

G. DRAPER.

Spindle-Bolsters and Steps for Spinning-Frames.

No. 134,863.

Patented Jan. 14, 1873.

Fig. 1.

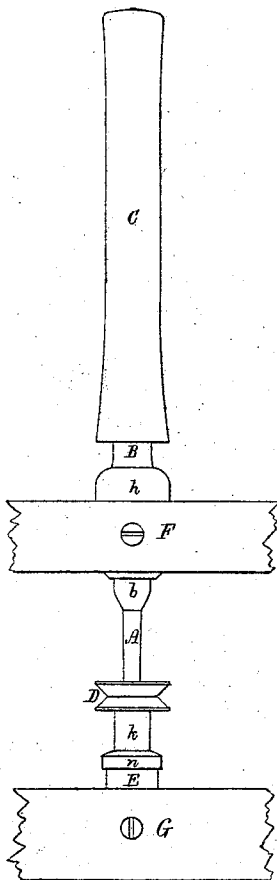


Fig. 2.

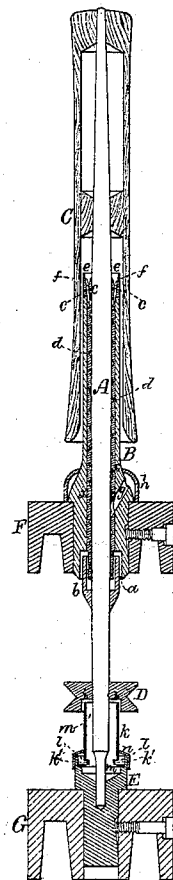
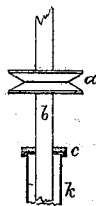


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE DRAPER, OF HOPEDALE, MASSACHUSETTS.

IMPROVEMENT IN SPINDLE-BOLSTERS AND STEPS FOR SPINNING-FRAMES.

Specification forming part of Letters Patent No. 134,863, dated January 14, 1873.

To all whom it may concern:

Be it known that I, GEORGE DRAPER, of Hopedale, of the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Ring-Spinning Frames, or in mechanism thereof; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, of which—

Figure 1 is a front elevation, and Fig. 2 a vertical section, of a ring-spinning-frame spindle, its step and bolster-standard provided with my invention, which has special reference to a spindle bolster and bobbin arranged on what is termed the "Sawyer plan," the main or principal features of which are described and represented in the United States patent No. 113,575.

In the "Sawyer spinning mechanism" the bolster or bolster-standard extends up within the bobbin, the spindle going up through the said standard and entering and supporting the bobbin. To oil the bolster has required either the raising of the bobbin sufficiently above the bolster or the formation of the bobbin with one or more oiling-passages made laterally through or in it, just above the bolster or at the head of the bolster-chamber of the bobbin.

To avoid the difficulties attendant upon or incident to such modes or means of effecting the necessary supply of oil, and also to enable the oiling to be done while the spindle may be in revolution, are objects I have had in view in making my invention. Another purpose has been to shield or protect the lubricated surfaces and oil holding or receiving spaces from dust, fibrous filaments, or extraneous matters, as well as to properly support the spindle in order to enable the bobbin to be removed therefrom without at the same time lifting the spindle, all of which objects or purposes have been fully attained by my improved spinning mechanism.

In the drawing, A denotes the spindle; B, the bolster-standard; C, the bobbin; D, the whirl; E, the step; F, the bolster-standard supporting-rail; and G, the step-rail. The bolster-standard, at its foot, is chambered, as shown at *a*, the chamber being cylindrical in shape and open at bottom. Within this chamber there is placed a cylindrical cup or oil-res-

ervoir, *b*, concentric with and fixed or fastened to the spindle so as to revolve therewith and be revolved thereby when the spindle is in operation, the said cup having a diameter a very little less than that of the chamber *a*. From the bottom of the bushing *x* of the bolster, such bushing being extended down into the oil-cup *b*, as shown, there leads upward around the spindle and in the bore of the bolster standard or bushing, and through the bolster or upper bearing *c*, one or more helical grooves, *d*; and there is formed in the head of the standard B an oil-receiving channel or annular cup, *e*, concentric with and to encompass the bolster or upper bearing *c*. One or more passages, *f*, lead from the bottom of the receiver *e* into the bore of the bolster. Furthermore, in the base of the standard B or below the bobbin there is an inclined oil-educt or supply-passage, *g*, leading into the bore of the standard and provided with a cap or cover, *h*, to slide freely up and down upon and fit to the bolster-standard. The whirl D is chambered in its lower side and around the spindle, such being shown at *i*, and to receive a tubular extension, *k*, of the step E. The said tubular extension encompasses the spindle, whose pivot is at the bottom thereof, there being a hole, *k'*, to lead from the oil-reservoir of the step into the space or chamber *m* of the extension. An annular cap or cover, *n*, encircles the extension and fits upon the step, as shown. On raising the said cover and pouring oil into the space *l* such oil will run therefrom through the passage *k'* into and upon the step-bearing of the spindle. By the extension *k* going up to or within the whirl the step-bearing of the spindle becomes thoroughly protected from dust and fibers or filaments of the cotton or material while being spun. Furthermore, on raising the cap *h* on the bolster-standard and pouring oil into the induct *g*, such oil will run into the bolster-standard, from whence it will be elevated by the helical groove *d* while the spindle is revolving, the oil being carried up to and through the bearing *c*, thence over its top into the reservoir *e*, from which it will flow through the educts *f* back into the bolster-standard. Thus it will be seen that the upper bearing of the spindle will be effectually lubricated by the oil received, as set forth, through the induct *g*, or

discharged upon the spindle or into the bore of the standard through the said induct. The cup *b* within the chamber *a* answers to catch and hold the oil when the spindle is at rest, and also to prevent the spindle from being lifted when an attempt is made to raise the bobbin off the spindle, the chamber *a* serving also to protect the cup from dust and filaments.

I herein make no claim to a spindle-step constructed and having appurtenances as shown in Letters Patent No. 114,536, dated May 9, 1871, and granted to me, which, though in some respects analogous to my present step, has no extension leading up to the whirl, or into a chamber therein. Nor do I claim any thing, combination, or arrangement shown in the United States Patent No. 122,705, granted to L. Cheetham, wherein the bolster-standard is shown as provided with an oil-groove and induct at its base, and also with a helical groove extending around the spindle, a groove down the outside of the bolster-standard, and a tubular cap to fit to the latter. I avoid any groove down the bolster-standard, and any tubular cap to go around such standard, having at the top of the standard the oil-receiver *e* and its educt *f*, all as described.

The helical groove or oil-elevator may be formed in the spindle instead of in the bore of the bolster, or there may be such a groove in each.

I would observe that, by having the cap *n* and the tubular extension separate from the whirl, so as not to revolve with it, and arranged together and with the oil-receiver *l* of the step, as described, the step may be supplied with oil while the spindle and whirl may be in revolution, which is not the case with the construction shown in the said patent No. 122,705, which requires the spindle and whirl to be stopped before oil can be poured into the step.

Instead of the whirl being used to cap or cover the tubular extension *k*, there may be a disk fixed to the spindle in the proper place, and such disk may be recessed to receive the upper part of the extension; in which case the whirl, separate from the disk, would be arranged above it in the spindle. In Fig. 3 I have shown such a construction, which may be considered as equivalent for that heretofore described, *a* in such figure being the whirl, *b* the spindle, *c* the disk, and *k* the tubular extension of the step.

I herein make no claim to a step having a dome, oil-spaces, and a cap, as shown in the patent of Sawyer, dated August 27, 1871. Nor do I herein claim a step capped and having the cap covered in manner as shown in my patent of April 6, 1869, the cap in such case being stationary, and provided with an oil-hole or inlet.

In my present step I have the two communi-

cating oil-receivers, with a cover to the outer of them; and, instead of a dome to the inner receiver I have a tubular extension, *k*, whereby new and useful effects result; my present invention or improvement in the step being designed to overcome difficulties incident to the step as represented in the said patent of Sawyer, and as covered by patent No. 114,570, granted to George William Knight and myself, May 9, 1871.

In practice it has been found that the cap or cover is liable to rise on the dome and work out of center, so as to leave the outer receiving oil-space more or less uncovered; or if raised by an attendant for the purpose of enabling oil to be poured into the receiver the annulus or cover will slip laterally or sidewise on or over the dome. When dropped by the attendant after oiling the cover is liable to fall out of place, or take an inclined position, whereby it will leave the step more or less open. By dispensing with the dome and using the tubular extension the cover, while being raised, always moves vertically; and while dropping to its seat will be guided down to place. The tubular extension, therefore, so far as the cap or cover is concerned, is productive of new advantages. Furthermore, it has been found that the driving-band, on slipping off the whirl, will be drawn against the spindle, whereby the latter will suddenly have its velocity greatly increased, to the detriment of the spinning operation. By having the extension *k* carried up to the whirl, or into a chamber in it, as shown, the band, on slipping off the whirl, will fall upon the extension without coming in contact with the spindle and revolving it.

The tubular extension also protects the butt of the spindle, or the part below the whirl, from the loose yarn liable to accumulate on it when it is uncovered.

What I claim as my invention is as follows—that is to say:

The bolster-standard *B* and the spindle *A*, provided with the oil receiver *e*, educt *f*, helical oil elevator or groove *d*, oiling-induct *g*, and the rotary oil-reservoir *b*, the latter being fixed to the spindle, and also being arranged substantially in manner and to operate as specified.

2. The oil-reservoir *b*, fixed to the spindle so as to revolve therewith, and arranged within a chamber, *a*, in the foot of the bolster-standard, all being essentially as shown and described.

3. The step provided with the communicating oil-chambers *l m*, the tubular extension *k*, and the cap *n*, all arranged essentially as specified and represented.

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Witnesses:

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