No. 754,061. PATENTED MAR. 8, 1904.

T. H. GREENWOOD.

TENSION DEVICE FOR SPINDLE DRIVING BANDS.

APPLICATION FILED JUNE 19, 1903.

NO MODEL.

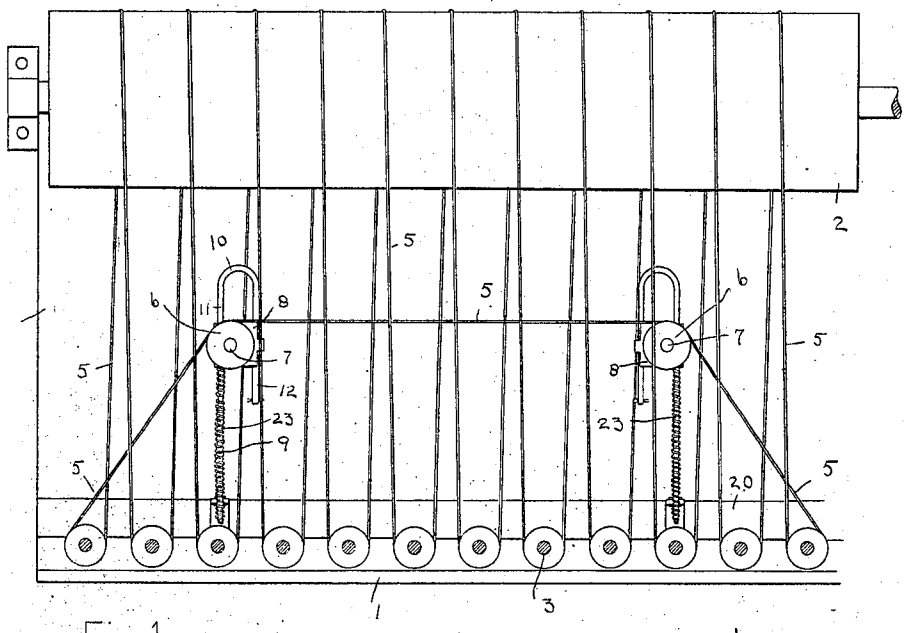


Fig. 1

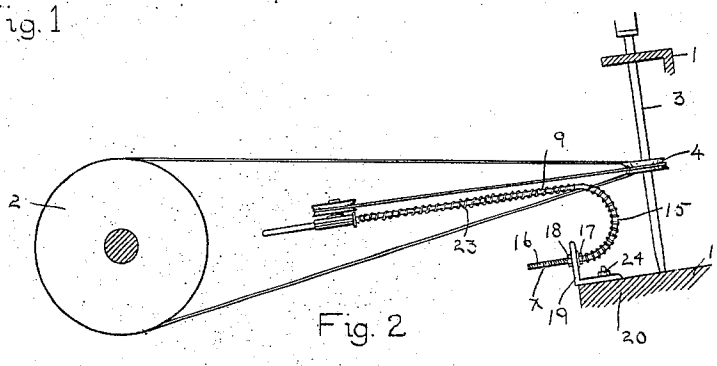


Fig. 2

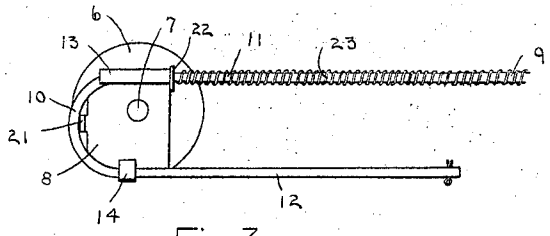


Fig. 3

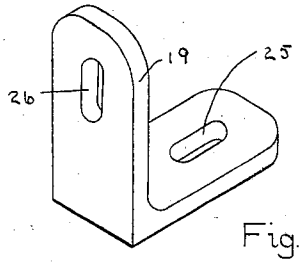


Fig. 5

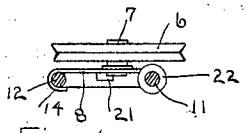


Fig. 4

Witnesses

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No. 754,061. Patented March 8, 1904.

UNITED STATES PATENT OFFICE.

THOMAS H. GREENWOOD, OF WORCESTER, MASSACHUSETTS.

TENSION DEVICE FOR SPINDLE-DRIVING BANDS.

SPECIFICATION forming part of Letters Patent No. 754,061, dated March 8, 1904.

Application filed June 19, 1903. Serial No. 162,262. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. GREENWOOD, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in Tension Devices for Spindle-Driving Bands, of which the following is a specification, accompanied by drawings forming a part of the same, in which—

Figure 1 is a top view of a tension device embodying my invention as applied to an endless band employed to drive a portion of the spindles of a spinning-frame. Fig. 2 is a side view of the same. Fig. 3 is a bottom view of a portion of the tension device on a slightly-larger scale. Fig. 4 is an end elevation of the part shown in Fig. 3 with the U-shaped rod shown in section. Fig. 5 is a perspective view of one of the brackets by which the device is attached to the framework of the spinning-machine.

Similar figures of reference refer to similar parts in the different views.

The object of my invention is to maintain a uniform tension of the driving-band by which a series of spindles in a spinning-frame are rotated, so that the stretching of the band by continued use or any variation in its length due to atmospheric changes or other causes may not affect the speed of the spindles or unduly alter the strain upon the spindles. I accomplish this result by means of a pair of spring-actuated tightening-pulleys applied to the endless belt by which the spindles are driven from a common rotating cylinder; and my invention consists in the construction and arrangement of parts, as hereinafter described, and pointed out in the annexed claims.

Referring to the accompanying drawings, 1 denotes a portion of the framework of a spinning-frame in which is journaled a rotating cylinder 2 and a series of spindles 3, provided with whirls 4 of the ordinary construction. The several spindles represented in Fig. 1 are driven from a common driving-cylinder 2 by means of an endless belt 5, which is carried around each of the whirls 4 and successively around the rotating cylinder 2 in the manner common in driving spindles in machines of this class, and from the two outermost whirls in the series the band is carried between the upper and lower lines of bands as it runs from the cylinder to the whirls and around two tightening-pulleys 6 6, which turn loosely upon studs 7 7, held in the sliding plates 8 8. Each of the plates 8 8 is supported upon a rod 9, which is bent at 10 into a U-shape bend to form the parallel ways 11 and 12 for the sliding plate 8, which is hooked at opposite edges at 13 and 14 to partially inclose the bent rod. The opposite end of the rod 9 is likewise bent at 15 into a U-shape bend, with its end screw-threaded at 16 to receive nuts 17 and 18, by which the rod is attached to the vertical member of a bracket 19, which is attached to the step-rail 20 of the spinning-frame. The sliding plate 8 is provided on its forward edge with a downwardly-turned lug 21, arranged to strike against the bent section 10 of the rod and limit the forward movement of the plate toward the driving-cylinder 2. Bearing against the rear edge of the plate 8 and capable of sliding on the rod 9 is a washer 22, between which and the bracket 19 I place a spiral spring 23, inclosing the rod 9 and having its tension applied to force the plate 8 and the tightening-pulley carried thereon toward the driving-cylinder 2. In operation the length of the endless band 5 normally holds the sliding plate 8 about midway in the length of the parallel ways 11 and 12, so that any variation in the length of the band will cause the plates 8 and pulleys 6 to slide back and forth between the spindles and driving-cylinder. By bending the rod 9 into a U shape at 15 I largely increase the length of the spiral spring 23, and thereby reduce the variation in the tension of the spring at different ends of the sliding movement of the plates 8, causing the tension exerted by the spring to be approximately constant. The screw-threaded end 16 of the rod is extended through the bracket 19 to some distance to enable the rod 9 to be adjusted in the bracket, so as to increase or decrease the distance between the bracket and the washer 22, and consequently increase or decrease proportionately the tension of the spring.

The adjustment of the tension device rela-

tively to the other operating parts of the machine is accomplished by attaching the bracket 19 to the step-rail 20 by a bolt 24, which passes through an elongated opening 25 in the base of the bracket to allow the bracket to be adjusted on the step-rail toward or away from the spindle, and the rod 9 is likewise held by the nuts 17 and 18 in a slotted opening 26 in the vertical arm of the bracket, thereby permitting a vertical adjustment of the rod in the bracket. Each of the rods 9 is attached at a single point to the framework of the machine. They are capable of the requisite adjustment to bring them into proper relative position to the band, the spring 23 instead of being attached at its opposite ends only is inclosed throughout its entire length by its supporting-rod 9, which protects the spring from injury, while its position upon the rod serves to increase the operative length of the spring, rendering its tension more delicate and sensitive and subject to but slight variation caused by the different positions of the sliding plates 8. Each of the rods 9 and the parts supported thereby forms a complete operative device ready to be applied to a spinning-frame by simply attaching its supporting-bracket by a bolt 24 to the step-rail of the spinning-frame.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a tightening device for spinning-frames, the combination with a bracket adapted to be attached to the framework of the machine, of a rod held in said bracket and bent upon itself in a U shape to form ways for a sliding plate, a plate sliding on said ways, a tightening-pulley carried by said plate, and a spiral spring inclosing said rod and acting against said plate, substantially as described.

2. In a tightening device for a spinning-frame band, the combination with a bracket adapted to be attached to the step-rail of a spinning-frame, of a rod held at one end in said bracket and curved in a U shape in a vertical plane, with the free end of said rod bent in U shape to form parallel ways for a sliding plate, a sliding plate held on said ways, a tightening-pulley carried by said plate, and a spiral spring inclosing said bent rod between said plate and the attaching-bracket, with its tension applied to force said plate away from said bracket, substantially as described.

3. The combination with the step-rail of a spinning-frame, of an angular bracket attached thereto, a U-shaped bent rod having a straight screw-threaded end held in said bracket, a pair of adjusting-nuts held thereon on opposite sides of said bracket, a coiled spring inclosing said bent rod, a plate sliding on the rod and a tightening-pulley held by said plate, substantially as described.

4. The combination of an angular bracket with each of its members provided with slots to permit of the adjustment of the connected parts, a rod held in said bracket and bent at each of its ends into a U shape, a plate sliding on said rod, a pulley carried by said plate and a spiral spring with its tension applied between said plate and said bracket, substantially as described.

5. A tension device for spinning-frames, consisting of a bracket adapted to be attached to a spinning-frame, a rod held in said bracket and bent at each of its ends into a U shape, but in planes at right angles to each other, a plate capable of sliding on said rod, a stud held by said plate, a tightening-pulley turning on said stud, and a spring inclosing said rod between said plate and said bracket, substantially as described.

Dated this 17th day of June, 1903.

THOMAS H. GREENWOOD.

Witnesses:

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PENELOPE COMBERBACH.