Nov. 17, 1931. G. WEST 1,832,072

BOBBIN CLUTCH

Filed Dec. 28, 1929

Fig. 1.

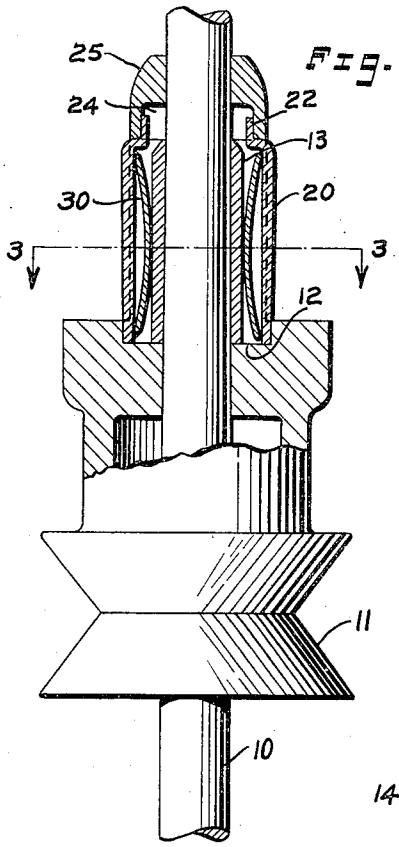


Fig. 2.

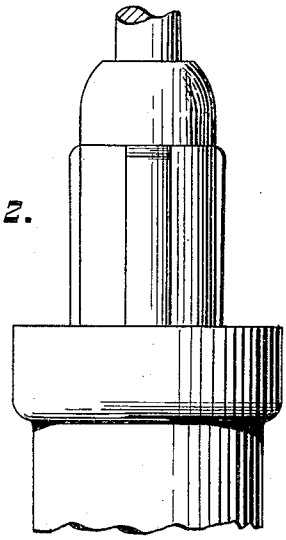


Fig. 4.

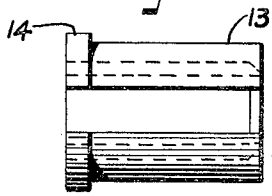


Fig. 5.

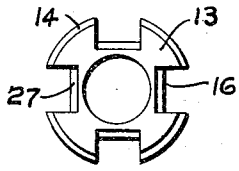
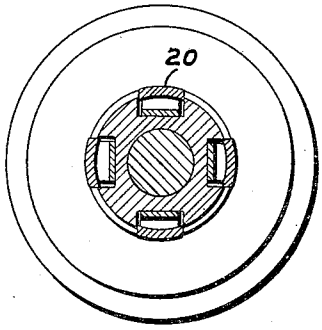


Fig. 3.



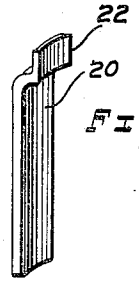


Fig. 6.

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UNITED STATES PATENT OFFICE

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BOBBIN CLUTCH

Application filed December 28, 1929. Serial No. 417,220.

This invention relates to spindles used on spinning or twisting machines and more particularly to means for holding and driving a bobbin mounted on such a spindle.

It is the object of my invention to provide an improved clutch for such purposes, so designed that an increased area of driving contact is obtained and that a more accurate centering of the bobbin is made possible.

My invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

A preferred form of the invention is shown in the drawings, in which

Fig. 1 is a side elevation, largely in section, of parts of a spindle having my improvements embodied therein;

Fig. 2 is a side elevation thereof;

Fig. 3 is a sectional plan view, taken along the line 3—3 in Fig. 1;

Fig. 4 is a side elevation of a driving bushing;

Fig. 5 is an end view thereof; and

Fig. 6 is a perspective view of one of the clutch members.

Referring to the drawings, I have shown portions of a spindle including a blade 10 and a driving whirl 11 preferably having a recess 12 in its upper surface. A bushing 13 is mounted on the blade 10 and is preferably provided with a flange 14 closely fitting within the recess 12 in the whirl 11. The bushing 13 is provided with a plurality of spaced slots 16 extending axially of the bushing and preferably of uniform depth throughout.

Clutch members 20 are preferably formed of segmental section with an inwardly offset upper portion 22. These clutch members are mounted in the slots 16 and are freely slidable radially therein.

The offset upper ends 22 of the members 20 extend into a recess 24 in a cap 25 which is mounted on the blade 10 above the bushings 13. The body of the bushing 13 at the upper ends of the slots 16 is beveled inwardly, as indicated at 27, to provide clearance for the offset upper ends 22 of the clutch members 20.

Segmental leaf springs 30 are mounted in the slots 16 behind the clutch members 20 and normally force the clutch members outward until their lower ends engage the outer wall of the recess 12 in the whirl 11 and their inwardly offset upper ends 22 engage the outer wall of the recess 24 in the cap 25. When thus positioned, the members 20 are substantially parallel to the axis of the blade 10.

The center opening of a bobbin is commonly somewhat less in diameter than the diameter of the circle tangent to the members 20 when in their outer position, and said members 20 are thus forced yieldingly inward when a bobbin is placed thereon. The fact that the members 20 are freely slidable inward both at their upper and lower ends and that they are equally pressed outward by the springs 30 at their upper and lower ends permits the members 20 to slide directly and radially inward when engaged by the bobbin and permits them to assume a position in which they are in contact with the inner wall of the bobbin throughout their entire length, instead of engaging the bobbin at a single point only as has been customary in the prior art. This full engagement of the members 20 with the bobbin aids in the accurate centering thereof and also provides a greatly increased area of contact for developing the necessary driving friction.

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. In a spindle having a blade and a driving whirl, a bobbin clutch comprising a longitudinally slotted bushing mounted on said blade, clutch members radially slidable in the slots of said bushing, upper and lower means to limit outward movement of said members, and springs effective to move said members outward against the inner wall of a bobbin a separate spring being provided for each clutch member and each spring engaging its member near the ends of said spring and member and engaging the bush-

ing at an intermediate point in the length of the spring.

2. In a spindle having a blade and a driving whirl, a bobbin clutch comprising a longitudinally slotted bushing mounted on said blade, clutch members radially slidable in the slots of said bushing, the lower ends of said bushing and said members being centered in a recess in said whirl and substantially closing said recess to exclude dirt therefrom and said members being limited in outward movement thereby, means to limit outward movement of the upper ends of said members, and springs effective to move said members outward against the inner wall of a bobbin.

3. In a spindle having a blade and a driving whirl, a bobbin clutch comprising a longitudinally slotted bushing mounted on said blade, clutch members radially slidable in the slots of said bushing, upper and lower means to limit outward movement of said members, and arcuate leaf springs positioned in said slots and engaging said members at separated points adjacent the ends of said members, said springs being effective to move said members outward against the inner wall of a bobbin.

In testimony whereof I have hereunto affixed my signature.

GEORGE WEST.