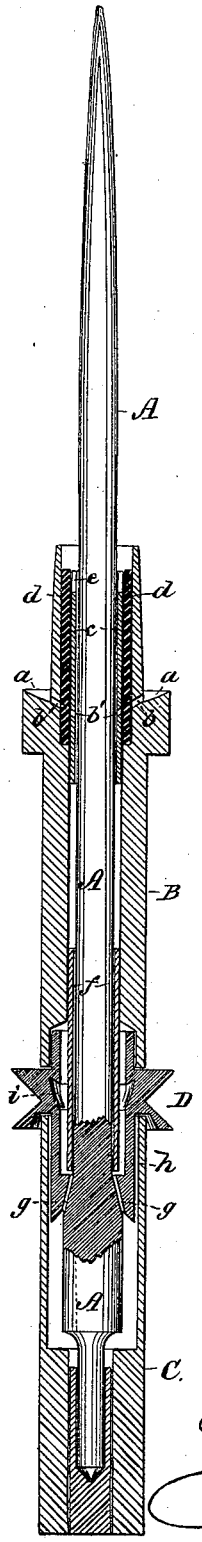
J. T. BEALL.

SPINDLES, BOLSTERS, AND STEPS FOR SPINNING-MACHINES.

No. 195,079. Patented Sept. 11, 1877.



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IMPROVEMENT IN SPINDLES, BOLSTERS, AND STEPS FOR SPINNING-MACHINES.

Specification forming part of Letters Patent No. **195,079**, dated September 11, 1877; application filed May 28, 1877.

To all whom it may concern:

Be it known that I, JOHN T. BEALL, of Petersburg, in the county of Dinwiddie and State of Virginia, have invented a new and Improved Spindle, Bolster, and Step for Spinning-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which the figure is a longitudinal section through the bolster and step, with the whirl of the spindle also in section.

My invention relates to certain improvements in the construction and adaptation of the spindle, bolster, and step of a spinning-machine, designed to secure the best lubrication and bearing-surfaces for the parts, and to prevent the tendency of the oil to exude at the joints and spread over the outer surfaces of the same.

In the drawing, A represents the spindle, B the bolster, and C the step, of which the bolster B and step C are rigidly held in the rail by means of binding-screws, while the spindle A is arranged to revolve freely by means of the band applied to its whirl D. The bolster B is constructed with an oil-cup, *a*, and lateral apertures *b*, opening communication from the oil-cup to the upper bearing, as heretofore used. Said bolster is, however, somewhat elongated, and its upper bearing or bushing, of brass, *c*, is located some distance below the upper edge of the bolster, so that a cup or recess is left about the spindle at this point. Immediately around this bushing, also, and between the bushing and the bolster, is a packing, of felt or other fibrous or absorbent material, *d*, which extends down past the oil-cup, between the apertures *b* of the bolster and *b'* of the bushing, through which the oil is fed to the bearing.

This fibrous packing serves, by reason of capillary attraction, to hold and retain for a longer time the oil to its proper place at the bearing, and also to filter the oil; in addition to which it has another function, as follows: In the revolution of the spindle it has been found that the oil rises upon the spindle above the bearing, and spreads over the outer surface of the bolster, upon which surface it is liable to soil the yarn carried on the bobbin upon the upper part of the spindle, and also causes lint to adhere, which increases the labor of cleaning the machine. Now, by forming the cup in the top of the bolster, and permitting the fibrous packing to form the bottom of this cup, it will be seen that if any oil rises it is retained and caught by the cup, and cannot spread upon the outer surface of the bolster, but as fast as it accumulates in the cup it sinks into the fibrous packing, and is returned through slots *e* in the bushing to the bearing-surface of the same.

In arranging the lower bushing or bearing *f* of the bolster, the same is extended below the lower end of the bolster, and the spindle is formed with an annular recess between the central stem and the whirl, which receives the extended bushing of the bolster, and brings said bearing immediately in the plane of the whirl. The advantage of this arrangement is that it brings the middle bearing of the spindle just where the pull upon the whirl is greatest and where the bearing is most needed; and it secures, also, a larger distance between the upper and lower bearings of the bolster, which causes the spindle to run more steadily.

In the oiling of the bearings, it will be seen that the oil admitted to the upper bearing from the oil-cup, after lubricating the upper bearing, passes down the inside of the bolster to the lower bearing in the recess between the whirl and stem. Now, for the double purpose of preventing the escape of oil to the outer surface from the joint, and to permit, also, the oiling of the step in which the toe of the spindle rests, the spindle is provided with apertures *g* in the bottom part of the swell or boss *h* formed around the recess of the lower bearing of the bolster, which apertures permit the escape of oil from said lower bearing down the spindle to its toe in the step. The three bearings—*i. e.*, the step and the two bearings of the bolster—are thus oiled from a single point, without the spreading of oil upon the outside of any of the parts, and the machine is thus kept better lubricated and in a more cleanly condition.

To still further prevent the exuding of oil

at the joint between the whirl and the lower end of bolster, due to the tendency of the oil to rise on the stem from the central bearing, a recess, *i*, with undercut upper edges, is formed in the metal of the whirl, opening into the recess formed between the whirl and the stem of the spindle. To prevent, also, the oil which descends from the central bearing from rising on the spindle and exuding between the upper portion of the step and the whirl, the lower edge of the boss *h*, in which the holes *g* are made, is also undercut.

It will thus be seen that both the lower bearings of the spindle are made self-oiling. No oil exudes from the joints; and as no oil is either spread upon the surface of the bolster and step, or thrown off from the revolving spindle, the machine is kept free from gummy matter, and only requires a simple dusting with a dusting-brush to be thoroughly cleaned.

Having thus described my invention, what I claim as new is—

1. The bolster having oil-cup *a* and apertures *b*, in combination with the bushing *c*, arranged below the upper edge of the bolster to form a cup, and having slots at its upper end and apertures *b'* below, together with the absorbent packing arranged between the bushing and the bolster, substantially as described.

2. The bolster B, having bushings *c* and *f*, and oil-cup *a* with apertures *b*, the spindle having an annularly-recessed whirl, with openings *g*, and the step C, all combined and arranged substantially as shown and described.

3. The combination, with the bolster having extended bearing *f*, of the spindle having annularly-recessed whirl, with second annular recess, *i*, having undercut upper edges, as and for the purpose described.

4. The combination, with the step C and the bolster having extended bushing *f*, of the spindle having annularly-recessed whirl, with boss *h*, having undercut lower edges and openings *g*, as and for the purpose described.

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Witnesses:
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