(No Model.)

C. H. CHAPMAN.

BOLSTER FOR SPINNING SPINDLES.

No. 327,863. Patented Oct. 6, 1885.

Fig. 1

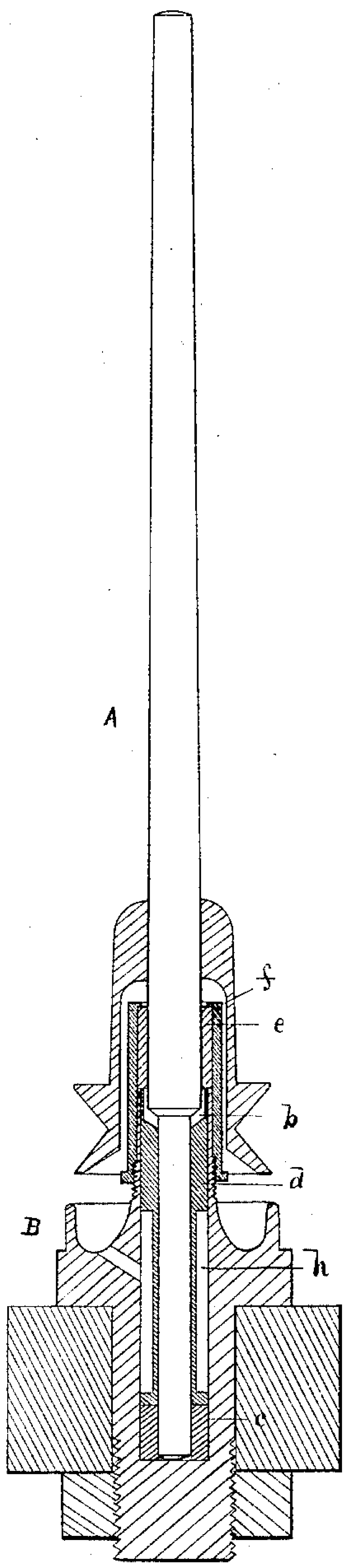


Fig. 2

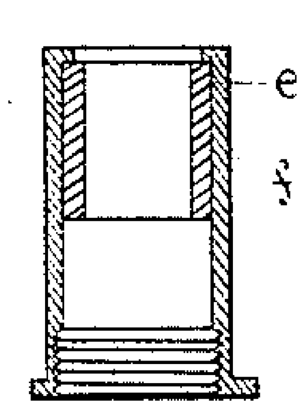
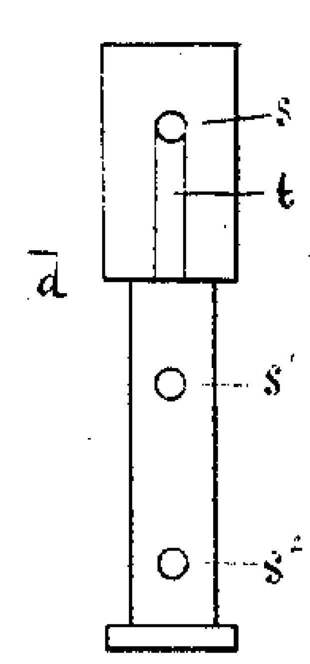


Fig. 3



Witnesses:

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BOLSTER FOR SPINNING-SPINDLES.

SPECIFICATION forming part of Letters Patent No. 327,863, dated October 6, 1885.

Application filed May 18, 1885. Serial No. 165,864. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. CHAPMAN, a citizen of the United States, residing at Groton, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Bolsters for Spinning-Spindles; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention relates to that class of bolsters in which all the bearings for the spindle are located within a bolster-case; and it has for its object to secure a greater steadiness of the spindle when running at high speed, and to prevent the spindle from being drawn from the center of the ring by the band-pull. To accomplish these results I provide a fixed step or journal bearing for the foot of the spindle, composed of any non-metallic and yielding substance—such as leather, wood, or cork—and located within a bolster-case of usual construction. Immediately above and resting upon such step-bearing I place a metallic bolster-bearing or bolster-tube closely fitted within the bolster-case and extending upward around the spindle to a point within a sleeve-whirl about on a line with the plane of the band-pull, thereby giving the spindle a positive support against the band-pull and preventing its being drawn out of the center of the ring. Above such bolster-bearing, and above the plane of the band-pull, I surround the spindle with an auxiliary bearing of a like non-metallic material adapted to receive the spindle and afford it lateral support in case of vibration. These alternate sections of metallic and non-metallic supports are firmly compressed together and held within the bolster-case by means of a screw cap or plug attached to the upper end of the bolster-case, and forming, when applied, a part or extension of such case. By this construction the intermediate metallic bolster-bearing receives the entire lateral pressure of the spindle due to the band-tension, and affords it ample support when running steadily and without vibration, while the non-metallic step-bearing below and auxiliary bearing above operate to re-enforce the bolster-bearing and give the spindle additional support in case vibration occurs. This operation is more clearly understood when it is known that spindles of this class gyrate when unequally loaded about a center of motion which is located within the plane of the band-pull. Spindles of this class as heretofore constructed, when designed to embody a self-centering capacity and run without gyration under an unequally-distributed bobbin-load, have been formed with the bolster and step bearings integral, the same being fitted loosely within the the bolster-case to allow lateral movement, and surrounded therein by a yielding cushion. I have discovered, however, that better and more permanent results are obtained if the bolster-bearing is closely fitted within the bolster-case and the foot of the spindle extended down through and below the bolster-bearing into a fixed step of non-metallic material, such material being also applied to the spindle above the metallic bolster-bearing to re-enforce the same and cushion the spindle in case of vibration, as before described. By thus placing the yielding material above and below the metallic bolster-bearing, instead of around it, greater steadiness of rotation is secured, and the spindle is not drawn from the center of the ring by the band-tension, as is the case with a yielding bearing.

Referring to the accompanying drawings, Figure 1 is a sectional elevation showing the spindle with its sleeve-whirl, the bolster-case, and the several sections of the compound bolster-bearing all in their working position; Fig. 2, a sectional elevation of the screw-cap and upper auxiliary bearing removed; Fig. 3, a plan of the metallic bolster-bearing.

In Fig. 1 it will be seen that the bolster-case B is of usual construction. At the bottom of the case is placed the fixed step-bearing *c*, preferably made from leather, and having the form of an annular disk. Resting upon the non-metallic step-bearing *c* is the metallic bolster-bearing *d*, closely fitted within the bolster-case, and affording the spindle A a direct lateral support upward to a point about on a line with the band-groove of the whirl. Above the plane of the band-groove the internal diameter of the bolster-bearing is enlarged at *b* and loosely encircles the spindle upward to a point above the top of the bolster-case. This enlarged extension serves as a receptacle for surplus oil carried up by the rotation of the spindle, and being extended above the top of the bolster-case, it receives the non-metallic auxiliary bearing *e*, which is also preferably made from leather. This bearing is located within the retaining-cap or screw-cap *f*, as shown, and when the cap is screwed down to place the bearing *e* is thereby brought down upon the head of the bolster-bearing *d*, and the several sections *c*, *d*, and *e* are pressed firmly together and held in place by such screw-cap.

The central opening in the head of the cap is somewhat greater in diameter than that through the bearing *e*, as shown, in order that the spindle may always come in contact with the bearing rather than with the cap. The external diameter of the bolster-bearing *d* is reduced, as shown at *h*, in order to provide more ample space for surplus oil, the educts s s' s^2 and groove *t* affording the necessary communication between the several parts.

An important feature of this form of construction is found in the fact that the spindle does not require to be fitted as closely in the bolster-bearing as heretofore, and hence runs with less power, and will continue to run steadily after the bolster-bearing becomes worn; also, that any shrinkage or wear in the non-metallic bearing may be quickly corrected by screwing down the cap and compressing such bearings as required.

Having thus described my invention, what I claim is—

1. A spindle, its sleeve-whirl, and bolster-case, combined with a compound or sectional bearing consisting of a lower non-metallic section adapted to receive the foot of the spindle, an intermediate metallic section adapted to support the spindle against the band-pull, and an upper auxiliary non-metallic section adapted to afford additional support to the spindle and steady it against vibration, as described.

2. The bolster-case B, provided with the non-metallic step-bearing *c*, located at the bottom of the case, and with the metallic bolster-bearing resting upon the step bearing and extending above the neck of the bolster-case, combined with the retaining-cap *f*, provided with the auxiliary non-metallic bearing *e*, and adapted to sleeve the neck of the bolster-case and hold such auxiliary bearing firmly against the metallic bolster-bearing, as set forth.

CHARLES H. CHAPMAN.

In presence of—

J. R. GRAY,

WM. BROWN.