

(No Model.)

J. W. BAMFORD.
CAP SPINNING SPINDLE.

No. 564,773.

Patented July 28, 1896.

Fig. 1.

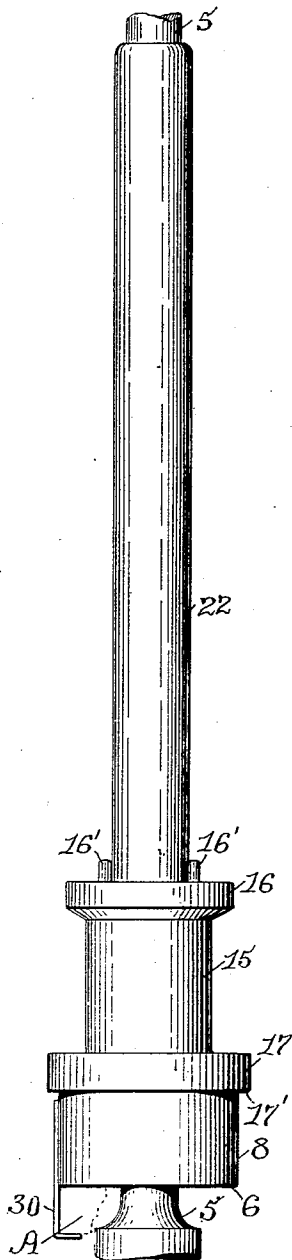
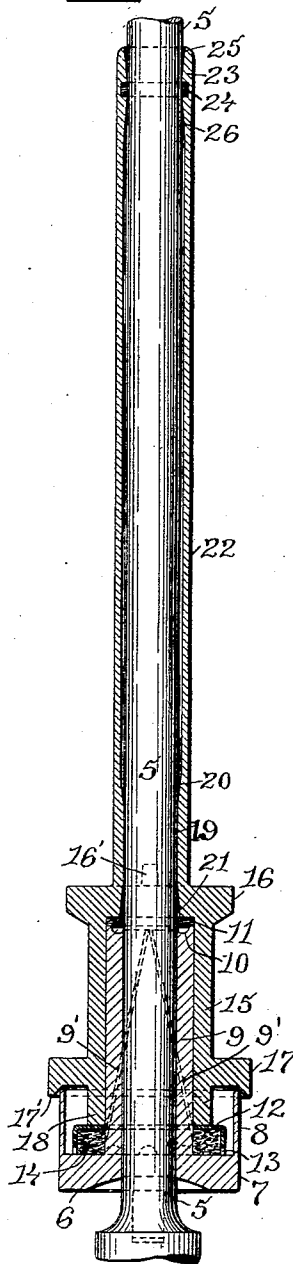


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN W. BAMFORD, OF PASCOAG, RHODE ISLAND.

CAP-SPINNING SPINDLE.

SPECIFICATION forming part of Letters Patent No. 564,773, dated July 28, 1896.

Application filed June 12, 1895. Serial No. 552,501. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. BAMFORD, of Pascoag, in the county of Providence and State of Rhode Island, have invented certain
5 new and useful Improvements in Cap-Spinning Spindles; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this
10 specification.

This invention has reference to improvements in cap-spinning, and relates particularly to the spindle and the parts cooperating therewith.

15 The object is to more thoroughly lubricate the rotatable portions.

The object of the invention is also to improve the construction of the rotatable parts mounted on the spindle.

20 The invention consists in certain peculiar features of construction and novel combination of parts, as will hereinafter be more fully described, and pointed out in the claims.

Figure 1 represents an elevation of the
25 dead-spindle with the improved oil-reservoir, whirl, and bobbin-tube, also showing a connection between the lifter-rail and the oil-reservoir. Fig. 2 represents a vertical section of the same.

30 Similar numerals of reference designate corresponding parts.

In carrying my invention into effect it has been my desire to locate a considerable body of lubricant in a position whence it can be
35 gradually applied to the spindle to maintain a constant lubrication of the same without the presence of an excess of lubricant, at the same time constructing the upper bearing between the bobbin or bobbin-tube and the
40 spindle so that the capillary attraction of the lubricant between the bearing and the spindle is broken below the upper end of the bearing, and thus no lubricant will be present at the upper end of the bearing to be
45 thrown outward by centrifugal force.

In the drawings, 5 represents a dead-spindle of the usual construction, which is long enough to allow for the traverse of the bobbin, whirl, and oil-reservoir. On the spindle
50 is mounted the oil-well 6, which is supported by the lifter-rail and may or may not be connected thereto to prevent the rotation of the

oil-well. The oil-well consists of a bottom 7, centrally perforated to receive the spindle 5 and having an outer annular wall 8 and an inner sleeve-wall 9, which is preferably
55 considerably higher than the outer wall and is furnished at its upper end with an annular dished oil-receptacle 10. On this upper end of the wall 9 is located the felt washer 11, 60 embracing the spindle 5. In the oil-well is located the whirl-supporting plate or frame 12, having openings 13 in its vertical wall and containing the absorbent material 14.

Journaled on the sleeve 9 is the whirl 15, 65 having the enlargements 16 and 17, the depending sleeve 18, supported on the frame 12, and the bearing 19, journaled on the spindle above the sleeve 9 and of a contracted diameter as compared with the main portion of
70 the whirl. The enlargement 17 has the lip 17', which overlaps the edge of the reservoir-wall 8, the enlargement 16 having pins 16' for engaging the bobbin, and the bearing 19 is contracted to bear on the spindle at its
75 horizontal center, while its upper and lower inner surfaces 20 and 21, respectively, are conically dished to break the capillary attraction on the oil between the two surfaces at the upper end and to allow for the free
80 flow of the oil down the spindle at the lower end by enlarging the space at these points between the stationary spindle and the rotating whirl.

Above the bearing 19 the sleeve forming the
85 same may be continued to form the bobbin-tube 22, having the bearing 23, provided with the felt washer 24 at its contracted portion and furnished with the upper and lower
90 diverging inner surfaces 25 and 26. This upper bearing acts on the lubricant in a similar manner to the bearing 19, the flow of the lubricant down the spindle being assisted by the wiping action of the washer 24 during the downward traverse of the mechanism. 95

The connection between the lubricator-well 6 and the lifter-rail A for preventing the rotation of the oil-well is made by the hook 30, but any other well-known device may be used.

The reservoir 6 being partially filled with
100 fluid lubricant and the whirl rotated in the usual manner, the frictional contact of the whirl on the plate 12 and sleeve 9 will cause heating of these parts in a degree, and a cap-

illary attraction of the lubricant will be effected which will draw the lubricant up between the whirl and the sleeve 9 to the receptacle 10 and washer 11. During the upward
 5 traverse of the reservoir, whirl, and bobbin a portion of the lubricant will be applied to the spindle by the washer 11. On the descending
 10 traverse of these parts the surplus lubricant will run down the spindle and passing through between the bearing 19 and the spindle
 15 will be received by the washer, as heretofore set forth, the shape of this bearing facilitating this passage of the lubricant, the upper bearing, either on the bobbin-tube or on
 20 the bobbin, effecting a like result in facilitating the flow of lubricant and tending to prevent the throwing outward of lubricant. The downward flow of the oil from the receptacle 10 to the absorbent pad 14 may be facilitated by the use of the inclined channels
 25 9' 9', formed on the surface of the central sleeve 9.

Having thus described my invention, I claim as new and desire to secure by Letters
 30 Patent—

1. In cap-spinning, the combination with a whirl having a bearing embracing the spindle, the inner surface of said bearing having a contracted portion and oppositely-diverging
 35 mouths, of the bobbin-tube extending upward from the said whirl and provided at its upper end with the contracted portion having a groove and oppositely-extending diverging
 40 mouths, and a fibrous washer seated in the

groove, substantially as herein shown and described. 35

2. The combination with the dead-spindle, the oil-reservoir having the central sleeve embracing the spindle and furnished at its upper end with the oil-receptacle, of the whirl
 40 journaled on the sleeve of the oil-well and provided with the upwardly-extending bobbin-tube having the contracted portion and the oppositely-diverging mouths at its lower portion and at its upper end the contracted
 45 portion having the groove and oppositely-extending diverging mouths, and a fibrous washer seated in the groove, substantially as herein shown and described.

3. The combination with the spindle 5, the oil-well 6 transversably mounted thereon and having the inner wall 9 furnished with the receptacle 10, and the outer wall 8, the washer 11 on the upper end of the inner wall, the frame-plate 12 having openings 13 located in the
 50 oil-well, and the fibrous material in the frame, of the sleeve-whirl 15, journaled on the reservoir-wall 9, having the portion 18 supported on the frame 12 and the bearing 19 furnished with the mouths 20 and 21, and means for engaging a bobbin, as described. 55

In witness whereof I have hereunto set my hand. 60

JOHN W. BAMFORD.

Witnesses:

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 M. F. BLIGH.