(No Model.)

W. BAIRD.

SPINNING AND TWISTING MACHINE.

No. 341,631. Patented May 11, 1886.

Fig. 2.

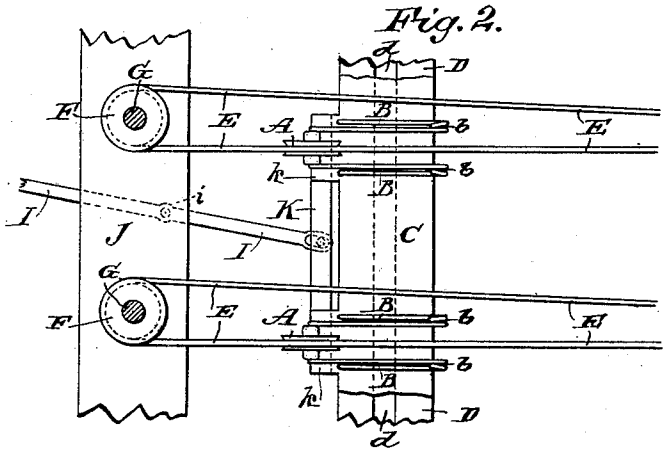
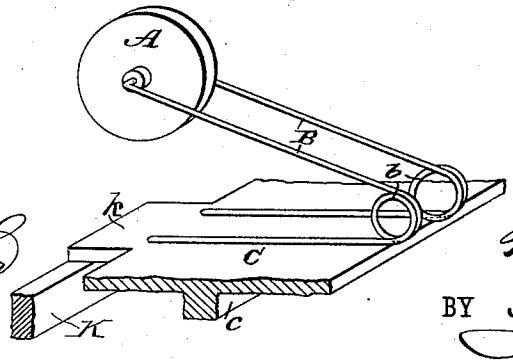


Fig. 1.

Fig. 3.



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WILLIAM BAIRD, OF ALMONTE, ONTARIO, CANADA.

SPINNING AND TWISTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 341,631, dated May 11, 1886.

Application filed May 27, 1885. Serial No. 166,863. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BAIRD, of Almonte, Ramsay township, Province of Ontario, Canada, have invented certain new and useful Improvements in Spinning and Twisting Machines, of which the following is a full, clear, and exact description.

My invention relates to the spindle-driving mechanism of spinning and twisting machines, and has for its object to promote increased production of yarn or thread with the highest attainable economy of the driving-power, and also to insure increased production, greater uniformity, and improved quality of the spun yarn or thread.

The invention will first be particularly described, and then pointed out in the claims.

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

Figure 1 is a vertical sectional elevation of my improvement and adjacent parts of a spinning-machine. Fig. 2 is a detail plan view of two of the spindles which are in section, and the tension devices applied to their respective driving-bands; and Fig. 3 is a perspective view of one of the band-tension devices and its supporting-plate drawn to a larger scale.

The letter A indicates a grooved pulley or sheave, which is journaled in elastic wire arms B B, which preferably have two or more spiral twists or bends at *b* to insure and preserve their elasticity, and are fixed by soldering or by staples, or in any other approved way, to a metal or wood plate, C, which is guided so as to be slid lengthwise on a rail, D, fixed to the frame of the spinning or twisting machine. I show the plate C provided with a tongue or feather, *c*, which loosely fits a groove, *d*, in the rail D; but any other well-known means of guiding the plate on the rail may be employed. The plate C will be positioned on the rail D so that the pulleys A will come in contact with the driving sides of the bands E, which pass around the whirls F of the spindles G from the driving-cylinder H, the pressure or tension of the elastic arms B holding the pulleys A to the bands, so as to take up the slackness of the bands, and insure a positive and quite regular rotative speed of the spindles, so necessary for maximum production of finished thread or yarn of improved quality, and with a minimum expenditure of power in driving the spindles. The whirls F of the spindles may be made of metal in the usual way; but I prefer to make them of elastic material, preferably soft rubber, to prevent the driving-bands from slipping thereon. The spindle-driving bands may be given one complete turn around the driving-cylinder H, as well as around the whirl, but usually this will be unnecessary; in fact, the bands need not be given a turn around the whirls or cylinder, as the rubber whirls, combined with the tension device A B, will give excellent results when the bands run directly from the cylinder to the whirls.

When a tension device is not applied to the spindle-driving band, the band usually is put on too tightly at first, so as to avoid slip, and the power used in driving the spindles is greater than need be, and the bands in a short time stretch to slackness, which results in a loss of power and in irregular rotative speed of the spindles, with consequent unevenness or irregularity in the thread and lessened production, and when metal whirls are used the spindle-driving bands will slip on them more or less, whether the bands be tight or slack, particularly when slack. It is evident that these disadvantages are obviated by my improvements, as the spindle-driving bands need not be put on too tightly at first, and any tendency to subsequent slackness will be corrected by the tension devices A B, which will hold the bands properly, or with just sufficient force of contact with the cylinder and elastic whirls.

I connect the plates C, carrying the tension devices for the bands of each set of spindles, to a lever, I, which is pivoted at *i* to the machine-frame, to the spindle step-rail J, for instance, and the levers will project, so as to conveniently be operated for moving the plates C along the rail D, as may be required for bringing the tension-pulleys A fairly in contact with the driving sides of the spindle-bands E, when the bands may be crossed for making reverse twist.

I show two lugs, *k k*, projecting from the plate C and connected by a bar, K, with which the inner end of the lever I has a pin-and-slot connection; but any other approved connection of the lever with the plate may be made.

The drawings, Fig. 1, represents the band-tension device and rubber whirls applied to a ring-spinning machine having a ring-rail, L, rings M, and travelers N, through which the thread O passes to the bobbins P, placed on the spindles G from guide-eyes R, through which the thread or yarn passes from the drawing rolls, (not shown;) but the band-tension devices may be applied to fly spinning-machines, or a variety of spinning and twisting machines employing spindles driven by bands.

I do not limit myself to the particular construction and arrangement above described for the elastic supports to the tension-pulley A, as these may vary as circumstances may require for securing the requisite degree of tension on the spindle-bands, according to the nature of the fibers being spun or the required fineness or coarseness of the yarns, and the devices for shifting the plates C to adjust the tension-pulley A may be arranged in any approved way.

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

1. The combination, with the spindles, whirls, driving-cylinder, and driving-bands of a spinning and twisting machine, of a support below the bands, elastic wire arms secured to said support, and pulleys journaled in the free ends of the said arms, substantially as herein shown and described.

2. The combination, with the spindles, their whirls, the driving-cylinder, and the spindle-driving belt of a spinning and twisting machine, of a sliding plate, spring-arms secured to said plate, pulleys journaled in the free ends of said arms, and means for sliding said plate, substantially as herein shown and described.

3. The combination, with the spindle G, the rubber whirls F, the driving-cylinder H, and the band E, of the plate C, the spring-arms B, secured to said plate and having twists *b*, and the pulleys A, journaled in the free ends of said arms, substantially as herein shown and described.

4. The combination of elastically-supported tension-pulleys A, a base-plate, C, to which they are connected, a support for plate C, and a lever, I, jointed to plate C, and adapted for operation to shift the tension-pulleys, substantially as herein set forth.

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