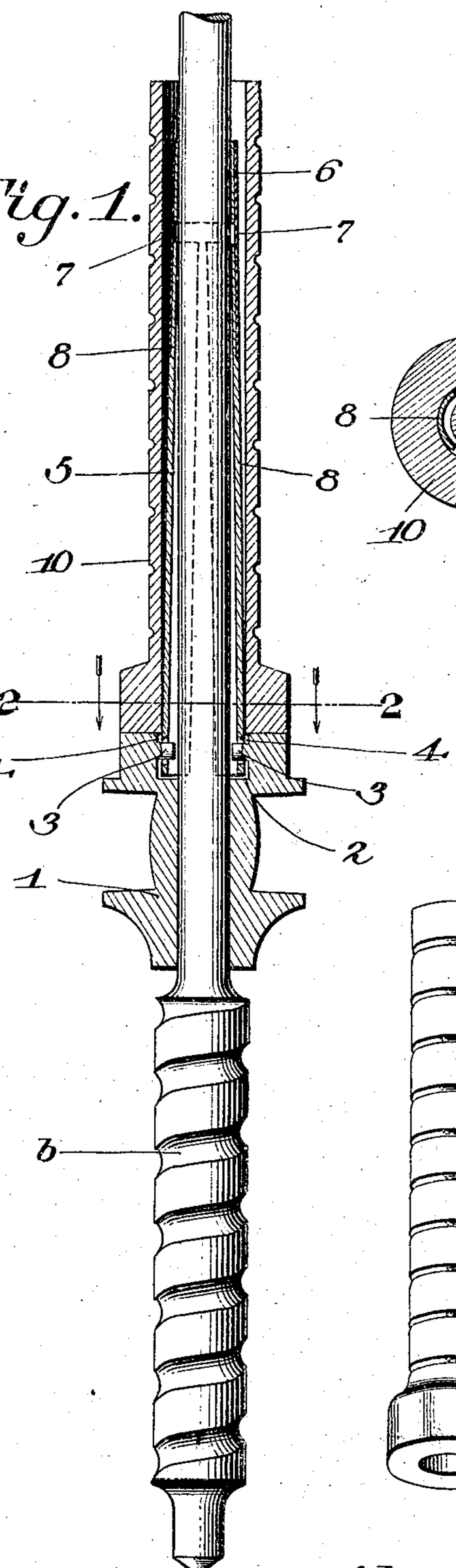
No. 782,535. PATENTED FEB. 14, 1905.

A. ASHWORTH.

BOBBIN HOLDER FOR SPINNING FRAMES.

APPLICATION FILED APR. 22, 1904.

Fig. 1.



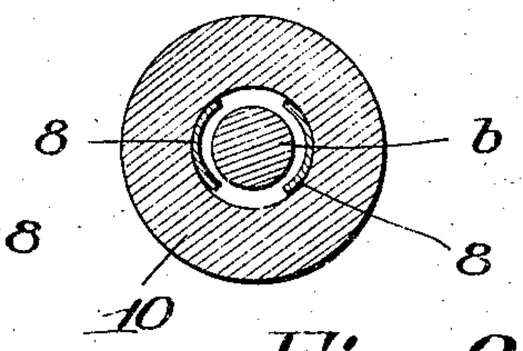
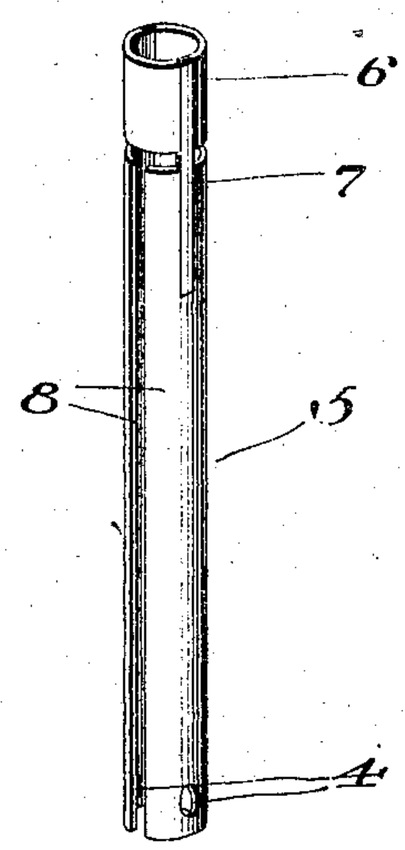


Fig. 2.

Fig. 3.



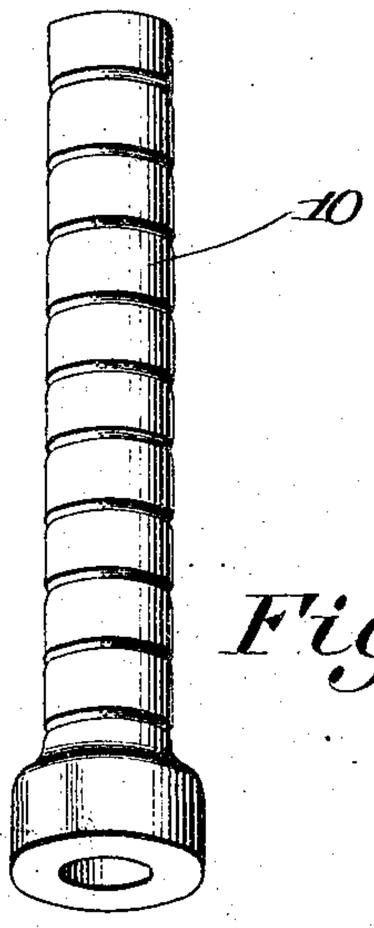


Fig. 4.

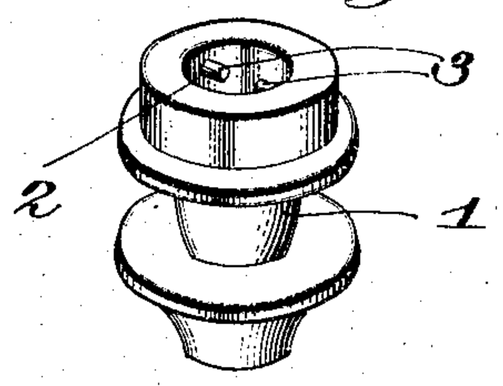


Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

ABRAHAM ASHWORTH, OF JAMESTOWN, NEW YORK.

BOBBIN-HOLDER FOR SPINNING-FRAMES.

SPECIFICATION forming part of Letters Patent No. 782,535, dated February 14, 1905.

Application filed April 22, 1904. Serial No. 204,469.

To all whom it may concern:

Be it known that I, ABRAHAM ASHWORTH, a citizen of the United States, residing at Jamestown, in the county of Chautauqua and State of New York, have invented a new and useful Bobbin-Holder for Spinning-Frames, of which the following is a specification.

This invention relates to spinning and twisting machines, and has for its principal object to provide improved means for connecting the bobbin to the whirl, so that all danger of injury to the operator will be avoided should it become necessary, from breakage of the thread or other causes, to remove the bobbin or stop its rotative movement.

A further object of the invention is to provide a novel construction of expanding mandrel that is held in contact with the bore of the bobbin by centrifugal force, and, further, to provide a novel form of whirl and mandrel construction in which the two are held locked together by centrifugal force.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in the novel construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a sectional elevation of a bobbin, whirl, and spindle constructed in accordance with the invention. Fig. 2 is a sectional plan view of the same on the line 2 2 of Fig. 1. Fig. 3 is a perspective view of the expansible mandrel detached. Fig. 4 is a similar view of the whirl. Fig. 5 is a detail perspective view of the bobbin which it is preferred to employ.

Similar characters of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

On each spindle *b* is loosely mounted a whirl 1, having the usual convex belt-engaging surface. The top of the whirl is provided with a bore of increased diameter, such as 2, and from the inner walls of this extend inwardly-projecting pins 3, that are adapted to engage in openings 4, formed in the lower portions of an expanding mandrel 5, and by thus interlocking with the mandrel insure rotative movement of the latter. The mandrel 5 is approximately tubular in form, its upper end being cylindrical and forming a ring 6, which fits over the spindle, and connected to the ring by small arms 7, formed of inherently elastic material, is a pair of arms 8 of arcuate form in cross-section, and in each arm is formed one of the openings 4.

The bobbin used may be the bobbin of commerce and provided with the usual notches, or the bobbin 10 may be employed, this being the preferred construction and it being unnecessary to form any notches in the head, as is usual where bobbins are constructed in such manner as to receive the usual locking-lugs of the whirl.

In using whirls and bobbins of ordinary construction the operator is more or less severely injured at times when stopping a bobbin by hand in the event of breakage of the thread, it being usual to grasp either the bobbin or whirl, or both, and slightly raise the bobbin until its notches are above the locking-lugs of the whirl; but with the present construction its is merely necessary for the operator to grasp the bobbin and the same will be readily held from rotative movement. During the operation of the device the two arms of the mandrel will be held outward by centrifugal force and will engage against the bore of the bobbin with sufficient force to insure the turning of the bobbin and the winding of the yarn thereon. The lower ends of the arms are further held outward, and the pins of the whirl fully enter the openings of said arms, so that positive rotative movement will be imparted to the mandrel.

The mandrel may be formed of separate members soldered or otherwise connected to each other, or it may be formed of light metal and the arms formed by sawing or otherwise cutting away portions of the two.

It will be observed that the driving connection between the whirl and the mandrel is direct and positive, while the connection be-

tween the mandrel and the bobbin is frictional in its nature, so that the operator may readily stop the bobbin by hand when necessary.

Having thus described the invention, what is claimed is—

1. An apparatus for use in connection with stationary spindles, comprising a whirl, an expansible mandrel, and locking means between the whirl and mandrel, said locking means being rendered effective under the influence of centrifugal force, and the mandrel being held in contact with the bore of the bobbin by the same force.

2. The combination with a whirl, of an expansible mandrel including a yieldable arm having an opening, a pin or lug carried by the whirl and adapted to enter said opening, the two members being held locked under the influence of centrifugal force.

3. The combination with a whirl having a projecting pin or lug, of a mandrel including a yieldably-mounted perforated arm, said arm moving outward under the influence of centrifugal force in order to lock the mandrel to the whirl.

4. An apparatus for use in connection with a stationary spindle, comprising a whirl, a mandrel having an upper ring, a pair of yieldably-mounted arms carried thereby, the lower free ends of said arms being movable outward under the influence of centrifugal force to frictionally engage the mandrel and interlocking means between the whirl and the lower end of the mandrel.

5. A mandrel comprising a spindle-encircling ring, a pair of arms for engagement with the interior of the bobbin and a securing means in the form of a contracted tongue of inherently-elastic metal connecting the ring to the arms.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ABRAHAM ASHWORTH.

Witnesses:

J. C. JOCHUM, Jr.,

J. ROSS COLHOUN.