

GEORGE DRAPER.

Improvement in Spindles for Spinning-Machines.

No. 127,159.

Patented May 28, 1872.

Fig. 1.

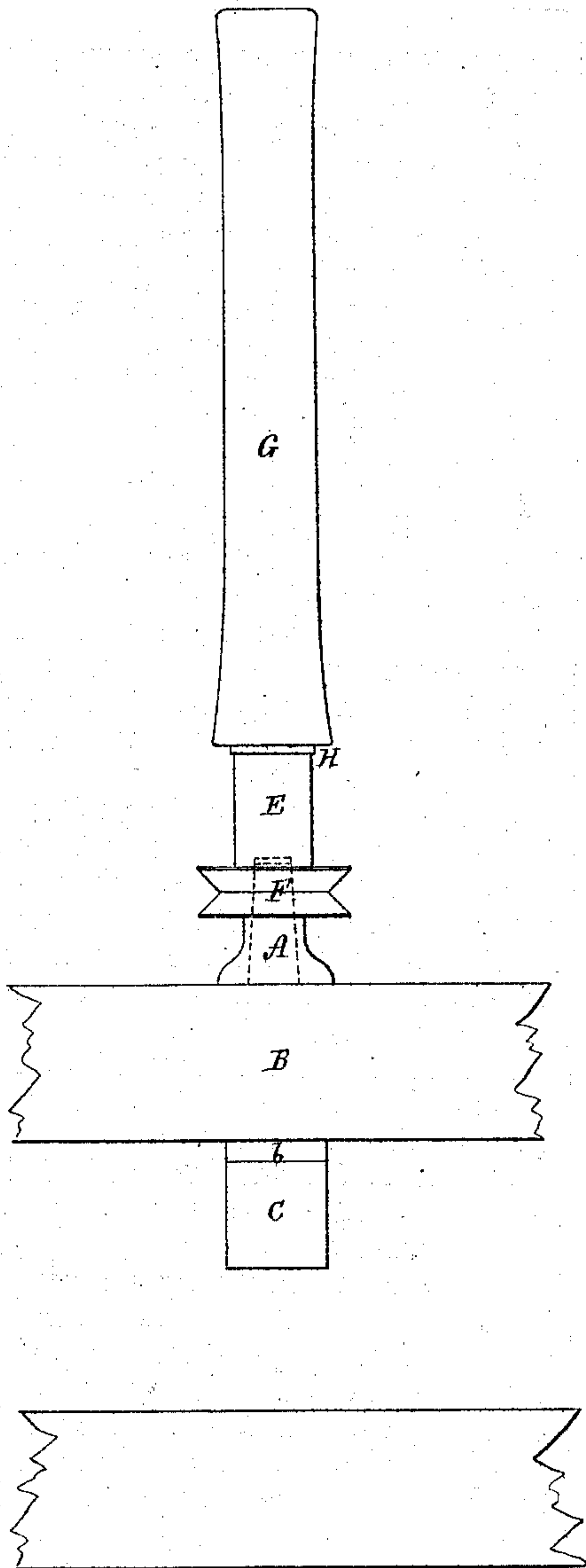
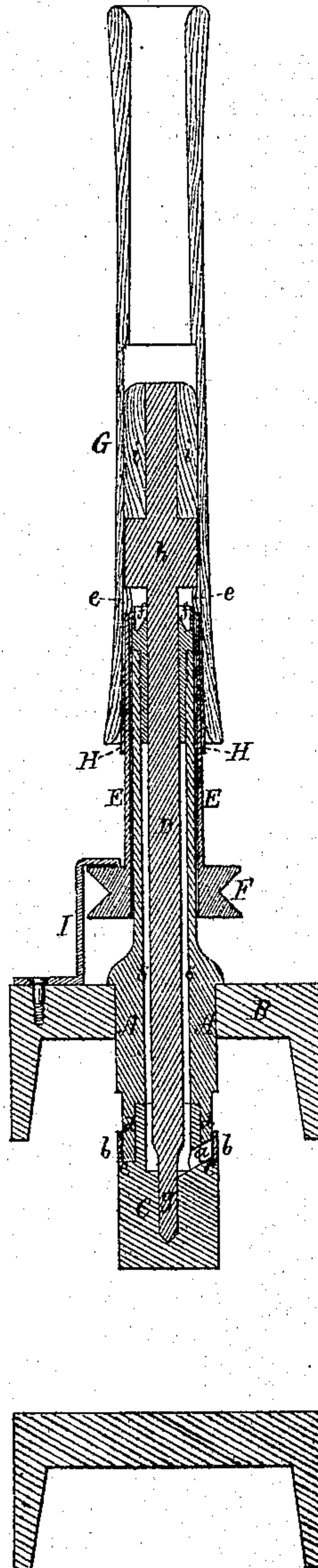


Fig. 2.



Witnesses

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GEORGE DRAPER, OF HOPEDALE, MASSACHUSETTS.

IMPROVEMENT IN SPINDLES FOR SPINNING-MACHINES.

Specification forming part of Letters Patent No. 127,159, dated May 28, 1872.

To all persons to whom these presents may come:

Be it known that I, GEORGE DRAPER, of Hopedale, in the county of Worcester and State of Massachusetts, have made an invention having reference to Machinery for Spinning; 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 and transverse section of spinning machinery made in accordance with my invention.

In such drawing, A denotes a tubular bolster or standard, elevated on a supporting-rail, B, and extended down through it and terminating at bottom in or being fixed to a close spindle step, C, furnished with an induct, *a*, and also with a cover or encompassing-cap or slide, *b*. The said cover or slide is a short tube, which, when in its lowest position, rests on a shoulder, *c*, of the step, and encompasses the bolster-foot *d*; it being capable of being moved upward on the foot, so as to uncover the induct in order to admit of oil being introduced therein. With the said bolster a "compound live spindle" is used, it being composed of a spindle, D, and a sleeve, E, arranged concentrically and fastened together at their upper ends. The sleeve terminates at bottom in, or has applied to it, a whirl, F; and such sleeve extends down upon and encompasses the bolster in manner as shown. At and just above the upper end of the latter there are one or more oiling-inducts, *e*, made in the sleeve, whereby oil may be introduced through such hole or holes directly upon the upper end of the bolster, or into an oil-chamber or groove, *f*, made therein. The spindle D extends down through the bolster, takes a bearing in the upper part thereof, and thence, without further contact with the interior of the bolster, has its pivot *g* supported by the step; the space *s* around the spindle and within the bolster being sufficiently large to cause that part of the spindle which is therein to always run freely in air. The sleeve has its body part *h* made of metal, and crowned by a cylinder or extension, *o*, of wood, which serves not only to lighten the sleeve, but as a bearing to the bobbin G. The said bobbin is chambered or bored lengthwise, to extend down upon and encompass the

sleeve, in manner as represented, the bobbin being supported by the aforesaid cylindrical extension *i* and a conical seat, H, formed and arranged upon the sleeve in manner as represented. The conical seat admits of the bobbin being firmly held to the sleeve, the cylindrical extension not only serving to steady the bobbin, but to admit of it being pressed down firmly upon the seat, as circumstances may require. Furthermore, the bobbin serves as a cap or shield to the oil hole or holes of the sleeve, as it encompasses and extends below such hole or holes, so as to prevent any dirt or fibers from gaining, by means of such hole or holes, access to the spindle and bore of the bolster. A turn-button, I, formed and arranged upon the bolster-rail, as represented, serves, when extended over the whirl, to prevent the sleeve from being raised off or upon the bolster while the bobbin may be in the act of being raised off the sleeve.

Sometimes I reverse the positions of the conical seat and the straight or cylindrical guide or support of the bobbin; in which case the conical seat will be at the upper end of the sleeve; but this arrangement of the parts I do not deem so advantageous as that exhibited in the drawing.

The bobbin is constructed with its bore tapering, where it is to fit to the conical seat H; and where it is to encompass the straight or cylindrical extension or guide *i* the said bore is to be straight or cylindrical, all being essentially as shown.

In several respects my spinning mechanism is analogous to that of Rabbeth and Atwood, described and represented in their patent No. 63,561. The two, however, differ in some important particulars. In my mechanism the bobbin, instead of being wholly above the sleeve and held to it by pins or studs, and being sustained by the spindle, as it is in Rabbeth and Atwood's mechanism, is sustained by the sleeve alone, and extends down upon and encompasses the sleeve and its oil induct or inducts so as to cover the latter. The step of the spindle has its separate oil induct and loose-fitting cap or covering-tube, and therefore its supply of oil is not dependent upon the oil-reservoir at the head of the bolster. That part of the spindle which is below the bearing at the said reservoir at the head of the bolster, and between such and the

step, does not run in oil, or is not and cannot be submerged in oil, as does the spindle of Rabbeth and Atwood; because the oil would escape out of the oiling induct of the step, and therefore such part of the spindle is not liable to be impeded by the oil becoming thickened and gummed upon it. Furthermore, no part of the spindle D is exposed in a manner to admit of it intercepting and winding upon itself any loose thread or threads.

In practice it has been found that a spindle running in oil, as indicated in patents 30,937 and 63,561, requires more power to revolve it than when exposed to oil only at its bearing surfaces in the step and bolster; for, in the former case, the spindle soon becomes covered by a coating or deposit, which creates so great an amount of friction that, generally, one horsepower, under such circumstances, will drive only about seventy spindles, when it would suffice to operate about one hundred and twenty with the spindle not immersed in oil between the bolster and step.

Spindles to drive bobbins have heretofore been made, generally, in two ways; in one of which the spindle was cylindrical, with a corresponding bore in the bobbin, in which case the bobbin was usually driven by pins entering its head, or by friction beneath the head. In the other case, the spindle has been tapering and the bobbin driven by frictional contact therewith in two different places.

In the case where the bobbin is driven by frictional contact with the tapering spindle or sleeve it has been found very difficult to get the spindles made exactly alike, and the bobbins also so constructed that each could be used on each of the spindles or sleeves. To avoid the difficulties incident to such constructions, I have adopted the plan of employing

the conical seat and the straight or cylindrical guide, as hereinbefore mentioned; which brings the bobbin always to a good bearing in one place, and prevents the tendency of it to rise on the spindle, which it has when supported by two tapering bearings, or one long tapering bearing only. Such a tendency to rise on the spindle determines the limit of production of yarn, so that if estopped or overcome the amount of yarn spun may be much increased.

I would remark that I do not claim the mechanism, or any part thereof, described in said Rabbeth and Atwood's patent. Neither do I claim a sleeve and bobbin constructed and arranged and combined with a dead-spindle in manner as shown in the United States patent 119,032. Nor do I claim anything shown in the aforesaid patent No. 30,937.

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

1. I claim, in combination with the bolster A and "compound spindle" D E, provided with one or more oiling openings, *e*, extended through the sleeve E of the spindle, and with respect to the bolster A, as described, the bobbin G, arranged to encompass the sleeve E and extend beyond and cover the said oiling hole or holes *e*, as set forth.

2. Also, in combination therewith, I claim the closed step C, provided with the oil-induct *a* and the cap-ring *b* thereto, arranged as represented.

3. Also, the sleeve E, provided with the wooden extension or bearing *i*, arranged and combined with metallic body part *h*, as set forth.

GEORGE DRAPER.

Witnesses:

R. H. EDDY,
J. R. SNOW.