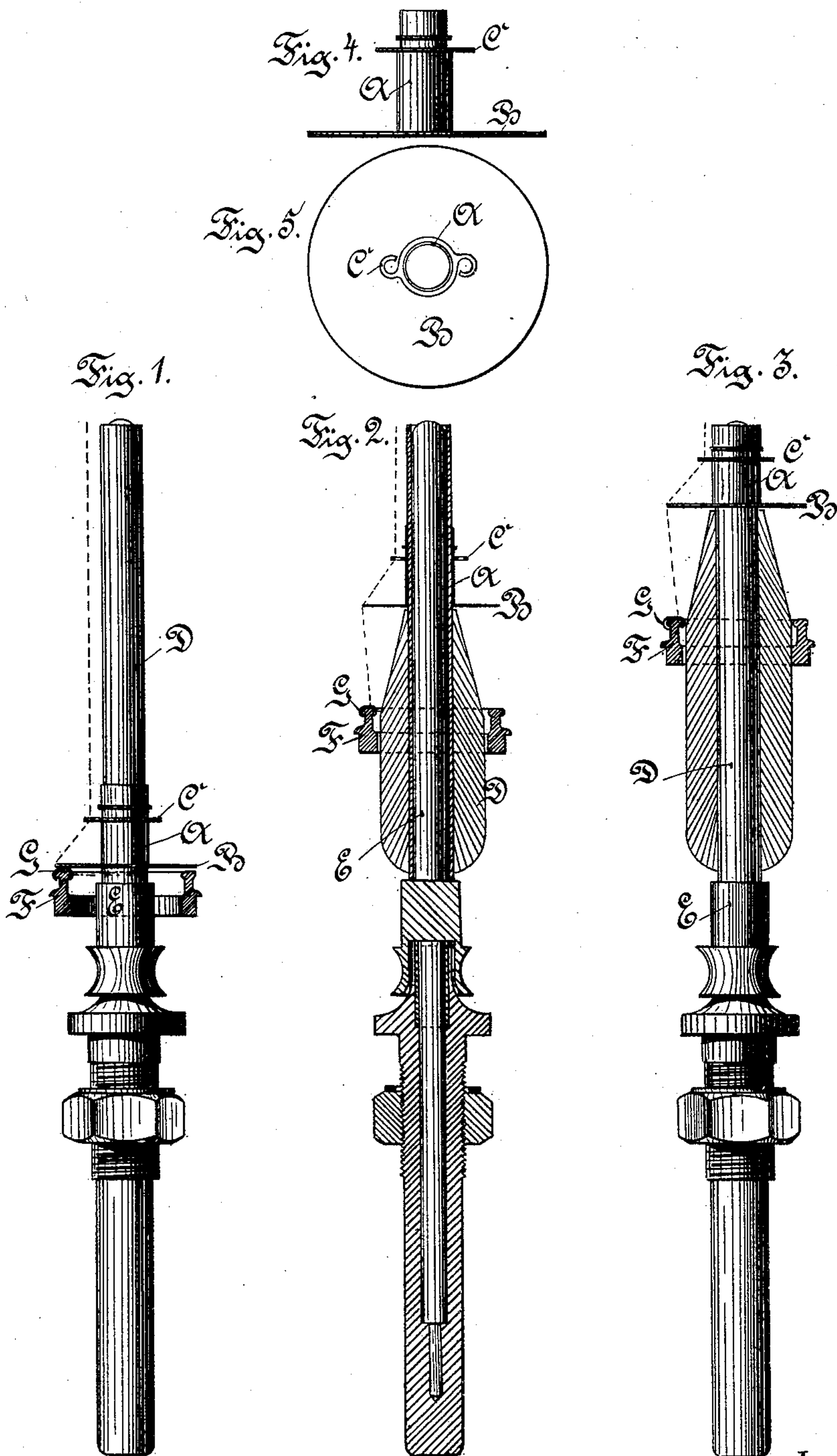


(No Model.)

E. F. KRAFFT.  
SPINDLE FOR SPINNING MACHINERY.

No. 482,091.

Patented Sept. 6, 1892.



Witnesses:

H. de Vos.  
J. C. Hebert.

Inventor:  
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# UNITED STATES PATENT OFFICE.

ERNST FRIEDRICH KRAFFT, OF ST. BLASIEN, GERMANY.

## SPINDLE FOR SPINNING MACHINERY.

**SPECIFICATION** forming part of Letters Patent No. 482,091, dated September 6, 1892.

Application filed April 2, 1891. Serial No. 387,372. (No model.) Patented in Switzerland February 28, 1891, No. 3,285; in Luxemburg February 28, 1891, No. 1,415; in Belgium February 28, 1891, No. 93,965; in England February 28, 1891, No. 3,674; in France February 28, 1891, No. 211,779; in Italy February 28, 1891, No. 29,189; in Spain February 28, 1891, No. 11,843, and in Austria-Hungary July 25, 1891, No. 11,127 and No. 26,896.

*To all whom it may concern:*

Be it known that I, ERNST FRIEDRICH KRAFFT, manufacturer, a subject of the Grand Duke of Baden, residing at St. Blasien, Grand Duchy of Baden, Germany, have invented certain new and useful Improvements in Spindles for Spinning Machinery, (for which I have received the following-named patents: in Switzerland, No. 3,285, dated February 28, 1891; in Luxemburg, No. 1,415, dated February 28, 1891; in Belgium, No. 93,965, dated February 28, 1891; in England, No. 3,674, dated February 28, 1891; in France, No. 211,779, dated February 28, 1891; in Italy, No. 29,189, dated February 28, 1891; in Spain, No. 11,843, dated February 28, 1891, and in Austria-Hungary, No. 11,127 and No. 26,896, dated July 25, 1891,) of which the following is a specification.

This invention relates to spinning-machines, the main object of the invention being to provide a simple attachment for winding the yarn directly upon the spindle, whereby the use of bobbins or spools is avoided.

In the improved apparatus, which forms the subject of this invention, the yarn or thread issuing from the drawing-rollers is guided, in order to be wound either upon the spindle or upon a paper sheath fixed thereon, in such manner that the cleaning of the thread or yarn or the removal of defective parts—such as thickenings—is effected and the quality of the yarn greatly improved.

In the accompanying drawings, which are illustrations of the invention, Figure 1 is a view of the spindle, showing the circular holder or frame in its lowest position. Fig. 2 is a longitudinal section of the spindle, showing the finished conical part of the cop. Fig. 3 is a view in partial section of a spindle, showing the circular holder in its highest position. Fig. 4 is a side view of my attachment, and Fig. 5 is a plan view thereof.

The apparatus consists of a short tube A, to the lower part of which the disk B is fixed, while its upper part carries a wire ring C', capable of turning and sliding up and down thereon and furnished with eyelets, which

may be vertical or inclined. The short tube A, with the disk B and the wire ring C', are placed upon the empty spindle E, which may be provided with a paper sheath D, as shown on the drawings, or may be without the same. The paper sheaths are only used for imparting greater strength to the cops for transporting purposes. The yarn or thread proceeding from the drawing-rollers is passed through one of the eyelets of the wire ring C' and laid round the edge of the disk B, being farther drawn through the traveler G, moving upon the ring F, and fixed at the bottom to the paper sheath D or to the spindle, so that at the commencement of an operation the ring and the apparatus assume their lowest position, as shown in Fig. 1. When the spindle commences to rotate, all the parts of the apparatus are set in motion. The yarn sets the traveler G in motion and the wire ring C' holds the yarn or thread against the disk B, so that a sufficient tension is thereby obtained.

It is well understood that the tension or drag upon the yarn is greatest when the diameter of the cop upon which it is being wound is least, and vice versa, and my apparatus operates to relieve this drag when the cop is of small diameter in the following manner: When the yarn begins to be wound upon the spindle or the sheath D, the diameter of the cop will be small and the disk B will be very near the runner G, and the yarn will pass under the disk B at an acute angle, so that it will have considerable friction with the edge of said disk B. The action of the thread on the runner G is influenced favorably because said thread before reaching the runner G touches the edge of the disk B, which belongs to the tube A, that is movable on the spindle E, and makes the same number of revolutions and has a loose ring C, through which the part of the thread above the disk is turned in such manner that a draft on the runner G is effected in the direction of the motion, thus enabling the device to spin threads of small resistance. Consequently said disk B will revolve or tend to revolve the runner G in the same direction as



the spindle is revolving, and will thereby relieve the strain of the cop on the yarn. As the cop increases in diameter it also increases in height and pushes up the tube A, with the disk B and ring C, whereby the angle of the yarn, with the disk B, becomes more obtuse and the friction of the yarn on the edge of the said disk B less. Consequently the tendency of the disk B to revolve the runner G is lessened and the strain of the cop upon the yarn would be increased were it not that as the cop has increased in diameter the pull of the yarn upon the runner G becomes more tangential, and, therefore the yarn revolves the said runner G in the same direction as the spindle is revolving, and thus diminishes the strain of the cop upon the yarn. Evidently when the nose of the cop is being wound the runner G will be brought near to the disk B again, and the said disk B will again tend to revolve the said runner G and relieve the strain of the cop upon the yarn in the manner just hereinbefore described.

Owing to the movement of the carriage of the spinning-mule, the ring, as well as the apparatus, is constantly pushed upward and the latter assumes the position shown in Fig. 2, and when the cop is entirely finished the ring and the entire apparatus occupy their highest position, as shown in Fig. 3. The disk B may

have a diameter of any convenient size and may be larger than the holder F.

As compared with other winding devices of a similar kind, this apparatus is particularly advantageous for thin spindles having a high number of revolutions and for either warp or weft yarns in fine numbers.

Having now particularly described and ascertained the nature of the said invention and the manner in which the same is to be performed, I declare that what I claim is—

1. A winding apparatus for spinning machinery, consisting of a short tube A, that is provided with a disk B and arranged to fit upon a spindle and to turn therewith and slide thereon, and an eyeleted ring arranged upon the tube, substantially as described.

2. A winding attachment for spinning machinery, consisting of a short tube A, arranged to fit upon a spindle, a disk carried by the tube, and an eyeleted ring mounted on the tube and arranged to slide and turn thereon.

In testimony whereof I hereunto sign my name, in the presence of two subscribing witnesses, this 12th day of March, 1891.

ERNST FRIEDRICH KRAFFT.

Witnesses:

GEO. E. JOHNSON,  
PAULO FELDEN.