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PATENTED APR. 28, 1908.

A. D. MORSE.  
BOBBIN DRIVING MEANS FOR ROTATABLE SPINDLES.  
APPLICATION FILED DEC. 6, 1907.

Fig. 1

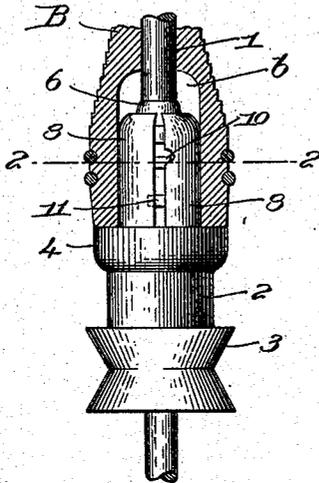


Fig. 2

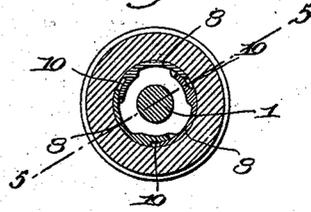


Fig. 3

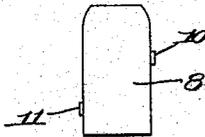


Fig. 4

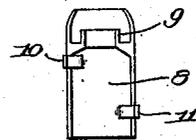
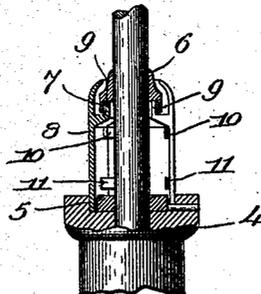


Fig. 5



Witnesses,  
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Andrew D. Morse,  
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attys.

# UNITED STATES PATENT OFFICE

ANDREW D. MORSE, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO DRAPER COMPANY, OF HOPEDALE, MASSACHUSETTS, A CORPORATION OF MAINE.

## BOBBIN-DRIVING MEANS FOR ROTATABLE SPINDLES.

No. 885,855.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed December 6, 1907. Serial No. 405,318.

*To all whom it may concern:*

Be it known that I, ANDREW D. MORSE, a citizen of the United States, and resident of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Bobbin-Driving Means for Rotatable Spindles, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention relates more particularly to that type of bobbin-driving means for rotatable spindles of spinning, twisting or similar apparatus, wherein the driving or clutching members are moved into operative engagement with the bobbin by or through centrifugal action.

In practice it has been found that at times the clutching members do not operate evenly or uniformly; that is, if a bobbin be out of balance so that it tends to run eccentric to the axis of rotation of the spindle the clutching members adapt themselves to the eccentricity, which of course is objectionable.

My present invention has for its object the production of bobbin-driving means of the type referred to, constructed and arranged to overcome the unequal or non-uniform action of the clutching members, and the 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 side elevation of a part of a rotatable spindle provided with bobbin driving means embodying my invention, one of the clutching members being partly broken out and the lower part of a bobbin being shown in section positioned on the spindle; Fig. 2 is a horizontal section on the line 2—2, Fig. 1, looking downward; Fig. 3 is an outer face view of one of the clutching members; Fig. 4 is an inner face view thereof; Fig. 5 is a partial section and elevation, omitting that one of the clutching members nearer the spectator, as if taken on the line 5—5, Fig. 2.

The rotatable spindle 1 has an attached sleeve 2 provided with a whirl 3, the upper end of the sleeve being enlarged at 4 to form a head constituting a bobbin rest, said head having an annular recess or motion-limiting raceway 5, Fig. 5, to receive loosely the lower ends of the centrifugally-acting bobbin-clutching members.

A collar 6 fast on the spindle has an annu-

lar depending flange 7, to form a second motion-limiting raceway for the upper ends of the clutching members, the construction thus far described being well known and not of my invention. The clutching members 8 are transversely segmental, elongated pieces of metal of such a curvature as will loosely embrace the spindle, their lower ends entering loosely the annular raceway 5, and upturned projections 9 on the inner faces of the members extend behind the flange 7, to limit outward movement of the members due to centrifugal action when the spindle is rotated.

The general contour of the external faces of the clutching members is such as to enable the said members to enter the recess *b*, Fig. 1, in the base of the bobbin B, and internally engage and drive the bobbin in unison with the spindle, the centrifugal action forcing the clutching members firmly against the walls of the bobbin recess *b*.

In order that the clutching members shall have a uniform, simultaneous outward movement, to thereby center the bobbin relatively to the spindle, rather than to permit said members to adapt themselves to any eccentricity of the bobbin, I have provided means whereby each clutching member coöperates, in its outward movement, with adjacent members, to move them equally. To that end I provide each member with lateral projections 10, 11, at different distances from the lower end of the member, the projection 10 of any member lying back of the adjacent member at one side, while the projection 11 lies back of or behind the adjacent member at the other side. The projections 10 and 11 are staggered, or arranged at different heights so that a projection 10 will not interfere with the projection 11 of the next member, as will be manifest.

Herein I have shown three of the clutching members 8, arranged around the spindle, that number being commonly employed, and it will be seen that each member coöperates with both of its fellows, as I have herein illustrated my invention. Now when any member is moved outward it acts upon its fellows and causes them to move outward simultaneously an equal amount, so that the outward movement of said members is uniform. Should the bobbin be out of balance and tend to run eccentric to the axis of rotation of the spindle such tendency will be corrected, for as all the members have a uniform move-

ment the bobbin will thereby be centered and maintained in such position while engaged by the clutching members.

My invention is not restricted to the precise structure of the clutching members, for they may be varied or changed in specific details without departing from the spirit and scope of my invention.

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 elongated bobbin-clutching members, rotatable therewith and adapted to interiorly engage a bobbin, means to limit outward movement of said members, and means whereby outward movement of one of said members positively effects simultaneous and uniform outward movement of the other members.

2. The combination with a rotatable spindle, of elongated bobbin-clutching members rotatable therewith, and adapted to interiorly engage a bobbin, means to limit outward movement of said members, and means to effect mutual engagement between adjacent members whereby said members will move outward simultaneously and uniformly to center the bobbin with relation to the spindle.

3. The combination, with a rotatable spin-

dle, of elongated, centrifugally-acting bobbin-clutching members rotatable therewith and adapted to interiorly engage a bobbin, and means whereby outward movement of each member effects simultaneous and equal outward movement of the adjacent member.

4. The combination, with a rotatable spindle, of elongated, centrifugally-acting bobbin-clutching members rotatable therewith and adapted to interiorly engage a bobbin, and means on each member to engage the inner faces of adjacent members and effect outward movement of the several members simultaneously and uniformly.

5. The combination, with a rotatable spindle, of three elongated and transversely segmental, centrifugally-acting bobbin-clutching members surrounding and rotatable with the spindle, and lateral projections on each member to extend back of the adjacent edges of the other two members, to effect outward movement of all the members simultaneously and uniformly.

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

ANDREW D. MORSE.

Witnesses:

GEORGE OTIS DRAPER,  
ERNEST W. WOOD.