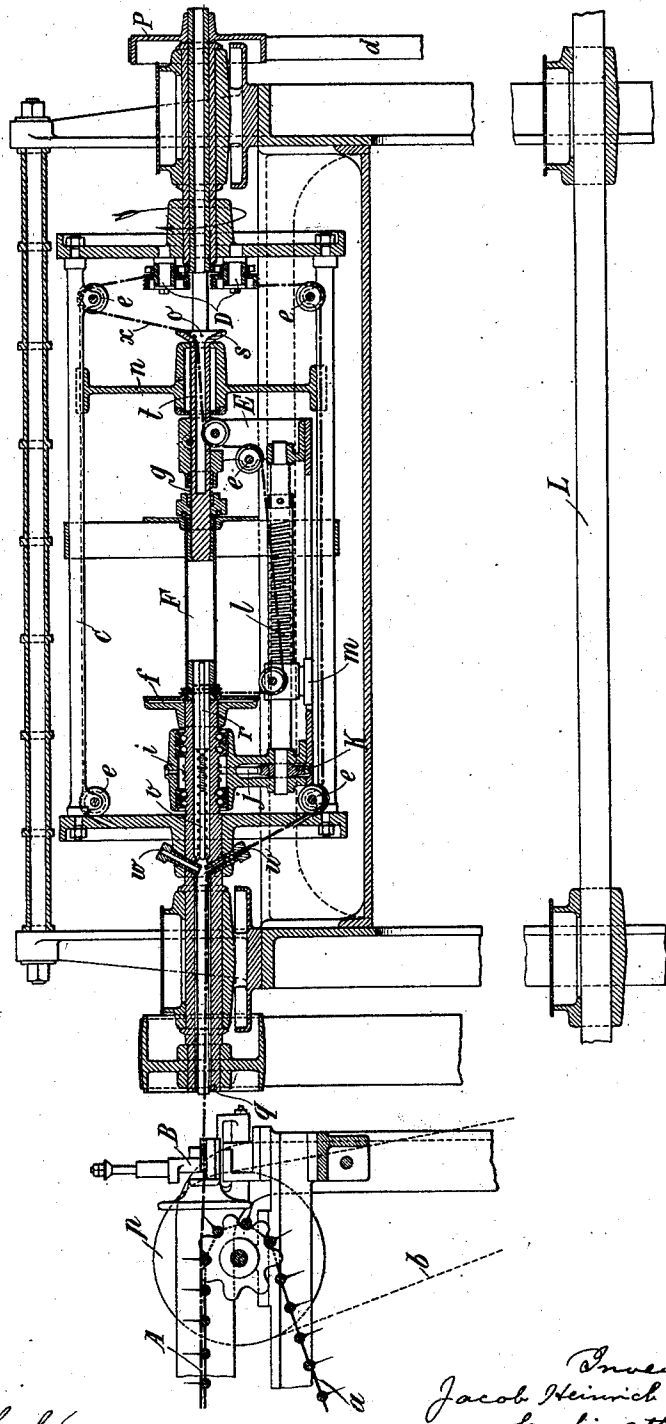
No. 671,101. Patented Apr. 2, 1901.

J. H. BEK.

SPINNING AND DOUBLING MACHINE.

(Application filed Jan. 5, 1899.)

(No Model.)



Witnesses:
Edward Rose
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UNITED STATES PATENT OFFICE.

JACOB HEINRICH BEK, OF STOCKACH, GERMANY.

SPINNING AND DOUBLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 671,101, dated April 2, 1901.

Application filed January 5, 1899. Serial No. 701,219. (No model.)

To all whom it may concern:

Be it known that I, JACOB HEINRICH BEK, a citizen of the Republic of Switzerland, residing at Stockach, Germany, have invented certain new and useful Improvements in Spinning and Doubling Machines, of which the following is a specification.

This invention refers to improvements in spinning and doubling machines for the manufacture of ropes, cords, and the like from hemp, jute, flax, and other fibers; and it has for its object to provide a resilient spring-actuating bobbin-support which is so arranged and constructed that, while it keeps the thread taut, it avoids all undue tension of the same.

My invention is illustrated in the accompanying drawing in longitudinal section in connection with a doubling-machine provided with an interior non-rotatable frame and embodying my invention.

In the drawing, A is the flat-shaped band of hemp or of some other suitable raw material which is fed forward by the feeder or conveyer *a*, which receives its movement from the driving-shaft of the machine by means of a belt *b* and pulley *p*. The band A is then passed to the automatic nipper B of ordinary construction, where the roving of the yarn takes place, and thence to the flier C. The shaft *q* of the flier C is hollow for the reception of the yarn, which is carried through side openings *w* of the said shaft and over guide-roll *e* of the flier to the drawing-in device D.

n is a cross-piece at the inside of the flier, with a central opening serving as a guide for the hollow bobbin-support *t*, one extremity of which, as *s*, is preferably funnel-shaped to receive the yarn from the guide-rollers *e* of the flier C. F is the bobbin, which is secured in position by the said hollow support *t* and on its other side by a spring-actuated rod *r*, which is displaceable by the action of the spring *v* and suitably guided within the hollow shaft *q* of the flier.

E is a non-rotatable frame, which is suspended from the hollow bobbin-support *t* and from the shaft *q*, as shown in the drawing, so as not to partake of the rotation of said shaft.

g is a coiled spring placed around the hollow bobbin-support between the frame E and the bobbin F. The pressure of this spring causes the bobbin F to bear lightly against the friction-disk *f*, mounted upon the shaft *q*, so as to be rotated thereby, but at a reduced speed. The rotation of the bobbin will be regulated by the tension of the part *x* of the yarn, which is supported by the guide-rolls *e*, and thence passes into the hollow bobbin-support, where it touches the walls of the funnel-shaped extremity *s* of the latter and is thence passed to the stationary suspension-frame E, the flier C, with the length of yarn carried thereby, rotating about a point *o* in the interior of the hollow bobbin-support, and thus receiving the necessary second twist. The speed of rotation of the bobbin F will be proportionate to the tension of the yarn *x*, inasmuch as the longitudinal displacement of the hollow bobbin-support *t* and the consequent compression of the spring *g*, by which the bobbin is moved in contact with the friction-disk *f*, depends upon the pressure of the yarn *x* against the walls of the funnel *s*. It is obvious that I am thus enabled to not only effect an automatic regulation of the speed of rotation of the bobbin, so as to have it take up exactly so much of the finished thread as is fed forward by the drawing-in device D, but the device will also act as an automatic tension-regulator and keep the yarn or thread taut without putting any undue strain on the fibers.

Motion is imparted to the drawing-in device D by shaft L, belt *d*, and pulley P. The finished thread is carried along the bobbin F by a feeder *m*, which may be moved along the rotating screw-threaded spindle *l* by a driving-gear K, to which motion is imparted from a worm-wheel *i* on the hollow flier-shaft *q*, engaging with a worm on the shaft *j*.

What I claim, and desire to secure by Letters Patent of the United States, is—

In a spinning and doubling machine the combination with a rotatable flier and an inclosed non-rotatable frame of a hollow bobbin-support horizontally adjustable and spring-actuated, an inner rod within the hollow flier-shaft, said inner rod being spring-actuated and supporting one end of the bobbin, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JACOB HEINRICH BEK.

Witnesses:
F. HASDERANTER,
G. A. BOREL.