No. 701,709. Patented June 3, 1902.

W. GIHON.

SPINNING SPINDLE.

(Application filed Sept. 12, 1901.)

(No Model.)

Fig. 1.

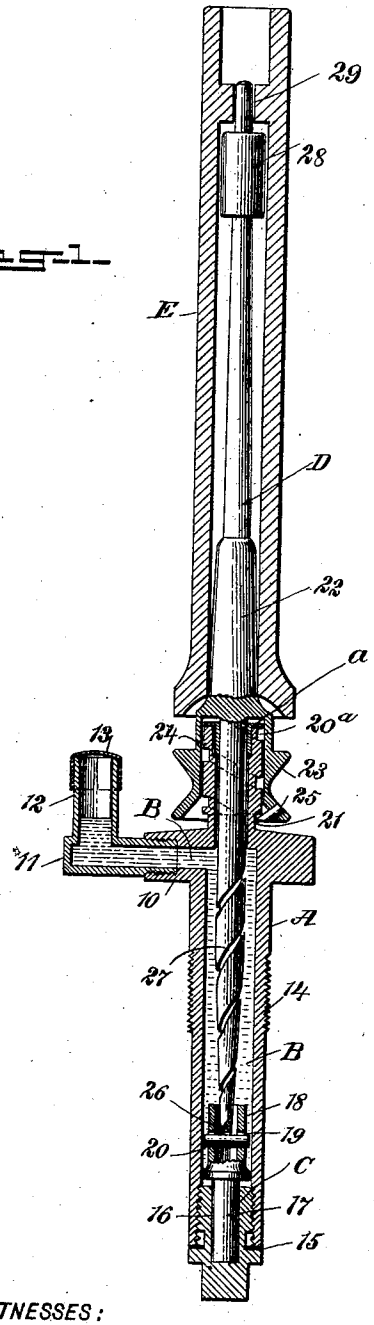
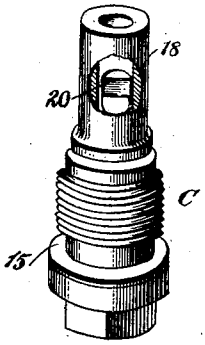


Fig. 2.



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SPINNING-SPINDLE.

SPECIFICATION forming part of Letters Patent No. 701,709, dated June 3, 1902.

Application filed September 12, 1901. Serial No. 75,164. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GIHON, a citizen of the United States, and a resident of Chicopee, in the county of Hampden and State of Massachusetts, have invented a new and Improved Spinning-Spindle, of which the following is a full, clear, and exact description.

The purpose of the invention is to so construct a spinning-spindle that the spindle carrying the bobbin or spool will be free to turn upon a support and will be held from slipping from its proper position while in action, yet which may be quickly and conveniently disengaged from its support when needed without the manipulation or removal of fastening devices.

Another purpose of the invention is to provide a means whereby the bearings and lower portion of the spindle will turn in an oil or lubricating bath, and, further, to so construct the lower portion of the spindle that the lubricant will be constantly fed to the lower bearing of the spindle.

A further purpose of the invention is to provide a pivot-point as the lower bearing for the spindle and an adjustable support for the said point, which support may be termed a "bearing" for the lower end of the spindle, so that should the point unduly wear upon a portion of its support or bearing the latter may be quickly and readily shifted to present a fresh surface to the point of the spindle, insuring the spindle turning with the utmost freedom at all times and without danger of riding up from its main support.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both figures.

Figure 1 is a vertical longitudinal section through the main spindle-support and spool and a side elevation of the major portion of the spindle, the whirl thereof being shown in section; and Fig. 2 is a perspective view of the plug for the bottom of the main spindle-support, a part of its upper portion being broken away.

The main support A of the spindle, to be hereinafter described, is tubular in its construction and is provided near its upper end with a horizontal branch 10. A chamber B in the said support A extends from the top and bottom portions of the support and through one end of the horizontal branch 10, as is shown in Fig. 1. An angular feed-pipe 11 is attached to the open end of the horizontal branch 10 and is in communication with the chamber B of the support. The vertical member 12 of this feed-pipe 11 is normally closed by a cap 13, fitted thereto in any approved manner. The chamber B is supplied with oil or other lubricant through the feed-pipe 11, and the lower end of the main support A is closed by a plug C, screwed into the chamber B. The said plug is provided with a flange at its bottom, upon which a washer 15 rests, having bearing against the bottom portion of the main support A when the said plug is screwed to place to prevent leakage of oil from said chamber B. The plug C is provided with a longitudinal bore 16, which loosely receives the shank 17 of a tubular bearing-section 18, forming, preferably, an integral portion of the shank, as is shown in both of the views. This tubular bearing-section 18 is provided with openings 19 in opposite sides, and a pin 20, semicircular or polygonal in cross-section, is loosely passed through these openings 19, as is shown in Fig. 1. The upper face of this pin is flat, as is shown in Fig. 2, and the pin is endwise adjustable in the tubular bearing-section 18, constituting an adjustable support for the lower end of the spindle D, to be hereinafter particularly mentioned, so that when the spindle has worn a spot upon the bearing-surface of the pin the pin may be shifted to present a fresh surface to the spindle.

That portion of the main support A which extends beyond the horizontal branch 10 is provided with an exterior spiral groove 20^a, and a plain exterior surface or face 21 is provided between the lower portion of the spiral

groove or thread and the upper portion of the horizontal branch 10, as is shown at 21^a in Fig. 1.

As the base is usually made from cast-iron and will not last long at a high speed, I provide the upper end of the base with a bushing *a*, made to fit the spindle loosely and milled and set in such manner as to prevent it turning in the bore of the base when the spindle is in motion. This spindle gives what I term a "ring-bearing" for the spindle.

The spindle D tapers from its central portion in direction of both of its ends, and at or near its central portion the spindle D is provided with an exterior conical enlargement 22. (Best shown in Fig. 1.) Immediately below this enlargement 22 a whirl 23 is carried up and is attached to the said spindle. This whirl is provided with an interior chamber, whereby a space 24 is formed between the inner face of the whirl and the outer adjacent face of the spindle D, as is also best shown in Fig. 1. At the bottom portion of this whirl 23 an inwardly-extending lug 25 is provided, adapted to travel along the surface 21^a between the thread 20^a on the upper portion of the support A and the branch 10 of the said support when the said whirl is in action; but whenever the spindle is to be removed from its main support A the spindle is simply drawn upward and turned, whereupon the projection 25 will travel up the thread 20^a. The main support A is provided with an exterior thread 14, which fits it for ready attachment to any portion of a ring-spinning frame.

The extreme lower end of the spindle D is rounded, and this lower terminal of the spindle enters the tubular bearing-section 18 and rests upon the upper flat face of the adjustable pin 20, turning on said pin in the oil-bath heretofore described. In the event the lower end 26 of the spindle should unduly wear its movable support 20 the plug can be removed and the pin shifted to present an unworn portion of the supporting-pin 20 to the spindle as a bearing. This bearing is what I term a "pinion" or "ball-point" bearing, and as the spindle turns upon a flat surface there is nothing to wear or break.

In order that the oil in the chamber B of the main support A may not feed upward, the lower portion of the spindle D or that portion which is within the oil bath or chamber B is provided with a spiral groove 27, leading to the lower bearing. At the upper end of the spindle 26 a sleeve 28 is loosely mounted, which is adapted to be located at the upper portion of the bobbin or spool E and prevent the same from wabbling at the reduced upper end of the spindle. In order to further insure the spool E traveling smoothly on the spindle, the upper end of the spindle is passed through an opening 29, made in the inner partition at the upper end of the spool, as is shown in Fig. 1.

It will be observed that a spool or bobbin may be readily placed on the spindle and that the various parts of the device may be quickly removed for purposes of cleaning and repairing and that the spindle in its entirety is so constructed that it will turn with the utmost ease and with a minimum of friction.

This spindle is designed for use in connection with, first, ring-spinning frames, two spooler-frames, four speeder-frames, five twisting-frames, and for all manner of spinning, twisting, and spooling yarn or thread of any kind that is to be spun or twisted on a ring-spinning frame, and the device is an unlimited-speed, self-oiling, and non-vibrating spinning-spindle for ring-spinning.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a spindle, a base-support provided with a lubricating-chamber, a spindle an end of which extends within the chamber and is provided with a rounded terminal and an exterior spiral groove extending up from the rounded terminal, a plug for an end of the lubricating-chamber, a tubular bearing within the lubricating-chamber provided with a shank which enters the said plug, the tubular bearing being open at the top and having opposing side openings, and a pin adjustable in said opening, having a flat upper surface which receives the rounded terminal of the spindle, whereby the support for the spindle is at all times surrounded by a lubricating material and said support may be shifted as it becomes worn, as described.

2. In spindles, a device for closing an end of a lubricating-chamber and supporting a spindle, which consists of a plug having an interior chamber, a tubular bearing open at the top and provided with a shank fitted to the chamber in the plug, the said tubular bearing having opposing openings therein, and a pin adapted to support an end of a spindle, which pin is loosely passed through the openings for endwise adjustment therein, said pin having a flat upper surface and a cylindrical lower surface, as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM GIHON.

Witnesses:
WILLIAM GIHON, Sr.,
GRACE E. MERRICK.