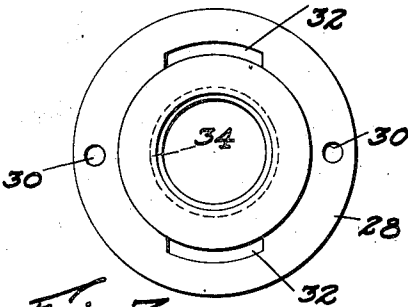


Fig. 3.

INVENTOR.
John J. Pichette
BY
Charles R. Fay,
Attorney

UNITED STATES PATENT OFFICE

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RETAINING MEANS FOR SPINDLE ADAPTERS

John J. Pichette, Whitinsville, Mass.

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7 Claims. (Cl. 57—130)

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This invention relates to a new and improved retaining means for a spindle adaptor for a bobbin spindle and the principal object of the invention resides in the provision of a new and improved lock for a spindle sheath for a bobbin or other thread carrier, such as a wound cardboard core.

Other objects of the invention include the provision of a sheath for a bobbin spindle in combination with means locking the sheath to the spindle so that the former is held against both axial and rotational movement relative thereto and yet the sheath is detachable and replaceable.

A further object of the invention resides in the provision of a bobbin spindle having secured thereto at one end thereof a spring steel device for engaging in an interior annular groove in a sheath for the spindle, the sheath being made of wood or other suitable material; and the spindle also being provided at its opposite end adjacent the whirl with spring finger means engaging in interior longitudinal grooves in the sheath, preventing relative rotational movement of the latter with respect to the former.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which

Fig. 1 is a view illustrating the invention and showing the new bobbin sheath in section, and the spindle in elevation;

Fig. 2 is a view in elevation of the sheath;

Fig. 3 is an enlarged bottom plan view of the sheath;

Fig. 4 is an enlarged view in elevation illustrating the spring finger connection at the lower end of the spindle;

Fig. 5 is an enlarged view in elevation showing the spring finger connection at the free end of the spindle; and

Fig. 6 is a bottom plan view of the spring finger connection of Fig. 5.

As shown in Fig. 1, the reference 10 indicates the spindle whirl and 12 indicates the pulley therefor which as is well known in the art, are fast to the spindle itself, which is indicated at 14. The whirl 10 is provided with a pair of upstanding pins only one of which is shown as at 16, these pins being located diametrically opposite each other, one at each side of the spindle 14.

Adjacent the whirl 10 the spindle is provided with either an integral or a pressed-on collar 18 provided with a pair of diametrically opposite spring fingers 20 which extend outwardly away

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from the spindle and point toward the whirl, as clearly shown in Fig. 1.

At the free end of the spindle the same is provided with another collar 22 carrying a plurality of spring fingers 24, each of which is provided at its free end with a bump or enlargement 26. It is to be understood that all of the spring fingers extend outwardly away from the spindle in the manner shown in Fig. 1 and at an incline, pointing toward the base of the spindle.

The sheath is generally indicated at 28 and preferably is in the form of a hollow tapering object on which the bobbin is adapted to be mounted, although the present invention is particularly adapted for the reception of wound paper cores as are used in the art. The sheath may be made of wood, plastic, or any other suitable material and is hollow, as shown in Fig. 1. At its lower or wider end it is provided with a pair of parallel holes 30 which receive the pins 16 and intermediate the pins the sheath is provided with a pair of opposite interior longitudinal grooves 32 in which are received the fingers 20 of the collar 18 so that the sheath when slipped over the spindle and turned so that the spring fingers 20 snap into the grooves 32, is prevented from rotating relative to the spindle but must rotate therewith, the spindle, therefore, driving the sheath with it.

Adjacent its upper end the sheath is provided with an internal circular groove 34 in which the enlargements 26 of the spring fingers 24 are engaged, thus preventing relative longitudinal movement of the sheath with respect to the spindle.

It will be seen that this invention provides a relatively simple locking means for a sheath for a bobbin spindle and that the sheath may be replaced when needed but, at the same time, is securely held in position and cannot become accidentally removed nor can it rotate relative to the spindle 14.

One of the main attributes of the present invention resides in the fact that the sheath, although somewhat fragile in nature due to its hollow construction, will not become damaged due to the act of placing it on the spindle, as is all too frequently the case in the prior art constructions. All that it is necessary to do in the present case is to slip the sheath on over the spindle and because the sheath is wider at the bottom than at the top and because of the angle and inclination of the spring fingers, this is easily accomplished. The sheath is thrust down over the spindle until the projections 26 snap into the groove 34 and the fingers 20 snap into the

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grooves 32, whereupon the operator knows that the sheath is in its correct operating position and is ready for use.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed otherwise than as set forth in the claims, but what I claim is:

1. Apparatus of the class described comprising a spindle and a sheath therefor, said sheath having longitudinal grooves and an annular groove, and interengaging means between the spindle and sheath for preventing relative motion therebetween, said means comprising spring fingers on the spindle received in the longitudinal grooves in the sheath and spring pressed means received in the annular groove in the sheath, said spring fingers holding the sheath firmly but being yieldable to permit removal and replacement of the sheath.

2. Apparatus of the class described comprising a spindle and a sheath therefor, said sheath having longitudinal grooves and an annular groove, and interengaging means between the spindle and sheath for preventing relative motion therebetween, said means comprising spring fingers on the spindle received in the longitudinal grooves in the sheath and spring pressed means received in the annular groove in the sheath, the spring fingers for the longitudinal grooves being located at the inner end of the spindle.

3. Apparatus of the class described comprising a spindle and a sheath therefor, said sheath having longitudinal grooves and an annular groove, and interengaging means between the spindle and sheath for preventing relative motion therebetween, said means comprising spring fingers on the spindle received in the longitudinal grooves in the sheath and spring pressed means received in an annular groove in the sheath, the spring fingers for the longitudinal grooves being located at the inner end of the spindle.

4. Apparatus of the class described comprising a bobbin spindle, a whirl thereon, spring fingers extending outwardly of the spindle at an angle thereto and pointing toward the whirl, said fingers being located adjacent the latter, a sheath having a longitudinal internal groove therein to receive the spring fingers when the sheath is thrust down over the spindle to the whirl, and means to prevent relative longitudinal movement of the sheath on the spindle when the sheath is in position on the latter.

5. Apparatus of the class described comprising a bobbin spindle, a whirl thereon, spring fin-

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gers extending outwardly of the spindle at an angle thereto and pointing toward the whirl, said fingers being located adjacent the latter, a sheath having a longitudinal internal groove therein to receive the spring fingers when the sheath is thrust down over the spindle to the whirl, and means to prevent relative longitudinal movement of the sheath on the spindle when the sheath is in position on the latter, said means comprising spring fingers on the spindle at its free end, the latter spring fingers being inclined out away from the spindle and pointing toward the whirl, the sheath having an internal annular groove to receive the latter named spring fingers.

6. Apparatus of the class described comprising a bobbin spindle, a whirl thereon, spring fingers at the free end of the spindle outwardly inclined and pointing toward the whirl, a sheath having an internal annular groove adjacent an end thereof to receive the spring fingers to resist removal of the sheath once the latter is fully home on the spindle, and means to prevent relative rotation between the spindle and sheath.

7. Apparatus of the class described comprising a bobbin spindle, a whirl thereon, spring fingers at the free end of the spindle outwardly inclined and pointing toward the whirl, a sheath having an internal annular groove adjacent an end thereof to receive the spring fingers to resist removal of the sheath once the latter is fully home on the spindle, and means to prevent relative rotation between the spindle and sheath, said means comprising spring fingers on the spindle outwardly inclined therefrom and a longitudinal groove in the sheath to receive the same.

JOHN J. PICHETTE.

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