G. W. Briggs,

Self-Lubricating Spindle Bearing,

No. 47,278, Patented Apr. 18, 1865.

Fig: 1.

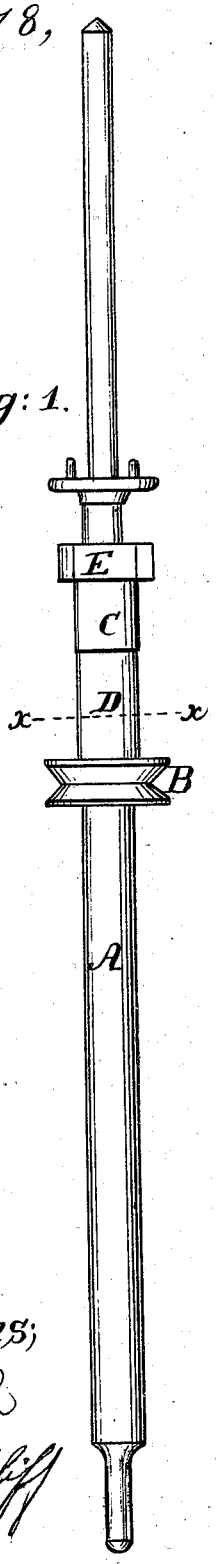

Fig: 2.

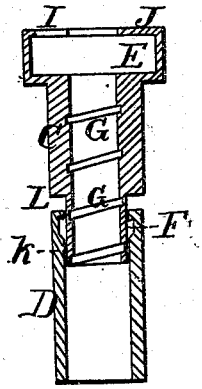

Fig: 3.

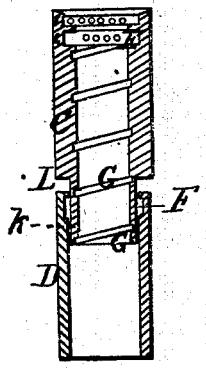

Fig: 4.

Witnesses;
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C. L. Toppliff

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UNITED STATES PATENT OFFICE.

GEORGE W. BRIGGS, OF FISKEVILLE, RHODE ISLAND.

IMPROVEMENT IN SELF-LUBRICATING SPINDLE-BEARINGS FOR SPINNING, &c.

Specification forming part of Letters Patent No. **47,278**, dated April 18, 1865.

To all whom it may concern:

Be it known that I, GEORGE W. BRIGGS, of Fiskeville, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in Vertical and Inclined Bearings; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation of a cotton-spinning-frame spindle to which my invention has been applied. Fig. 2 is an elevation of a longitudinal section of my improved bearing and its cup detached from the spindle. Fig. 3 is an elevation of a longitudinal section of a modification of the bearing. Fig. 4 is a cross-section of the spindle A and cup D, taken on the line *x* of Fig. 1.

Similar letters of reference indicate like parts.

This invention consists in setting the lower part of vertical or inclined bearings in a cup or socket which will receive and retain the lubricating material which escapes from the bearing, and, in combination therewith, forming a spiral groove around the interior of the bearing from its bottom to the said chamber.

For the purpose of illustrating my invention, I have selected a cotton spinning-frame spindle, to which I have here shown it applied, but it applies equally well to all upright bearings and to such as are more or less inclined.

A is a spindle fitted with a sheave, B, by which it is rotated in the usual way. C represents the bearing of the spindle, which is placed on it at a point below the plate which supports the bobbin and above the sheave B, and is to be secured in the ordinary or in any suitable way to the rail of the frame. The upper part of the bearing is enlarged, (see Figs. 1 and 2,) for the purpose of forming a chamber, E, at that point. This chamber is inclosed above by the annular top J of the bearing, which approaches very nearly to the sides of the spindle, a narrow slot, I, being cut in the top J and extending nearly to the wall of the chamber E, to receive the nozzle of the oil-cup or lubricator when the bearing is to be supplied with oil. The lower part of the exterior of the bearing C is turned down, as shown at K, to a thin shell, forming a shoulder, L, around its exterior. The thin part K of the bearing is received within the top of a cylindrical cup, D, which is formed or fitted around the spindle above the sheave B, the said sheave, if the cup is set directly upon it, serving as the bottom of the cup. The bearing is fitted so as to pass into the cup about as far as is shown in the Figs. 2 and 3, the shoulder L being separated by a narrow space from the top of the cup. The inner diameter of the said cup D is made greater than the diameter of the spindle, so as to form an annular space or reservoir, H, within it, extending to the bottom of the cup or to the upper surface of the sheave, and a chamber, F, is formed within the cup near its top, as shown in Figs. 2 and 3. A spiral groove, G, is formed on the inside of the bearing, beginning near its bottom and running up into the chamber E.

Fig. 3 shows a longitudinal section of the bearing and the cup or socket in which its lower end is fitted, the said bearing being modified from the example shown in Fig. 2 in having a chamber, E, formed in it near its top without enlarging its diameter, the said chamber in this illustration consisting of two compartments, 1 2, one above the other.

The operation of my improved bearing is as follows: When the bearing is lubricated, the oil passes down through it, and the excess is gathered in the cup D.

As the rotation of a spindle in a common spinning-frame is at the rate of about five thousand five hundred (5,500) revolutions a minute, it is evident that when the common bearing is used any excess of lubricating material will speedily be thrown off and escape without any further benefit to the bearing; but when my improved bearing and cup are used, the excess, being stored in the reservoir H, will be brought up to the bearing by centrifugal force during the rotation of the spindle, a portion thereof escaping outside the part K of the bearing, where it is received and retained in the chamber F, but the largest part will be carried up within the bearing along its spiral groove G to the chamber E, where it is retained.

When the rotation of the spindle ceases, the oil gathered in the chambers E and F falls

again to the bottom of the cup, from whence it is again brought to the cup, lubricating the bearing at the next rotation of the spindle.

When the ordinary bearings are used for spindles of the kind here shown, it is necessary to oil them two or three times a day, but my improved bearing will run two weeks with one supply or application of lubricating material, thereby saving not only lubricating material but also much time and labor, since with the bearings now commonly in use the spinning-frame has to be stopped during the process of lubrication.

The oil which is received within the bearing and cup is preserved in a pure condition and free from lint and dirt by means of the chamber E, whose top is brought close enough to the spindle or shaft carried in the bearing to exclude such and other foreign substances.

I claim as new and desire to secure by Letters Patent—

In upright and inclined bearings, the cup or socket D, attached to and revolving with the spindle, in the described combination with the spiral groove G in the bearing C, for the purposes set forth.

GEORGE W. BRIGGS.

Witnesses:
EZRA BRIGGS,
WANTON BRIGGS.