

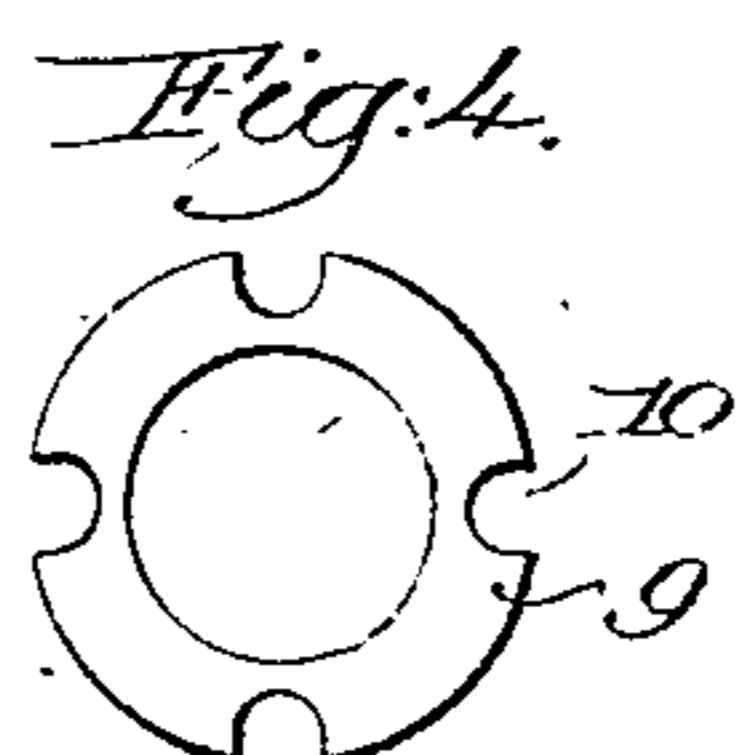
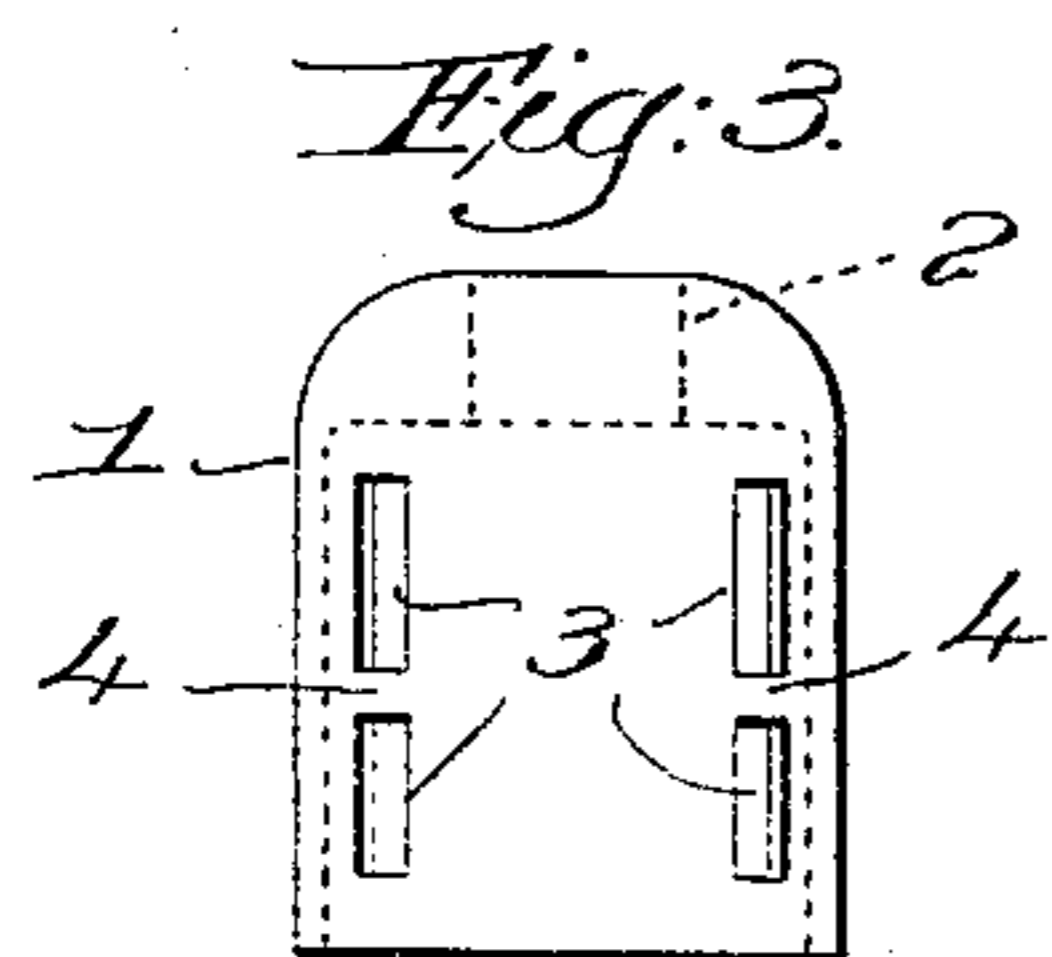
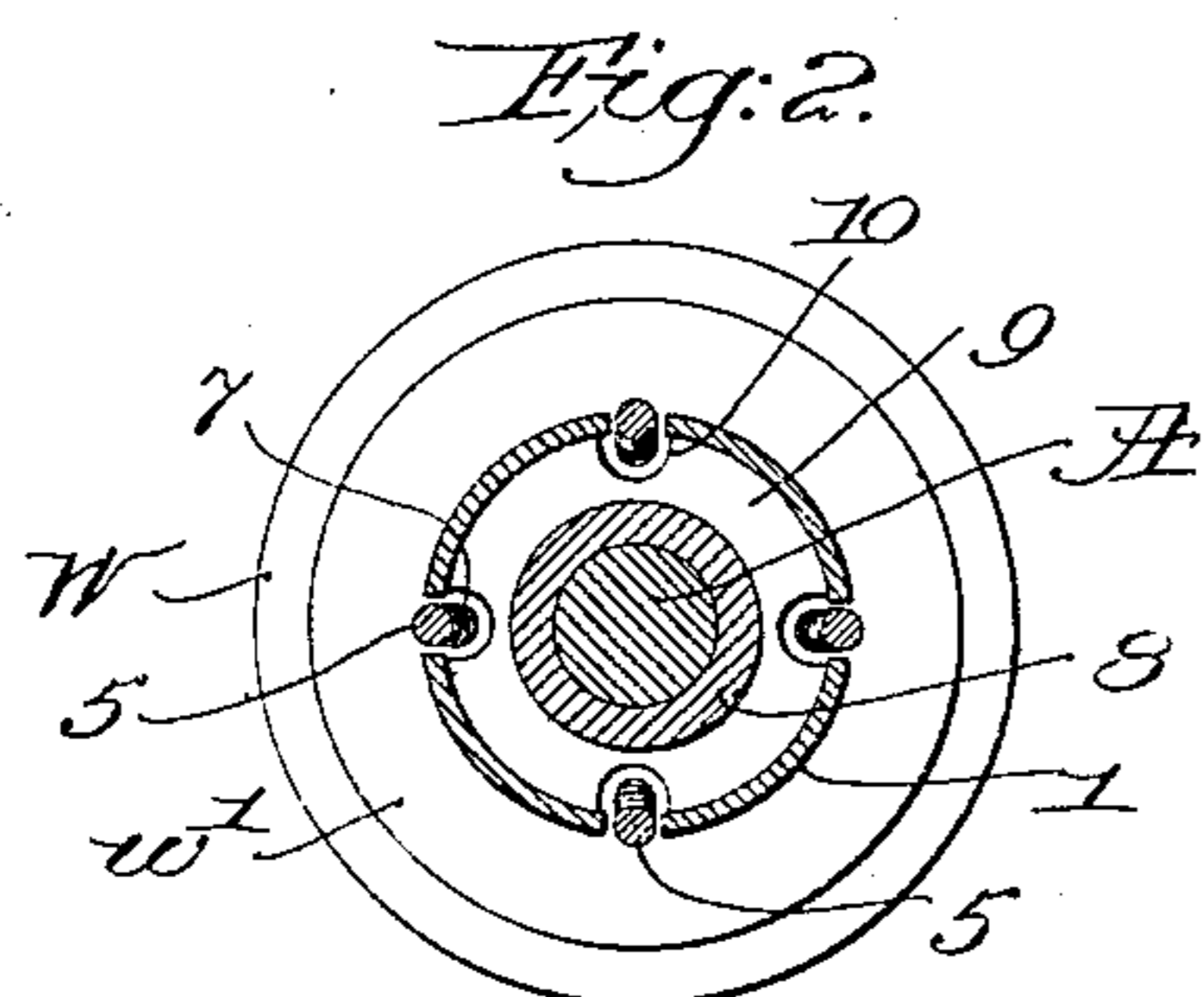
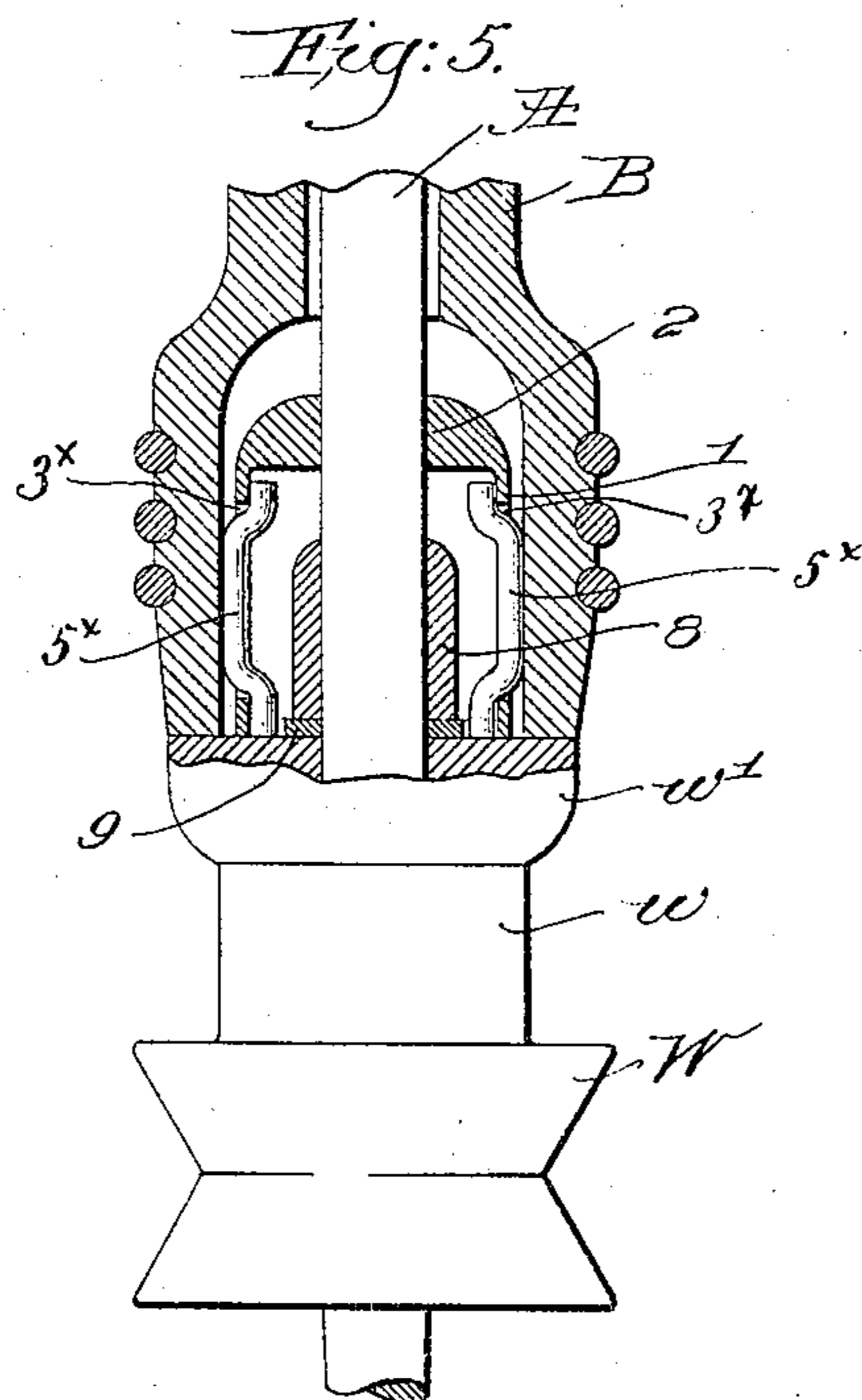
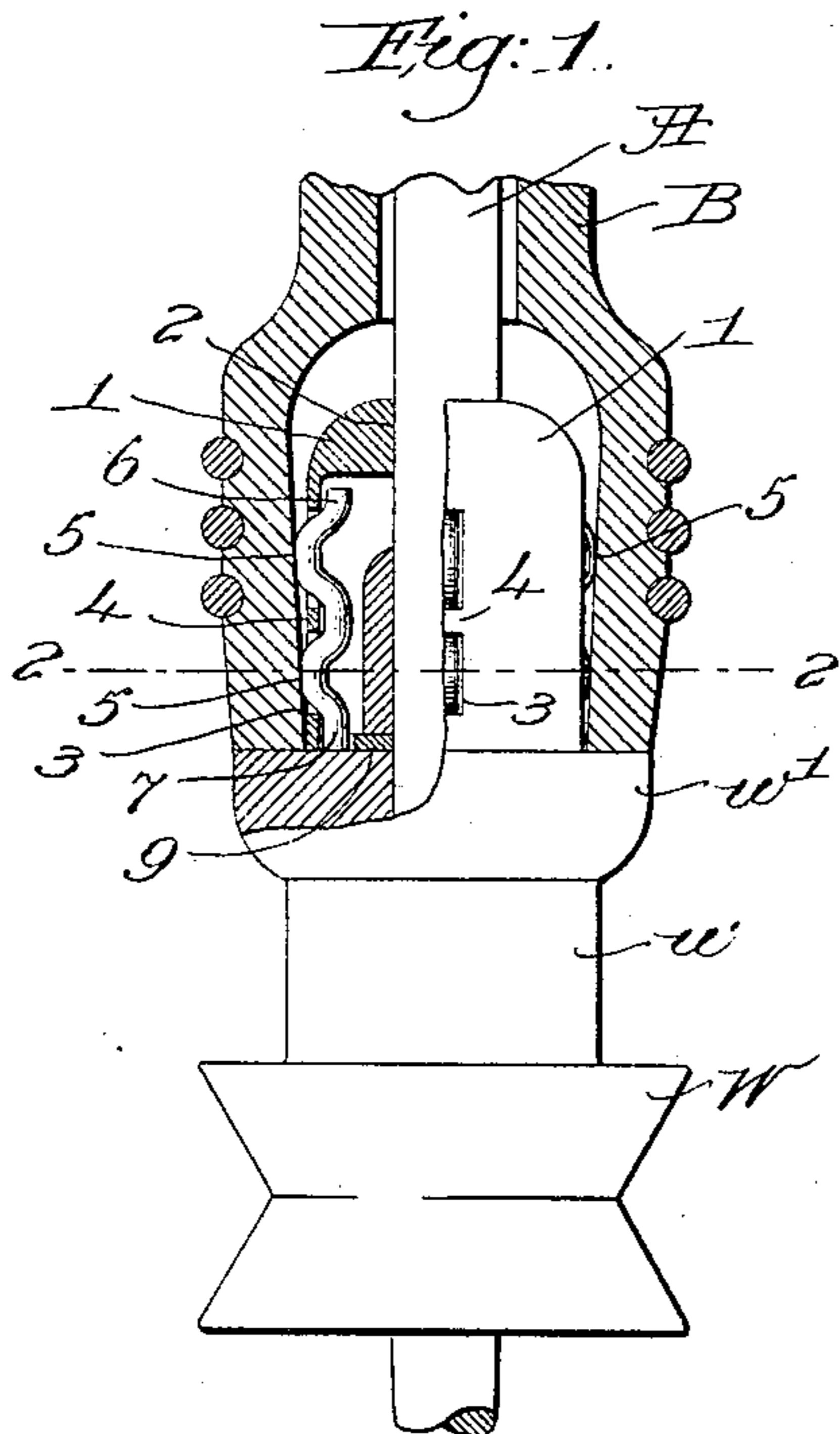
No. 773,798.

PATENTED NOV. 1, 1904.

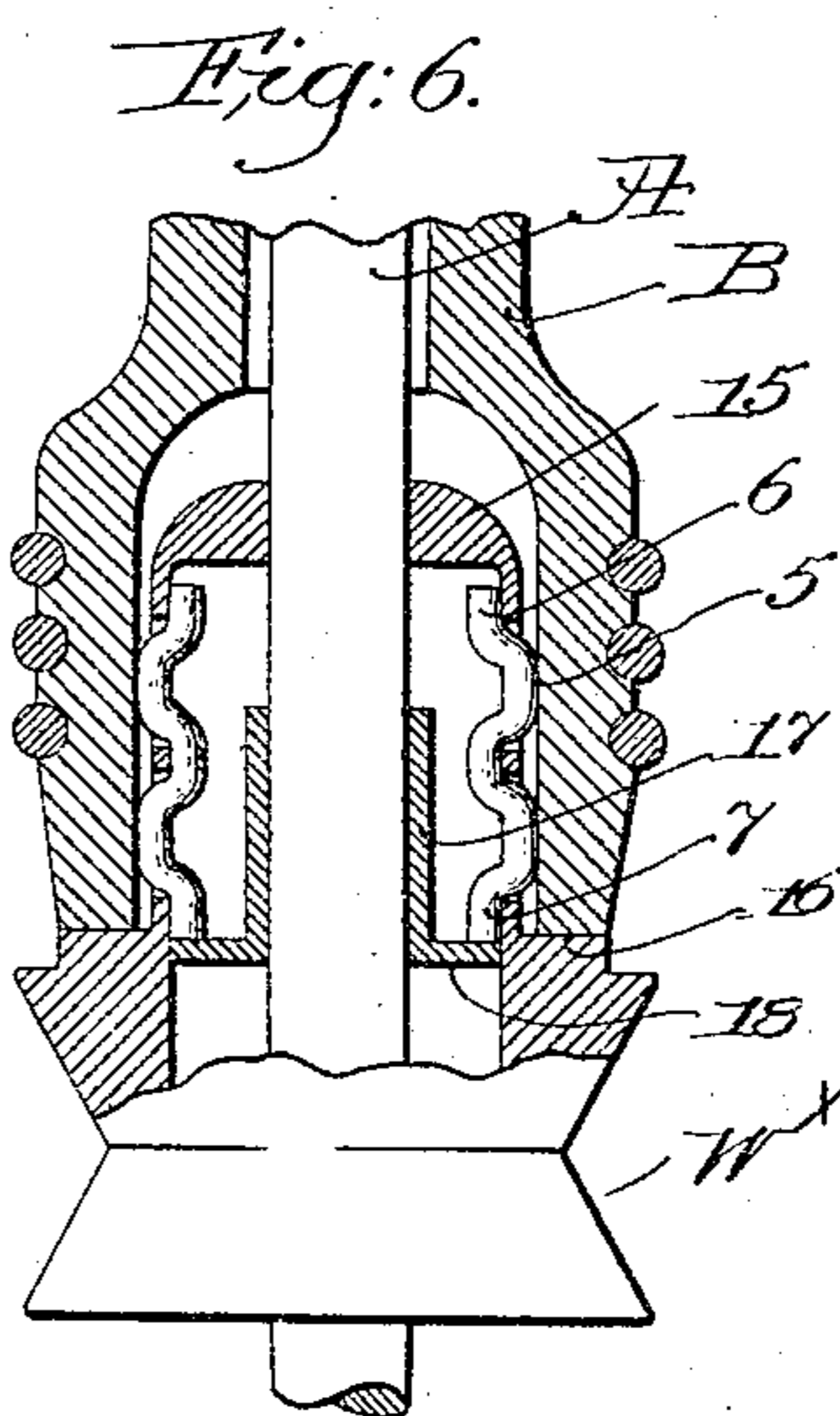
H. LAWRENCE.  
BOBBIN CLUTCHING MEANS FOR ROTATABLE SPINDLES.

APPLICATION FILED JULY 23, 1904.

NO MODEL.



Witnesses,  
Edward H. Allen  
S. Wm. Lutton.



Inwitness,  
Henry Lawrence,  
by Crosby & Gregory,  
attys.

# UNITED STATES PATENT OFFICE.

HENRY LAWRENCE, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO  
SAWYER SPINDLE COMPANY, A CORPORATION OF MAINE.

## BOBBIN-CLUTCHING MEANS FOR ROTATABLE SPINDLES.

SPECIFICATION forming part of Letters Patent No. 773,798, dated November 1, 1904.

Application filed July 23, 1904. Serial No. 217,835. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY LAWRENCE, 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 means for retaining in operative position a yarn-receiver or bobbin upon a rotatable spindle—such as is employed in spinning, twisting, and other similar textile apparatus—my invention belonging particularly to that type of retaining device wherein centrifugally-acting clutch members bodily rotatable with the spindle engage and effect the rotation of the yarn-receiver or bobbin.

My invention involves certain novel features of construction and arrangement whereby the construction of the apparatus is simplified and its cost of manufacture diminished without lessening the effectiveness thereof when in use, the novel features being fully described in the subjoined specification, and particularly pointed out in the claims appended thereto.

Inasmuch as my present invention is particularly adapted for use in connection with rotatable spinning-spindles, I have illustrated it as applied to such a spindle; but, as will be manifest hereinafter, its use is not thereby restricted, as it may be employed with twister or other spindles with equal facility.

Figure 1 is a half side elevation and vertical section of a rotatable spindle having one form of clutching means applied thereto embodying my invention, a yarn-receiver or bobbin being shown in position on the sectional half of the figure. Fig. 2 is a transverse section on the line 2 2, Fig. 1, looking down. Fig. 3 is a side elevation of the retaining and motion-limiting device for the clutch members turned part way around from the position shown in Figs. 1 and 2. Fig. 4 is a plan view of a separator for the clutch members employed to prevent any possibility of their

accidental derangement. Fig. 5 is a diametral sectional view showing a modified form of clutch device, and Fig. 6 is a similar view of yet another modification to be referred to.

In Figs. 1 and 5 the spindle A, its whirl W, having an upturned sleeve *w* rigidly attached to the spindle, and the flattened annularly-enlarged head *w'* at the upper end of the sleeve to form a rest for the yarn-receiver or bobbin B may be and are of well-known construction. A tubular metallic sleeve 1 of such external diameter as will easily enter the chamber *b* of the yarn-receiver or bobbin B is secured at its upper end to the spindle, as at 2, Figs. 1 and 5, concentric with the spindle, the upper end of the sleeve being rounded externally, as shown, to guide the bobbin when it is applied. Ordinarily a driving fit between the spindle and sleeve is sufficient to provide a secure connection, the lower end of the sleeve extending down to and resting upon the bobbin-rest, as shown. This sleeve constitutes a motion-limiting and retaining device for the centrifugally-acting bobbin-clutching members to be described, the said device having longitudinal elongated slots cut therein and arranged symmetrically around the spindle. In Figs. 1 and 3 the slots are arranged in series or groups of two, as at 3, in longitudinal alinement, leaving an unslotted portion 4 between them. The bobbin-clutching members are preferably made of wire-like material or heavy wire, and each one is provided with two outward bends 5 between its ends 6 and 7, which ends are relatively straight, as shown. When the clutch members are in position, the bends 5 enter the slots 3, while the ends 6 and 7 extend inside the sleeve 1 above and below the slots, respectively, the ends 7 resting upon the top of the bobbin-rest *w'*. The unslotted portion or bar 4 crosses each clutch member between the bends and assists in properly positioning the same. The centrifugal force due to rotation of the spindle causes the bends to project through the slots and effect a driving engagement with the walls of the bobbin-chamber *b* to thereby rotate the bobbin with the spindle in an obvious manner. Outward



bers and prevent accidental displacement of the same.

5 6. The combination, with a rotatable spindle having an attached whirl and a rest for a bobbin, of a series of clutch members made of wire and bent outward between their ends and located in upright radial planes symmetrically around the spindle, a metallic sleeve concentric with and secured to the spindle above the  
10 whirl and loosely inclosing the clutch members, said sleeve having elongated and longitudinally-extended slots to receive the outward bends of the clutch members, the latter being caused to project through the slots by  
15 centrifugal action, and means to prevent displacement of the clutch members from their proper radial positions.

20 7. The combination, with a rotatable spindle having an attached bobbin-rest, of a plurality of wire-like bobbin-clutching members

arranged loosely around the spindle and each having a plurality of outward bends between its ends, and a tubular motion-limiting and retaining device concentric with and secured to the spindle and within which the clutching  
25 members are loosely contained, said device having series of longitudinally-alined and elongated slots to receive the outward bends of the clutching members, the bends of the latter being caused to project, by centrifugal  
30 action, beyond the outer surface of the retaining device.

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

HENRY LAWRENCE.

Witnesses:

GEORGE OTIS DRAPER,  
FRANK E. DODGE, Jr.