J. BIRKENHEAD.

Bobbin for Spinning.

No. 160,383. Patented March 2, 1875.

Fig 1.

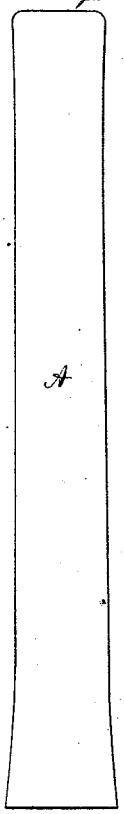


Fig 2.

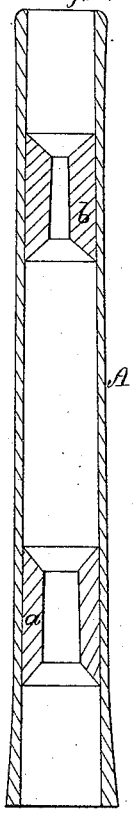


Fig 3.

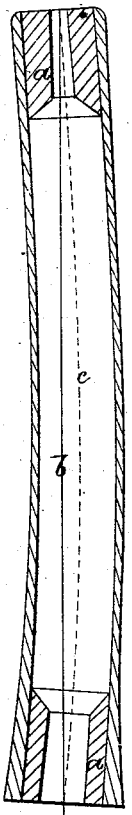


Fig 4.

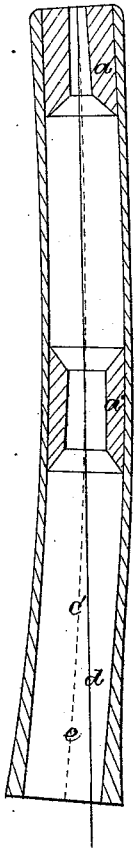


Fig 5

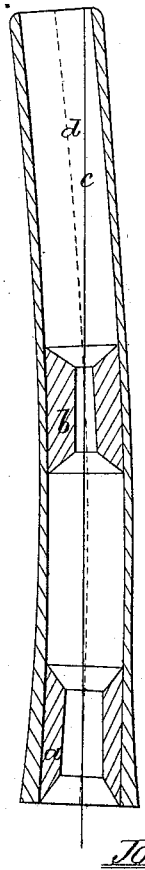
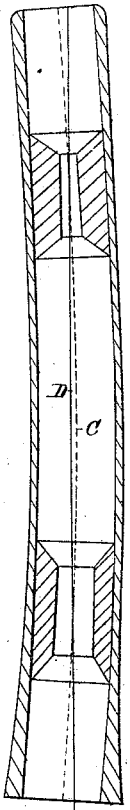


Fig 6.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN BIRKENHEAD, OF MANSFIELD, MASSACHUSETTS.

IMPROVEMENT IN BOBBINS FOR SPINNING.

Specification forming part of Letters Patent No. **160,383**, dated March 2, 1875; application filed December 30, 1874.

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 what are termed "Quill-Bobbins" for Ring Spinning-Frames; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a front elevation, and Fig. 2 a longitudinal section, of one of my improved bobbins. Figs. 3, 4, 5, and 6 are vertical sections of warped bobbins, exhibiting their deflections from the medial line of their adhesive spindle-bearings.

The quill-bobbins used in ring spinning-frames are liable to warp more or less, such causing them to be curved lengthwise rather than straight. With quill-bobbins, as made and used prior to my invention, this warping of one of them caused it when applied to a spindle to run out of balance, and thereby create vibration of the spindle, as a greater weight of bobbin would be on one side of the axis of the spindle than on the opposite side of such axis. Fig. 3 represents a warped quill-bobbin having spindle-bearings *a a* at its opposite ends. In this figure the line *b* represents the axis of the spindle, while the dotted line *c* shows the axis of the bobbin, and indicates the deflection of the bobbin from the axis of the spindle, from all of which it will be seen that when a bobbin so constructed and warped is placed on a spindle there will be a greater weight of bobbin on one side than on the other of the spindle-axis. So, with a warped bobbin, constructed as shown in Fig. 4, which has one spindle-bearing, *a*, at its head or upper end, and the other, *a'*, at or near its middle, and a bolster-chamber, *c'*, below the latter bearing, the axial line of the spindle is shown at *d*, and the bent axial line of the bobbin at *e*, when the bobbin is on the spindle. In this case the part of the bobbin which is below the lower bearing becomes so deflected with reference to the spindle that there is considerably more weight on one side of the axis of the latter than on its other side. So, with a bobbin warped and made as shown in Fig. 5, in which bobbin there is an adhesive bearing, *a*, at its foot, and another, *b*, at or about at its middle or somewhat above it, the line *c* exhibits the axis of the spindle and the line *d* the axis of the bobbin when said bobbin is on the spindle. In this case it will be seen that the bobbin from its upper bearing to its top is deflected out of the vertical line, so as to have more weight on one side thereof than on the other.

My improvement is a bobbin having its two adhesive spindle-bearings so arranged that in case of warping of the bobbin, as described, such bobbin on being applied to the spindle will have equal or practically equal amounts of weight on opposite sides of the axis of the spindle.

The purpose of my invention, therefore, is to prevent vibration of the ring-frame spindle when used with a warped quill-bobbin and revolved in the process of spinning, all of which by my invention I accomplish, and with highly advantageous results to the manufacture.

To accomplish this I construct the bobbin with its spindle-bearings, arranged essentially in the manner represented in Fig. 2, in which A denotes the tubular body of the bobbin, and *a b* its spindle-bearings, each of such bearings being arranged at the same or about the same distance from the next adjacent end of the bobbin that the bearing is from the center of the bobbin. In Fig. 6 a bobbin so made is shown as warped, its curved axis being indicated by the dotted line C. On such a bobbin being applied to a spindle the axis of the latter will take the position shown by the full line D. This full line bisects the curved axial line C of the bobbin in two points, viz., at or about at the centers of the two bearings; from which it will be seen that the excess of weight created by the deflection on either side of the spindle-axis will be counterbalanced by a like excess of weight created by the deflection on the opposite side. As a consequence the spindle and bobbin will run without vibration, caused by an overplus of weight of bobbin on one side of the spindle.

My invention has no reference to a bobbin made with heads and to revolve on a spindle and to be used with a flier; but relates to what are termed quill-bobbins, or those having adhesive bearings to fit and hold to the spindle, so as to be revolved with and by it;

the operations of the two kinds of bobbins being very different in practice.

What, therefore, I claim as my invention is—

The improved quill-bobbin, substantially as described, consisting of a single tube of uniform bore without heads, and not only having each of its two adhesive spindle-bearings arranged at or about the same distance from the next adjacent end of the bobbin, that such bearing is from the center of the bobbin, but having an open chamber extending from each bearing to the next adjacent end of the bobbin, and constituting part of the bore, all as represented.

JOHN BIRKENHEAD.

Witnesses:

R. H. EDDY,

J. R. SNOW.