(No Model.)

J. W. WATTLES.

SUPPORTING DEVICE FOR THE SPINDLES OF RING SPINNING FRAMES.

No. 306,565. Patented Oct. 14, 1884.

Fig. 2.

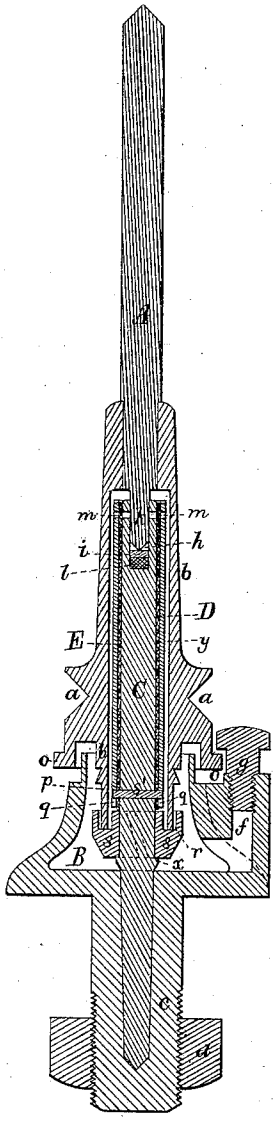


Fig. 7.

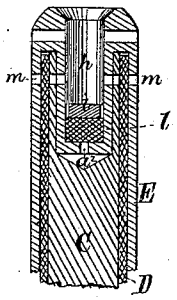


Fig. 6.

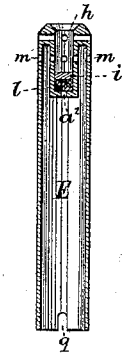


Fig. 3.

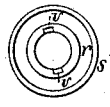


Fig. 4.

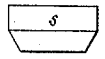


Fig. 5.

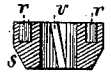
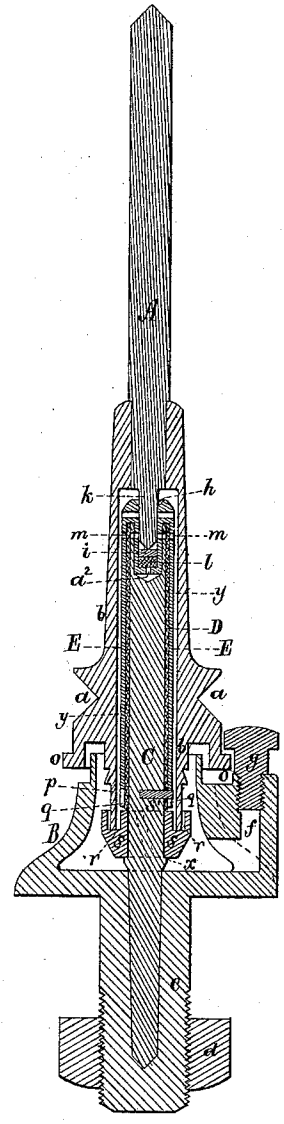


Fig. 8.



Fig. 1.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOSEPH WARREN WATTLES, OF CANTON, MASSACHUSETTS.

SUPPORTING DEVICE FOR THE SPINDLES OF RING-SPINNING FRAMES.

SPECIFICATION forming part of Letters Patent No. 306,565, dated October 14, 1884.

Application filed October 9, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH WARREN WATTLES, of Canton, in the county of Norfolk, in the Commonwealth of Massachusetts, have invented a new and useful Improvement in Supporting Devices for the Spindles of Ring-Spinning Frames; and I do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a vertical section of a spindle with its supports in accordance with my invention, the nature of which is defined in the claim hereinafter presented, as well as in the following description. Fig. 2 is a similar section, but showing the spindle pivotal step and its sustaining-cushion arranged in or adapted to the post instead of to the encompassing metallic thimble, as shown in Fig. 1. Fig. 3 is a top view, Fig. 4 a side elevation, and Fig. 5 a transverse section, of the annular grooved bearing for the foot of the whirl-sleeve. Fig. 6 is a transverse and vertical section of the metallic thimble or guard for the tubular wick. Fig. 7 is a vertical section on an enlarged scale of the upper part of the said thimble or guard, its supporting-post, and the tubular wick. Fig. 8 is a top view of the step *i*, hereinafter described, showing its notches *w*.

In Figs. 1 and 2 of the said drawings, A denotes a "live-spindle," whose driving-whirl is shown at *a*, and the supporting-sleeve thereof at *b*, all being formed and arranged as represented.

B is the oil-reservoir, provided with a fastening-neck, *c*, having screwed on it a nut, *d*. This reservoir also has a filling-induct, *f*, into which a screw, *g*, is screwed. The milled head of the screw laps on a flange, *o*, projecting from the whirl-sleeve *b*, and serving to keep the spindle from being raised during the act of doffing or removing a bobbin from it.

Extending upward from the bottom of the oil-reservoir, and concentric therewith, is the stationary post or carrier C, for supporting a tubular wick, D, which encompasses the said post, and fits and is suitably secured thereto, and extends from the oil-reservoir at or near its bottom to the top of such carrier.

Encompassing the wick and fitting thereto, as shown in Fig. 1, is a metallic thimble, E, which in Fig. 6 is represented detached from the post and in vertical section. In the head or upper part of this thimble there is a socket or open chamber, *h*, for reception of the metallic step *i* of the pivot *k* of the spindle. This step rests on a cushion or yielding or elastic bearing, *l*, of felt or other proper material, arranged within the chamber *h* at the bottom thereof.

There may be formed in the circumference of the step *i* one or more notches or grooves, *w*, to allow oil to flow freely to and from the elastic or yielding cushion *l*, and I usually make a hole, a^2, through the bottom of the chamber *h* at its center, such hole being for oil to flow upward or downward through the step.

In practice I have found that when the step is thus supported there is much less jar and noise and the spindle will run to better advantage than when its step is without any such cushion or elastic bearing. Besides, as the yielding bearing is of felt or other like absorbent of oil, it becomes, while in use, charged with oil, and when the bobbin is being applied to and pressed down on the spindle the yielding bearing becomes contracted, so as to force oil from it upward into the chamber *h*, and upon the upper surface of the bearing or plate *i*. There are holes *m* in the upper parts of the thimble and post, to let oil flow from the wick not only to the outer surface of the thimble, but into the chamber *h*, or part thereof over the step *i*. As the whirl-sleeve *b* encompasses the thimble E without touching it, there is a very narrow space, *y*, between them. Oil escaping from the holes *m* will flow down through this space and on the outer surface of the thimble, and will pass into the groove *r*, hereinafter described. The wick, by capillary attraction, raises the oil from the reservoir to the ducts *m*. From thence it passes into the chamber *h* and upon the step *i*, to lubricate such step and the pivot of the spindle.

Instead of having the spindle, pivotal step, and its cushion or yielding bearing in a chamber in the thimble, I sometimes dispense with such chamber and the thimble, and have the step and cushion in a chamber, *h*, arranged directly in the post C, such being as represented in Fig. 2, in which case I use a tube, open at its upper end, as shown in the said

figure at E. In this latter case, as in the former, the whirl-sleeve does not touch the wick; but whether the spindle-foot bearing be in the post or in the thimble, the part *p* of the whirl-sleeve which projects down within the oil-reservoir revolves on a cylindrical bearing projecting from the post, or extends into an annular groove or channel, *r*, formed in an annulus, *s*, that encompasses the post C and rests on the bottom of the oil-reservoir, or a shoulder, *x*, on the post, such grooved annulus being to keep the whirl-sleeve out of contact with the wick, or with the thimble when encompassing such wick. The groove is to be deep enough to admit of the vertical play of the spindle allowed by the cushion of its step. I usually have the annulus free to revolve on the post, and provide the bore of the annulus with one or more spiral or oblique grooves, *v*, adapted to facilitate, while the annulus may be in revolution, the flow of oil up through such grooves to the top of the annulus.

From the above it will be seen that the whirl-sleeve does not revolve against the thimble or tubular guard encompassing the wick, the whirl-sleeve having at its lower part a bearing applied to the post below and independently of the said thimble or guard. At its lower end the thimble is notched to straddle, as shown at *q*, a stud, *s'*, projecting from the post.

Instead of the notch being straight it may be right-angular, to cause it and the stud to act like what is called a "bayonet-connection." The notch and the stud are to prevent the thimble from revolving on the wick.

I claim—

The combination of the oil-reservoir and its post, the tubular wick and its encompassing tube or thimble, arranged as set forth, and the spindle pivoted in the upper part of the post or thimble, and having its pivot-step provided with a yielding or elastic cushion or bearing, as described, with the whirl-sleeve and its bearing, such whirl-sleeve being at its lower part adapted to revolve and move vertically in or on such bearing, and the latter being independent of or separate from the said tube or thimble, all being substantially as represented.

JOSEPH WARREN WATTLES.

Witnesses:

R. H. EDDY,

E. B. PRATT.