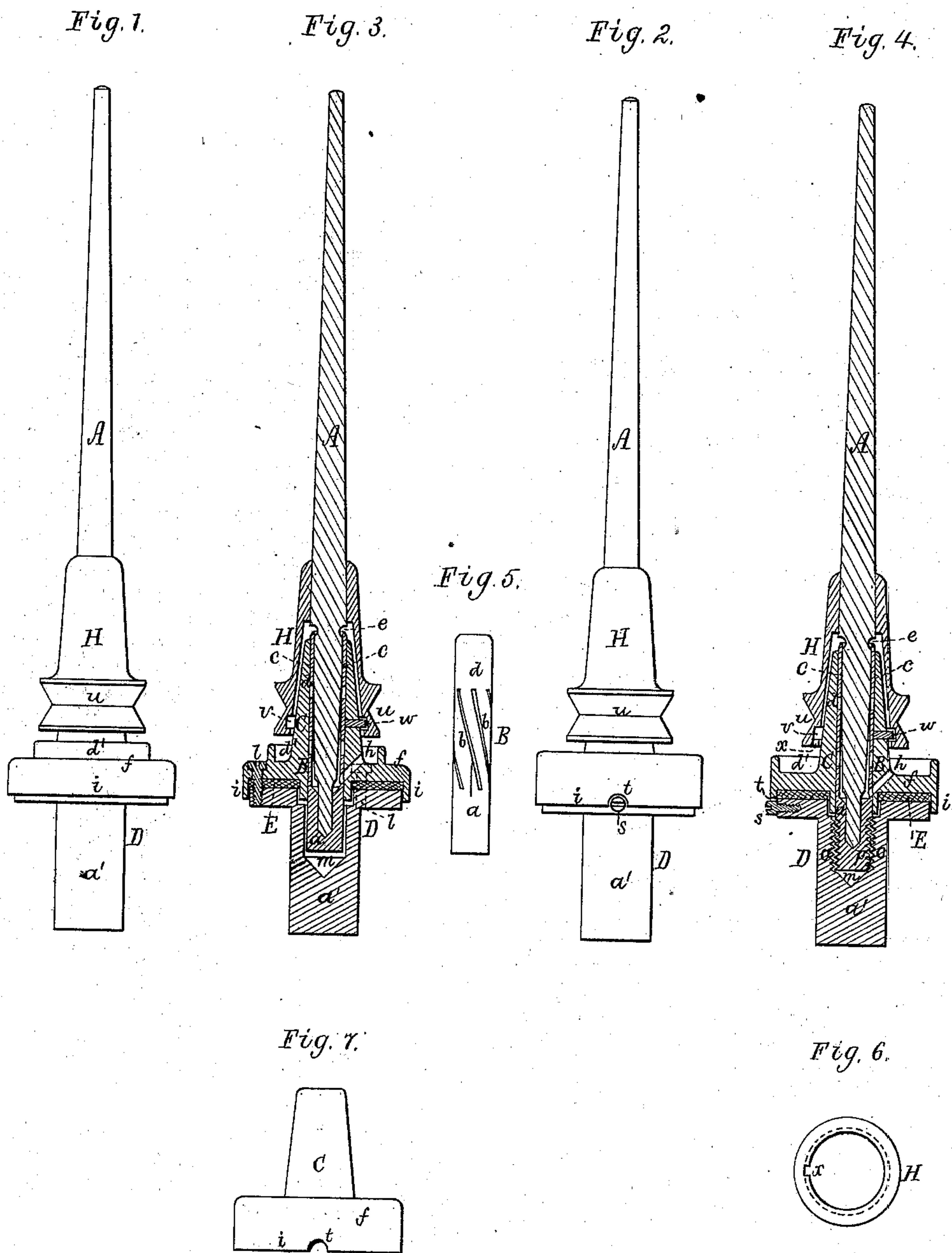


J. BIRKENHEAD.
 Spinning-Spindles and their Support.
 No. 214,750. Patented April 29, 1879.



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IMPROVEMENT IN SPINNING-SPINDLES AND THEIR SUPPORTS.

Specification forming part of Letters Patent No. **214,750**, dated April 29, 1879; application filed December 24, 1878.

To all whom it may concern:

Be it known that I, JOHN BIRKENHEAD, of Mansfield, of the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Spinning-Spindles and their Supports; and do hereby declare the same to be described in the following specification, and represented in the accompanying drawings, of which—

Figures 1 and 2 are front elevations, and Figs. 3 and 4 are vertical sections, of two spindles and their appurtenances provided with my invention. Fig. 5 is an elevation of a combined step and bolster, to be hereinafter described, it having oblique channels or grooves cut in it.

The nature of my invention is fully set forth in the claim or claims hereinafter made.

In the said drawings, A denotes a spinning-frame spindle arranged within a combined step and bolster, B, which has formed in it above its step *a* a series of helical or inclined slits or grooves, *b*, which extend from the step up to the spindle-bearing *c* of the bolster *d*. Within the said bolster, and near its top, the spindle has a groove, *e*, made transversely in and around it, such groove being to prevent oil from flowing out of the top of the bolster down upon the outside of the combined step and bolster supporter C, into which the combined step and bolster B is fitted, and below which it extends, in manner as represented. This supporter C is a tubular standard provided with a broad cylindrical base, *f*, having upon its upper surface or part an annular trough, *d'*, such trough being arranged concentrically with the standard and base and furnished with an educt or passage, *h*, leading from it into the space within the aforesaid part B.

There is to the base *f* a flange, *i*, which extends down from it, as shown, and encompasses the upper part of a socketed and tenoned pedestal, D, arranged beneath the supporter C, and fixed, as shown, to rest upon and enter what is termed the "spindle-sustaining rail," the tenon of the pedestal to enter the said rail being shown at *a'*.

Between the bottom of the supporter C and the top of the pedestal is a yielding disk or annulus, E, of cloth, leather, or other suitable material.

In Fig. 3 the supporter C is represented as fixed to the pedestal by screws *ll*, going down through the base of the supporter and also through the yielding disk or annulus, the combined step and bolster being extended below the latter and into a recess or chamber, *m*, made in the pedestal, and having a diameter somewhat larger than that of the part within it.

In Fig. 4 the cavity *m* in the pedestal is represented as provided with a female screw, *o*, formed down within it to receive a male screw, *p*, of less diameter, made on the part of the combined bolster and step that enters the said cavity. The male screw is to work loosely laterally in the female screw, in order to enable the spindle and its combined step and bolster and the supporter thereof to vibrate or play laterally, the yielding annulus E admitting of such movements. The screws *o p* serve to hold the part B in connection with the pedestal. To prevent the standard from revolving on such pedestal a screw, *s*, is inserted in the latter and projects into a notch, *t*, made in the flange of the supporter.

Furthermore, the whirl *u* is fixed to or makes part of a conical cap or cover, H, which, fastened on the spindle, projects down around the standard, and at bottom has a groove, *v*, cut in and around it to receive a stud, *w*, extending from the standard. The groove has a passage, *x*, leading downward out of it, as shown in Fig. 4, and also in Fig. 6, the latter figure being a bottom view of the cap H. Fig. 7 is a side elevation of the standard and its base, showing the notch *t* in the latter to receive the screw *s*.

The cushion or annulus E, applied as described, will yield to allow the spindle while revolving at great velocity to adjust itself into a vertical position.

By arranging the groove *v* and its outlet *x* in the cap and the engaging-stud *w* in the standard, I save the necessity of making the standard with an extension to enter the oil-reservoir and to have the stud projecting from it (the said extension) and under a flange arranged at the top of the said reservoir, as shown in the United States Patent No. 205,718.

The oil that passes from the trough into the part B will, by the action of the spindle while revolving and the inclined grooves or helical

slots in such part B, be raised up to the bearing in the upper portion of the said part B, the surplus being materially prevented by the groove in the spindle from overflowing and passing down on the outer surface of the standard.

It is not new, as will appear by Patent No. 157,437, to have a groove in and around the spindle when the spindle is within a combined step and bolster; but in such case the groove was placed considerably below, and not at the top, of the bolster, as shown in the accompanying drawings. In my present arrangement the groove operates to better advantage to stop or diminish the overflow of the oil.

The small amount of oil that will escape and run down the outer surface of the standard and the inner surface of the cap will suffice to keep the rubbing-surfaces of the stud *w* and the groove *v* well lubricated.

In the present arrangement of the stud and groove there is a practical advantage over what of like character is shown in the aforesaid Patent No. 205,718, in which, owing to the stud being wholly above any oil in the reservoir, it is often difficult to keep the stud well oiled and from wearing and being worn by the flange with which it co-operates.

With my present arrangement of the stud *w* and the groove *v* they are kept thoroughly lubricated by the small amount of oil that escapes and runs down on and between the standard and the cap.

I claim as my invention as follows:

1. The spindle provided with the groove *e*,

arranged at the top of the bolster, in combination with the combined step and bolster B, having the oil-raising helical grooves or slots *b*, and with standard C and cap H, arranged as set forth.

2. The cap H, provided with the groove *v* and its outlet *x*, and fixed to the spindle and arranged wholly above the oil-receiver, in combination with the spindle and with the standard C, furnished with the stud *w* to engage with such groove, as explained.

3. The combination of the spindle A, the cap H, having whirl *u*, the standard C, provided with the oil-trough *d'*, and its educt *h*, the combined spindle step and bolster B, yielding annulus E, and the pedestal D, all arranged and applied substantially as set forth.

4. The combination of the spindle, cap, and whirl, and the standard provided with the oil-reservoir and its educt, and the yielding annulus or cushion, and the tenoned pedestal, all arranged and applied substantially as specified.

5. The combination of the chambered pedestal D, yielding annulus E, standard C, having the base *f*, trough *h*, and flange *i*, combined step and bolster B, fixed tightly in and projecting from the said supporter into the chamber of the pedestal, and devices or mechanism for holding the supporter on and preventing it from revolving on such annulus, all being substantially as set forth.

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Witnesses:

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