No. 784,929. PATENTED MAR. 14, 1905.

G. O. DRAPER.

BOBBIN CLUTCHING MEANS FOR ROTATABLE SPINDLES.

APPLICATION FILED JAN. 4, 1905.

Fig. 1.

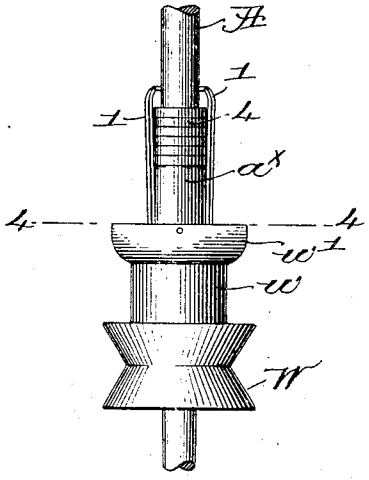


Fig. 2.

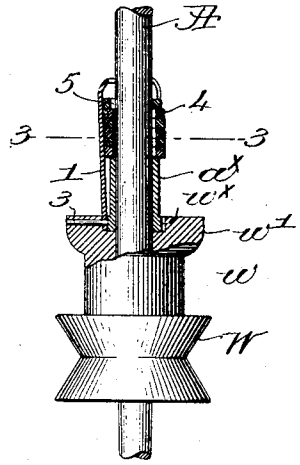


Fig. 3.

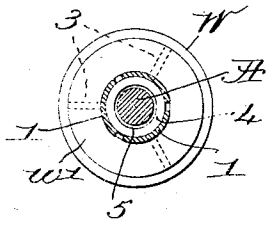


Fig. 4.

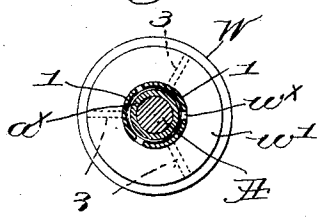
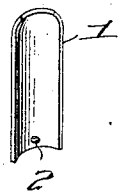


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE O. DRAPER, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO SAWYER SPINDLE COMPANY, OF PORTLAND, MAINE.

BOBBIN-CLUTCHING MEANS FOR ROTATABLE SPINDLES.

SPECIFICATION forming part of Letters Patent No. 784,929, dated March 14, 1905.

Application filed January 4, 1905. Serial No. 239,589.

To all whom it may concern:

Be it known that I, GEORGE O. DRAPER, a citizen of the United States, and a resident of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Bobbin-Clutching Means for Rotatable 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, twisting, and other spindles provided with centrifugally-acting means to engage and retain the yarn-carrier or bobbin in place upon the spindle; and it has for its object the production of means to distribute and equalize the outward pressure of the centrifugally-acting clutching members and also to augment such pressure.

By means of the construction to be described hereinafter an uneven load is equalized and any unevenness in the bobbin is accommodated and provided for.

The various novel features of my invention will be fully described in the subjoined specification, and particularly pointed out in the following claims.

Figure 1 is a front elevation of a rotatable spindle provided with bobbin-clutching means embodying my invention, one of the centrifugally-acting clutching members being removed. Fig. 2 is a longitudinal sectional view of the clutching means, taken through the center of the spindle. Fig. 3 is a transverse section looking down on the line 3 3, Fig. 2. Fig. 4 is a similar view on the line 4 4, Fig. 1, and Fig. 5 is an inner side perspective view of one of the clutching members.

The rotatable spindle A and its whirl W, connected with the spindle by a sleeve w, the latter having an enlarged head w' to form a bobbin-rest, may be and are of well-known construction. The spindle above the bobbin-rest is shown as enlarged at $a^{\times}$, and an annular recess or seat $w^{\times}$ is formed in the head w', concentric with such enlargement, to loosely receive the lower ends of the clutching members 1. One of such members is shown separately in Fig. 5, it being concavo-convex in transverse section and having a hole 2 in its lower end, the upper end being shaped to partly embrace the spindle, the general form of the clutching member being well known in the art. I have shown three of such members loosely arranged around the spindle, and each is positively held in place and also laterally positioned by a pin 3, driven radially into the head and through the holes 2 in the lower ends of the members. (See Fig. 4.) The clutching members can thus rock about their lower ends in a radial direction by or through centrifugal action when the spindle is rotated, the free upper portions of the members moving outward to engage the bobbin-chamber in usual manner and effect its rotation with the spindle. The outer wall of the recess $w^{\times}$ serves to limit such outward movement, as will be obvious, and the pins 3 prevent lifting of and also maintain the clutching members in proper position around the spindle. Upon the latter and within the upper portions of the members 1 I mount a number of loose rings 4, the series being vertically supported by the top of the enlargement $a^{\times}$, while the inturned upper ends of the clutching members prevent upward displacement of the rings, the central hole 5 in each being larger than the diameter of the spindle.

The application of loose rings to a revolving spindle or shaft assists in equalizing an uneven load thereupon, as is well known, and in my present invention they act in such manner, coöperating with one or all of the clutching members by or through centrifugal action in such a way as to properly distribute and equalize the outward pressure of such members. Any possible unevenness in the bobbin at the clutching portion is thus accommodated and compensated for. Not only this, but the loose rings serve as supplementary centrifugally-controlled means to augment the driving-pressure of the clutching members engaging the inner faces thereof and increasing the pressure with which they engage the bobbin.

The construction is simple, inexpensive, and

effective and counteracts any inequality in the clutching action due to uneven or unbalanced loads.

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

1. The combination with a rotatable spindle, of a plurality of centrifugally-acting bobbin-clutching members mounted thereon, and centrifugally-controlled pressure-equalizing means to coöperate with said clutching members.

2. The combination with a rotatable spindle, of a plurality of centrifugally-acting bobbin-clutching members mounted thereon, and having a limited radial movement, and centrifugally-controlled pressure-equalizing means to coöperate with the inner faces of the said clutching members.

3. The combination with a rotatable spindle, of a plurality of centrifugally-acting bobbin-clutching members mounted thereon, and supplementary centrifugally-controlled means to augment the clutching action of said members.

4. The combination with a rotatable spindle, of a plurality of centrifugally-acting bobbin-clutching members mounted thereon, to rock radially upon their lower ends, and supplementary centrifugally-controlled means to act internally upon the upper ends of the clutching members.

5. The combination with a rotatable spindle, of a plurality of centrifugally-acting bobbin-clutching members, means to positively connect the lower ends of said members with the spindle while permitting them to rock radially, and centrifugally-controlled pressure equalizing and distributing means to coöperate with the upper ends of said members.

6. The combination with a rotatable spindle of a plurality of centrifugally-acting bobbin-clutching members, means to laterally position and positively connect the lower ends of the clutching members with the spindle while permitting them to tip or rock radially about their lower ends, and supplementary centrifugally-controlled means to coöperate with and augment the clutching action of said members.

7. The combination with a rotatable spindle, of a plurality of centrifugally-acting bobbin-clutching members mounted upon and bodily rotatable with the spindle, and a plurality of loose rings surrounding the spindle and inclosed by the clutching members, said rings acting by or through centrifugal action to cooperate with the clutching members and equalize and augment their clutching action.

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

GEORGE O. DRAPER.

Witnesses:
E. D. BANCROFT,
ERNEST W. WOOD.