(No Model.)

G. E. TAFT.

SPINDLE AND BEARING THEREFOR.

No. 261,275. Patented July 18, 1882.

Fig. 1.

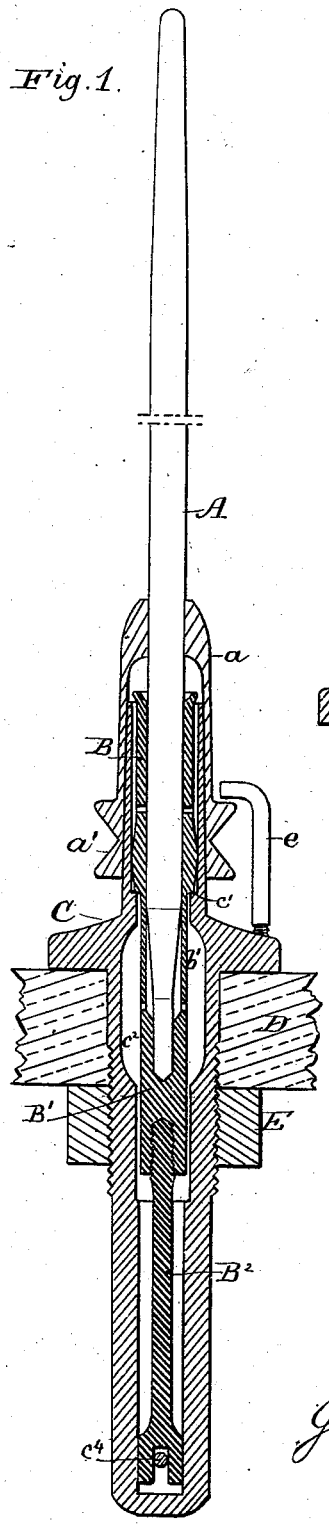


Fig. 2.

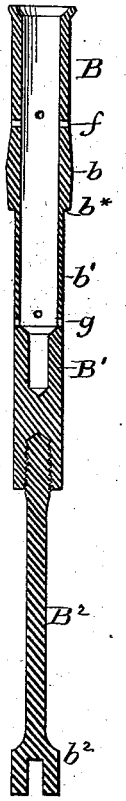
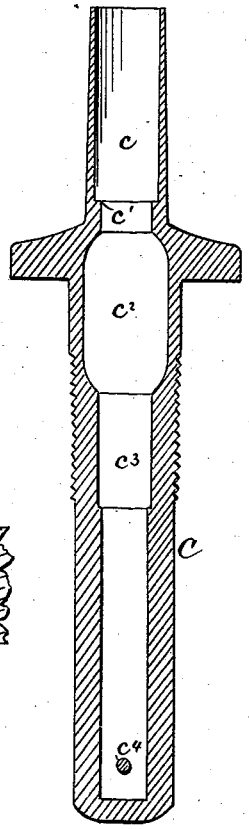


Fig. 3.



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UNITED STATES PATENT OFFICE.

GUSTAVUS E. TAFT, OF WHITINSVILLE, MASSACHUSETTS, ASSIGNOR TO THE WHITIN MACHINE WORKS, OF SAME PLACE.

SPINDLE AND BEARING THEREFOR.

SPECIFICATION forming part of Letters Patent No. 261,275, dated July 18, 1882.

Application filed April 20, 1882. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVUS E. TAFT, a citizen of the United States, residing at Whitinsville, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Spindles and Bearings therefor, of which the following is a specification.

My invention relates to spindles and bearings therefor used in spinning fine yarns; and the objects of my improvements are, first, to provide the spindle with a combined bolster and step having a springy stem with which no packing will be required for said spindle to run true and uniformly; second, to afford facilities for the proper adjustment of the combined bolster and step in relation to the bolster-case. I attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section, showing a spindle, its bolster, step, and bolster-case constructed according to my invention. Fig. 2 is a vertical section through the bolster, the step, and its springy stem. Fig. 3 is a vertical section through the case or holder constructed to receive the bolster-step and springy stem.

Heretofore many attempts have been made to prevent the jarring, wabbling, or uneasy motion of running spindles caused by any inequality of bobbin or yarn load on the spindle, and thus reduce the wear of the bearings, the most common method being by means of elastic packing or springs placed around the bolster; but their properties seldom last for any length of time. By my construction no packing is required, and the means used to give elasticity and freedom of adjustment to the bolster and step are not subjected to any wear or deterioration.

In the accompanying drawings, A represents the spindle, to which is secured, as usual, the sleeve *a*, carrying the whirl *a'*, by which motion is transmitted to the spindle. This spindle is supported sidewise by the bolster B and endwise by the step B'. These parts B B' are formed in one piece, and are provided with a springy stem, B^2, secured to the lower end of the step or formed integral therewith. These parts B B' B^2 above mentioned are inclosed in a deep bolster-case, C, having a series of chambers of different sizes, for the purpose hereinafter stated. The upper chamber, *c*, has a diameter of such size as to fit the outside of the bolster at its largest part *b*. The part *b* is a narrow belt of bearing-surface approximately opposite the position occupied by the whirl *a'* when the spindle is secured upon its step. Above and under this part *b* the surface of the bolster tapers sufficiently to allow the spindle and bolster to adjust themselves to the axial center of the load on the spindle, and at the lower end of the part *b*, where it joins the bolster-tube *b'*, there is produced a shoulder, *b**, to support the bolster. At the lower end of the chamber *c* there is formed in the bolster-case a shoulder-seat, *c'*, to support the bolster at that point. The chamber c^2, formed in the bolster-case under the internal collar or shoulder seat, *c'*, is of larger diameter than any of the other chambers formed therein, and can contain a two or three months' supply of oil. Under the chamber or oil-reservoir c^2 the internal bore, c^3, of the bolster-case is of suitable size to limit the motion of the lower end of the bolster-tube *b'* or the step B', and the size of this bore governs it, so there will not be motion enough to have the springy stem injured by any jerk or allow it to yield more than is desirable.

Bronze being regarded as the best metal for bearings, I generally construct the combined bolster and step of that metal and the spring-stem B^2 of steel, and unite the parts by means of a fine screw-thread cut upon the upper end of said stem. The lower end, b^2, of the stem B^2 is of such a diameter as to make a close sliding fit in the bottom of the bolster-case, and it is forked or slotted to straddle a pin, c^4, secured in the interior of said bolster-case, to keep the bolster from rotating under the impulse of the spindle. The pendent springy stem B^2 is of suitable size and elasticity to bend under a side pressure applied to the spindle, so that the bolster and step connected with the springy stem may adjust themselves to any deflection of spindle from its normal alignment, thus preventing wabbling or vi-

brating motion of the spindle. The bolster, its step, and the stem B^2 may be made in one piece, of steel or other suitable metal.

The bolster-case C is secured to the spinning-frame rail D by a nut, E, put on the threaded part thereof. It is cast in one piece, so that no oil can leak out at the bottom, and when covered by the whirl no dust can get in at the top. To supply the spindle-bearings with oil, the hooked wire *e* is turned from over the whirl, the spindle with its whirl is removed, and oil is poured in at the top of the bolster and finds its way through the openings *f* in the bolster to the upper bearing of the spindle, and through the openings *g* in the bolster-tube *b'* to the step of the spindle.

Having now fully described my invention, I claim—

1. The combination of a bolster-case having a closed bottom with a combined bolster and step provided with a light springy stem secured to or bearing against the bottom of the said case, substantially as and for the purpose described.

2. The combination of a bolster-case, provided with superposed chambers of different diameters, with a combined bolster and step having only a narrow belt fitting in the upper chamber of the case, and provided with a light springy stem secured at its lower end to the sides of the lower chamber of the said case, substantially as and for the purpose described.

3. The combination of a bolster-case bored centrally to produce communicating chambers of different diameters, an internal shoulder-seat, *c'*, and a closed bottom, with a combined bolster and step provided with a bearing, *b*, having a double conical periphery above and under said bearing, and shouldered to rest upon the shoulder-seat *c'*, and a pendent springy stem having its lower end secured to the said case, substantially as and for the purpose set forth.

4. The combination of a live-spindle, provided with a sleeve and whirl, with a bolster-case having a chamber, c^3, of such diameter as will limit the motion of the step, as described, an internal oil-chamber, c^2, and a combined bolster and step provided with side perforations and a pendent springy stem, substantially as and for the purpose set forth.

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