

No. 775,883.

PATENTED NOV. 22, 1904.

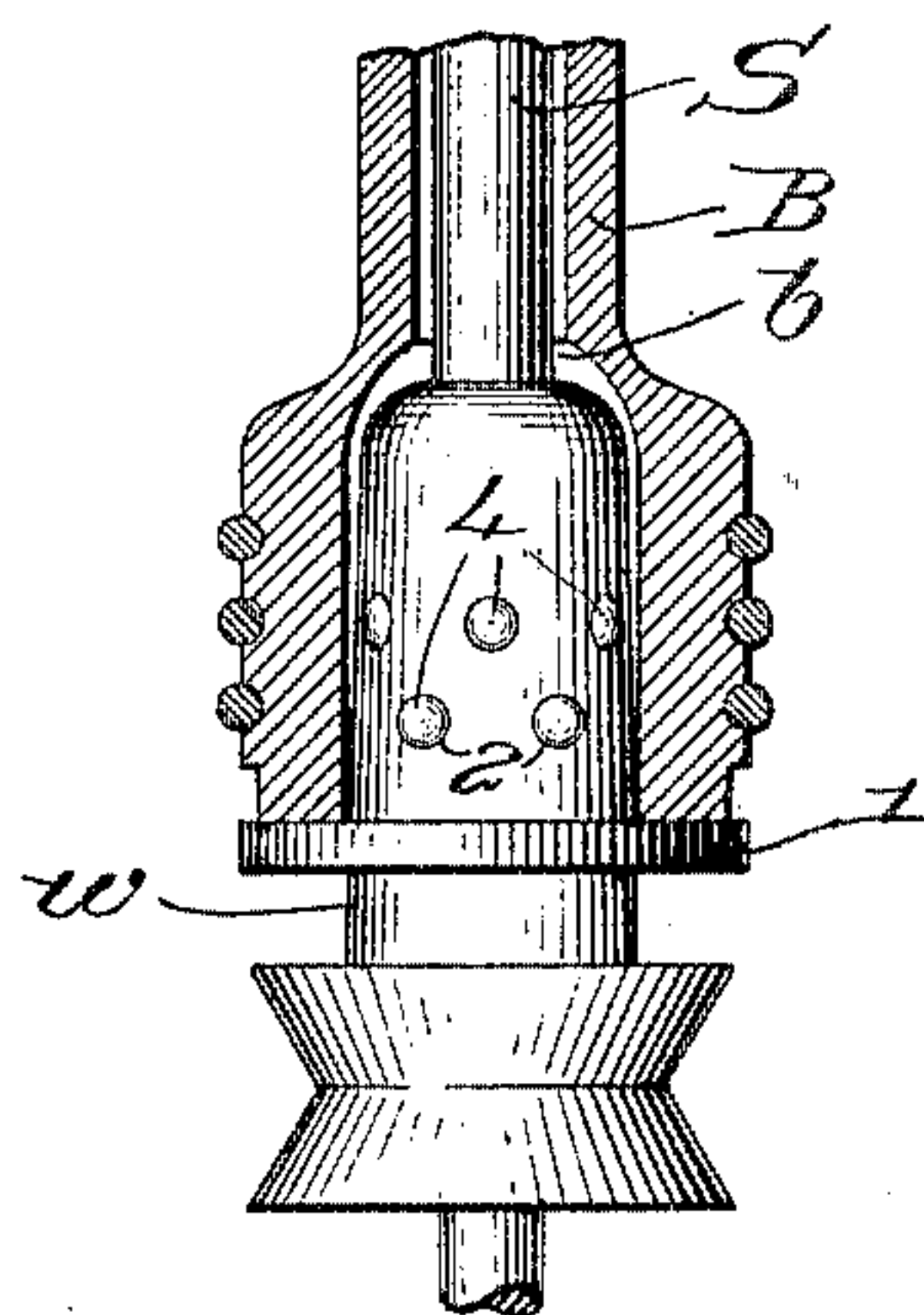
W. E. ALLEN.

BOBBIN CLUTCHING MEANS FOR ROTATABLE SPINDLES.

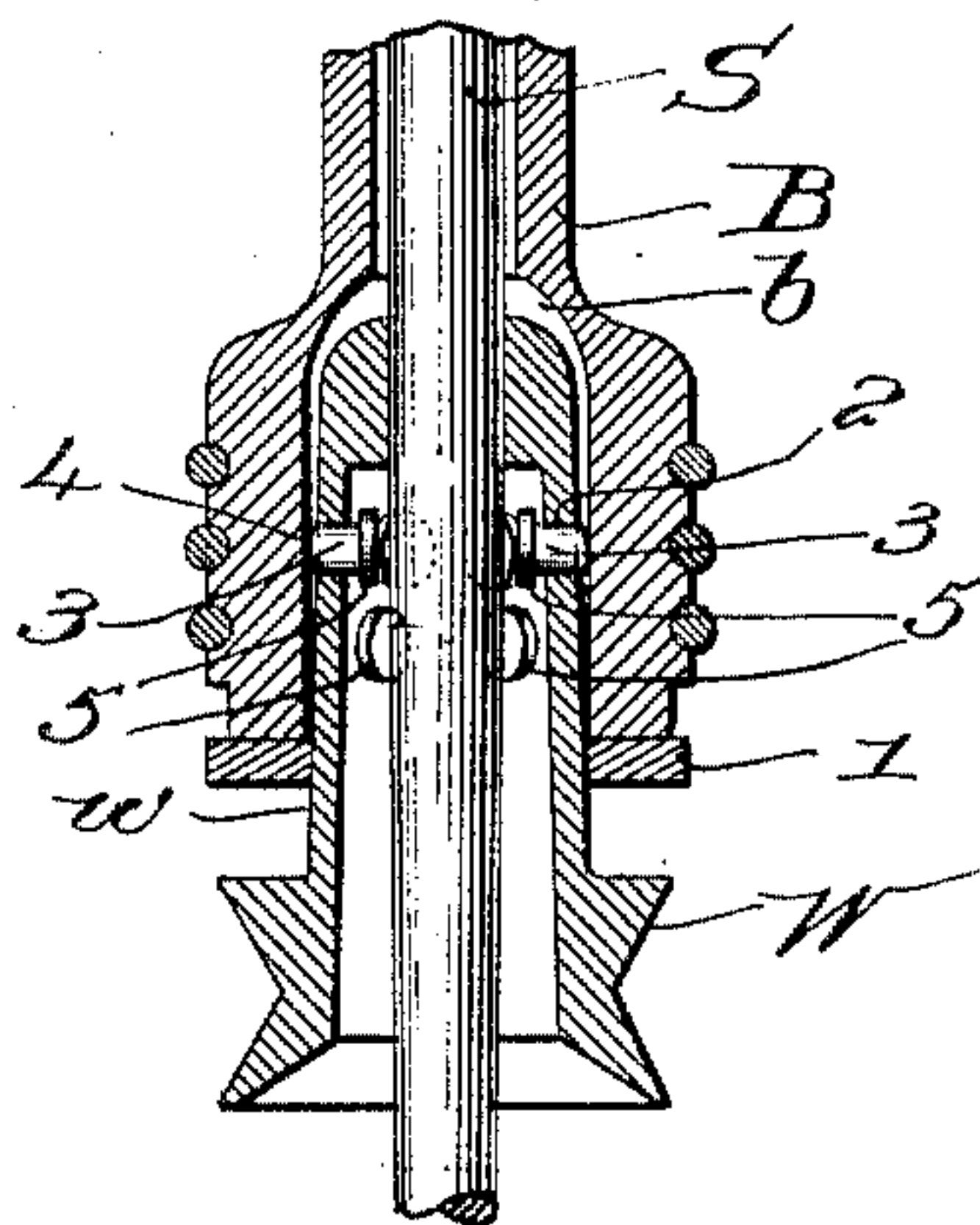
APPLICATION FILED OCT. 21, 1904.

NO MODEL.

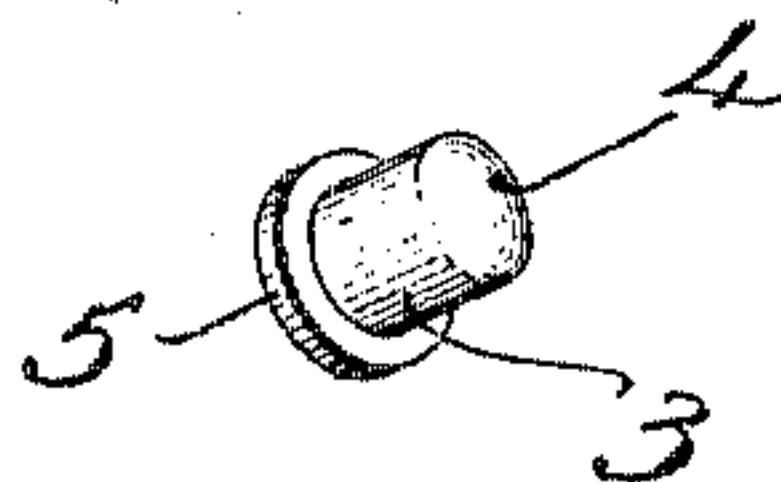
*Fig: 1.*



*Fig: 2.*



*Fig: 3.*



Witnesses,  
Edward E. Allen  
Thomas J. Drummond

Inwitness whereof,  
William E. Allen,  
by Mosby Gregory,  
Attys.



# UNITED STATES PATENT OFFICE.

WILLIAM E. ALLEN, OF SALEM, MASSACHUSETTS, ASSIGNOR TO SAWYER SPINDLE COMPANY, A CORPORATION OF MAINE.

## BOBBIN-CLUTCHING MEANS FOR ROTATABLE SPINDLES.

SPECIFICATION forming part of Letters Patent No. 775,883, dated November 22, 1904.

Application filed October 21, 1904. Serial No. 229,375. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM E. ALLEN, a citizen of the United States, and a resident of Salem, county of Essex, 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 has for its object the production of a simple bobbin-clutch of the centrifugally-acting type to retain a bobbin in operative position upon a rotatable spinning, twisting, or other spindle particularly adapted for use in connection with or to be applied to existing spindles of the sleeve-whirl class. In such spindles, great numbers of which are in use at the present time, the whirl is usually a part of a long sleeve which surrounds the spindle and at its upper end is fixedly secured thereto, as by a very tight driving fit. Various centrifugally-acting bobbin-clutches have been devised; but the majority are not applicable to old spindles.

My present invention comprehends the utilization of a sleeve-whirl spindle without any material change in its structure by the addition thereto of clutching members which are supported by the sleeve, which is bored to provide apertures through which the clutching members project to internally engage the bobbin. The clutching members are herein shown as short studs long enough to extend through the apertures in the whirl-sleeve and project beyond the same, each member having an annularly-enlarged head at its inner end interposed between the spindle and the sleeve to limit the radial movement of the stud. At their outer ends the studs are preferably rounded and are forced by centrifugal action into driving engagement with the walls of the bobbin-chamber to rotate the bobbin with the spindle.

Figure 1 is a side elevation of a portion of a spindle with one embodiment of my invention applied thereto, a bobbin being partly shown in section on the spindle. Fig. 2 is a vertical sectional view of the whirl-sleeve

with the clutching members, and Fig. 3 is a perspective view of one of the stud-like clutching members detached.

The rotatable spindle S and whirl W, secured or formed integral with the lower end of a sleeve *w*, secured by a driving fit at its upper end to the spindle, are of usual construction.

Inasmuch as the bobbin is not forced onto the sleeve, I provide the latter with a bobbin-rest 1, which may be a ring forced down upon the sleeve above the whirl to vertically sustain the bobbin B, Fig. 1, at a definite height upon the spindle.

Holes or apertures 2 are bored into the sleeve, in the side walls thereof, in a row or rows, two rows being herein shown above the bobbin-rest, the holes in each row being placed symmetrically around the longitudinal axis of the spindle. Preferably the holes or apertures of one row are staggered with relation to those of the other row, as shown. Each aperture is provided with a stud-like clutching member 3, having its outer end rounded, as at 4, and provided at its inner end with an enlarged annular flange or head 5. The stud is inserted loosely in the aperture, with the head 5 interposed between the spindle and sleeve, as shown in Fig. 2, sufficient clearance being left for limited radial movement of the clutching member in and out.

When the spindle is rotated, the centrifugal force acts to project the clutching members so that their outer ends extend beyond the outer face of the sleeve *w*, and when a bobbin is placed on the spindle the said clutching members engage the wall of the chamber *b*, Fig. 1, and drive the bobbin in unison with the spindle.

The assembling of the clutching members is effected by driving the spindle out of the sleeve, inserting the clutching members in the apertures 2, and then driving the sleeve back into fixed position upon the spindle. A very simple but efficient clutching device is thus provided, requiring only the boring of the lateral holes or apertures in the sleeve of the whirl and the temporary loosening of the sleeve to insert the clutching members.



Said members cannot drop out, as the space between their heads and the spindle is too small, the heads thus acting to retain the members in place and also to limit radial movement thereof.

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 depending sleeve secured thereto at its upper end and having a whirl on its lower end, said sleeve having lateral apertures therein, centrifugally - acting bobbin - clutching members projecting loosely through the apertures, to engage and effect rotation of a bobbin with the spindle, and means to limit outward movement of said members.

2. The combination with a rotatable spindle, of a sleeve secured at its upper end thereto and supporting a whirl at its lower end, the sleeve having a plurality of rows of lateral apertures therein, and stud-like, centrifugally-acting bobbin-clutching members adapted to project part way through the apertures, to internally engage and effect bodily rotation of a bobbin with the spindle, each of said members having its inner end annularly enlarged to form a retaining-head interposed loosely between the sleeve and the spindle.

3. The combination with a rotatable spindle, of a sleeve secured at its upper end there-

to and supporting a whirl at its lower end, the sleeve having a row of symmetrically-disposed lateral apertures therein, and centrifugally-acting bobbin-clutching members made as studs having annular heads at their inner ends, the studs projecting loosely through the apertures to engage and effect bodily rotation of a bobbin with the spindle, their annular heads being interposed between the spindle and the sleeve to limit radial movement of said clutching members.

4. The combination with a rotatable spindle, of a sleeve secured at its upper end thereto and supporting a whirl at its lower end, the sleeve having a row of symmetrically-disposed lateral apertures therein, a bobbin-rest on the sleeve below the apertures, and centrifugally-acting bobbin-clutching members projecting through the apertures to engage and effect bodily rotation of a bobbin with the spindle, each member having an enlarged head at its inner end interposed loosely between the spindle and the sleeve, to limit radial movement of the member.

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

WILLIAM E. ALLEN.

Witnesses:

JOHN C. EDWARDS,  
MARGARET A. DUNN.