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J. V. CUNNIFF.

BOBBIN CLUTCHING MEANS FOR ROTATABLE SPINDLES.

APPLICATION FILED APR. 28, 1905.

Fig. 1.

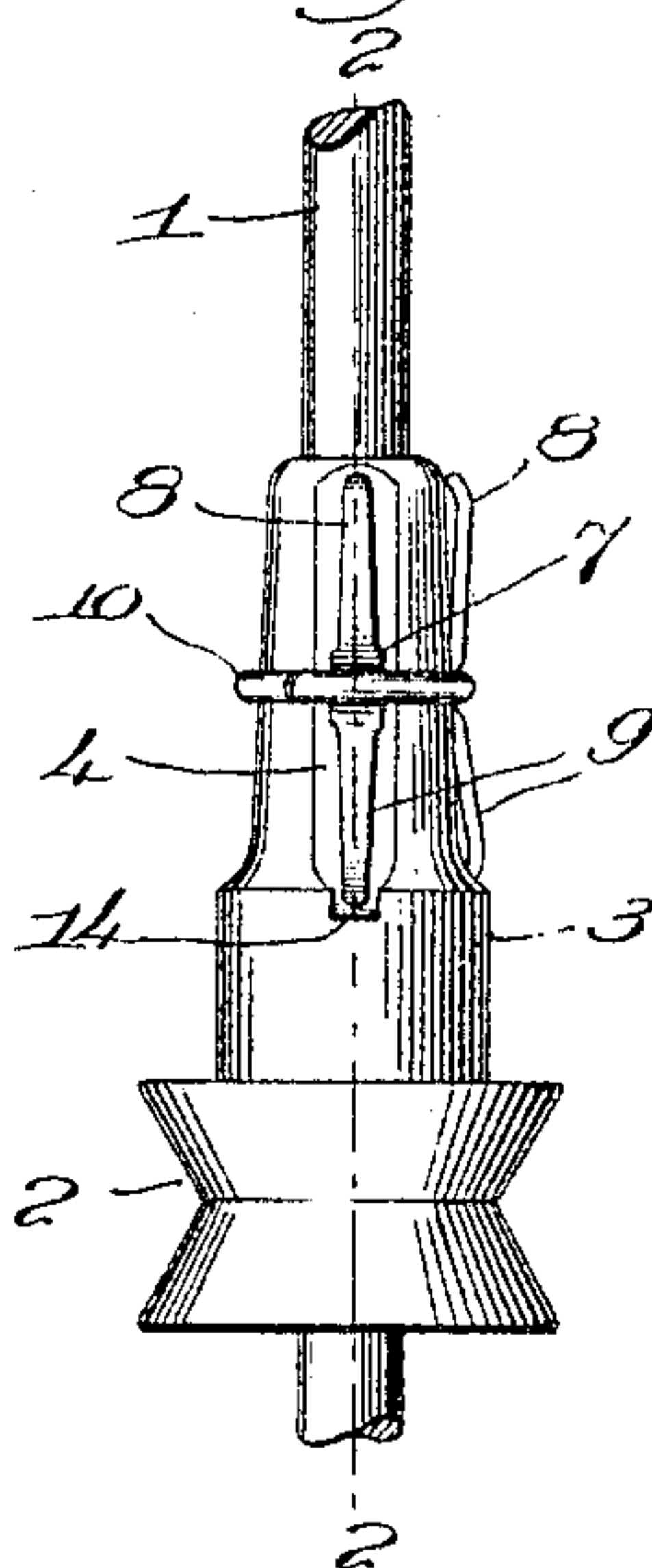


Fig. 2.

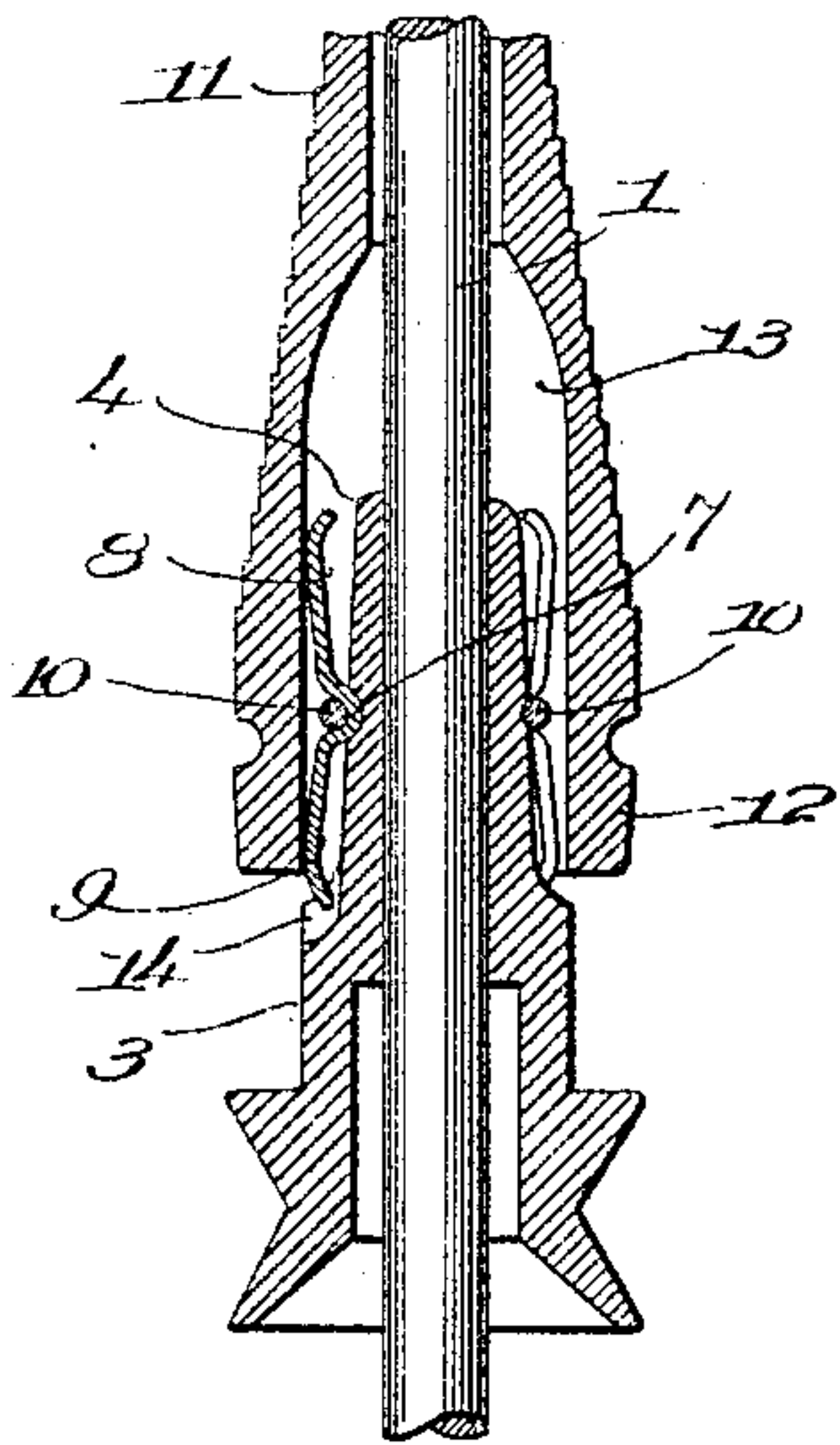
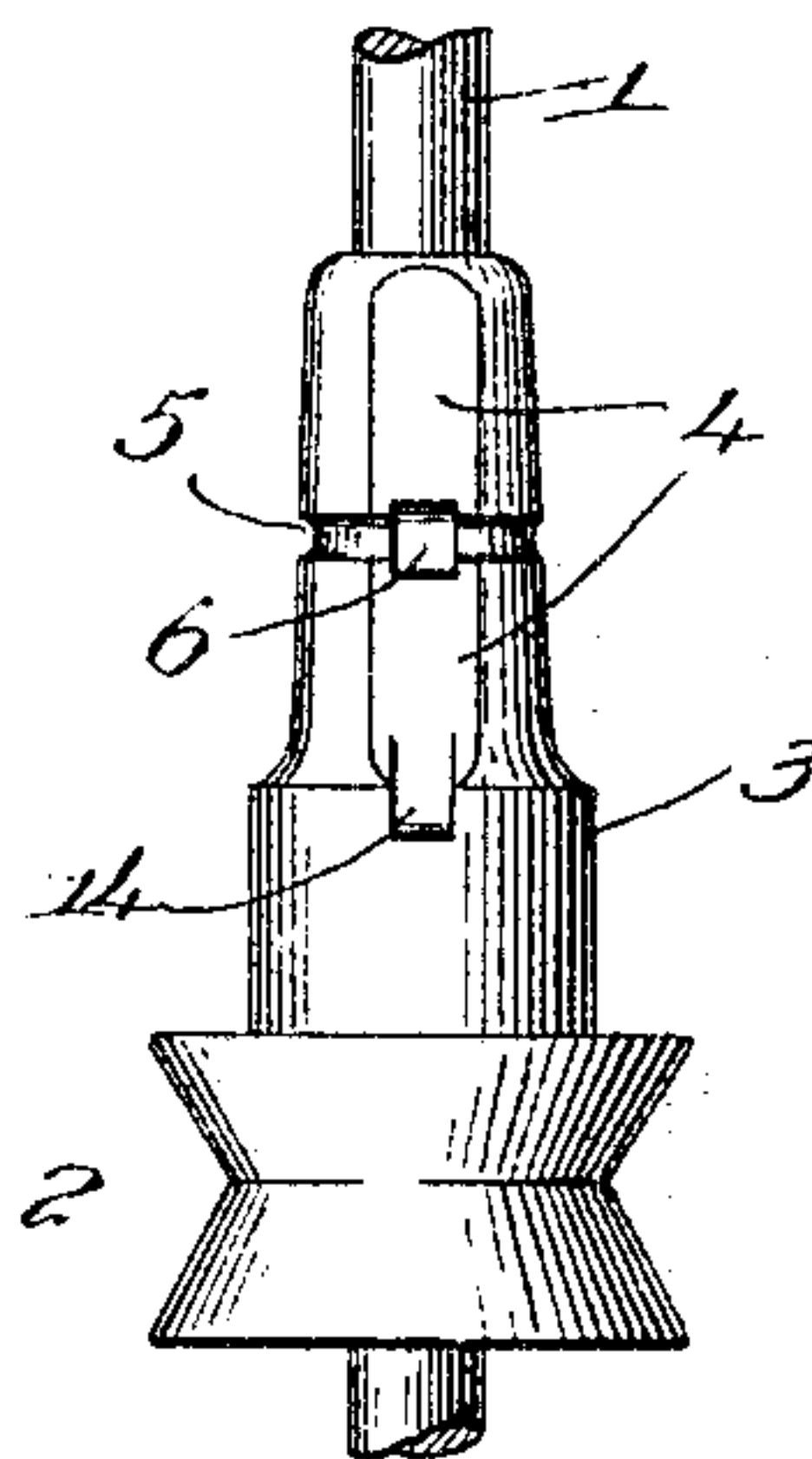


Fig. 3.



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UNITED STATES PATENT OFFICE.

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BOBBIN-CLUTCHING MEANS FOR ROTATABLE SPINDLES.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN V. CUNNIFF, a citizen of the United States, and a resident of Fall River, county of Bristol, 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 figures on the drawings representing like parts.

This invention has for its object the production of novel and simple bobbin-clutching means for rotatable spinning, twister, or similar spindles whereby an effective driving engagement is easily secured and maintained between clutching members connected with the spindle and the yarn-receiver or bobbin when applied thereto.

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 side elevation of a portion of a rotatable spindle with one embodiment of my invention applied thereto. Fig. 2 is a sectional view thereof on the line 2 2, Fig. 1, the lower portion or head of a bobbin being also shown in section clutched on the spindle; and Fig. 3 is a view similar to Fig. 1, but omitting the clutching members.

The spindle-blade 1 and whirl 2, secured to or integral with the lower end of a depending sleeve 3, attached at its upper end to the spindle, may be and are in general of a familiar construction. Herein, however, I have somewhat reduced the diameter of the upper portion of the sleeve and have formed thereon a plurality of elongated longitudinal seats 4, (see Fig. 3,) intersected between their ends by an annular groove 5, a pocket 6 being formed at the intersections. Preferably three of such seats are employed, arranged symmetrically around the sleeve. Upon each seat I mount a bobbin-clutching member, consisting of a metallic body 7, bent to fit loosely in the pocket 6 and having slightly-tapered upper and lower extensions 8 and 9, convexed longitudinally near their ends and lying in different planes. By reference to Fig. 2 it will be seen that the two ends of each member thus project outward slightly; but in practice the lower end normally projects farther than the upper one, when the spindle is running bare, the convexed parts constituting clutch portions.

A spring-ring 10 is snapped over the bodies 7 and into the groove 5 to retain the clutch members in place on the sleeve, but permitting them to tilt slightly, the bent bodies 7 rocking at such time in the pockets 6. When a bobbin 11 is pushed onto the spindle, (see Fig. 2,) the lower end of its chambered head 12 passes over the upper ends of the clutch members, but engages the lower ends, pressing the latter inward, and thereby acting to force outward the upper ends 8 into driving engagement with the walls of the chamber 13. Thus each clutch member engages the bobbin at two places, one above the other, and drives the bobbin in unison with the spindle, the double clutching action securely holding the bobbin. If the clutch members are of stiff metal, they will tilt on their fulcrums in radial planes, the ring 10 expanding slightly when necessary, but if the clutch members are rather resilient the tilting will be less, but the clutching action will be substantially the same. When the bobbin is removed, the clutch members return to normal position.

In order to prevent yarn from getting under and clogging the clutch members, I have extended the lower ends of the seats 4 to form rather deep grooves 14 in the larger lower part of the sleeve, the lower ends 9 of the clutch members entering the grooves, the thread of yarn being shed away from the ends of the clutch members by the portion of the sleeve at each side of the groove.

My invention is not restricted to the precise construction and arrangement shown and described, as the same may be varied or modified by those skilled in the art 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 a plurality of longitudinally-extended bobbin-clutching members carried by and rotatable in unison with the spindle, each member having an upper and a lower clutch portion, engagement of the lower clutch portions with a bobbin acting to also bring the upper clutch portions into driving engagement with the bobbin, and means intermediate the ends of said members to permanently connect them with the spindle.

2. The combination with a rotatable spindle, of a plurality of longitudinally-extended bob-

bin-clutching members, each having an upper and a lower clutch portion, and means cooperating with said members between their ends to connect them with the spindle and effect their bodily rotation therewith, said means preventing bodily movement of the members longitudinally of the spindle, engagement of the lower clutch portions with a bobbin when applied to the spindle acting to force outward the upper clutch portions into driving engagement with the bobbin.

3. A rotatable spindle, combined with a plurality of longitudinally - extended bobbin-clutching members mounted on and to rotate in unison with the spindle, fulcra on which said members are adapted to tilt in radial planes, means to connect said members and the spindle adjacent the fulcra of the former, and means operative by or through engagement of the lower ends of said members with a bobbin to tilt said members and effect driving engagement between their upper ends and the bobbin.

4. The combination with a rotatable spindle having an attached depending sleeve provided with longitudinal seats and having a whirl at its lower end, a plurality of longitudinally-extended bobbin - clutching members ful-

crumed on said seats to tilt in radial planes, the lower ends of said members being slightly outturned, to engage the interior of a bobbin and be forced inward thereby, whereby the clutch members are tilted and their upper ends forced outward into driving engagement with the bobbin.

5. The combination with a rotatable spindle, of a plurality of longitudinally-extended bobbin-clutching members carried by and rotatable in unison with the spindle, each member having an upper and a lower clutch portion, each lower portion normally projecting radially beyond the upper clutch portion of the same member, and an elastic connection between the clutching members and the spindle, whereby said members may tilt when their lower portions are pressed inward by engagement with a bobbin, to force the upper clutch portions outward into driving engagement with the bobbin.

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

JOHN V. CUNNIFF.

Witnesses:

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FRANK AMBER.