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TENSION REGULATOR FOR SPINNING MACHINES.

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Fig. 1.

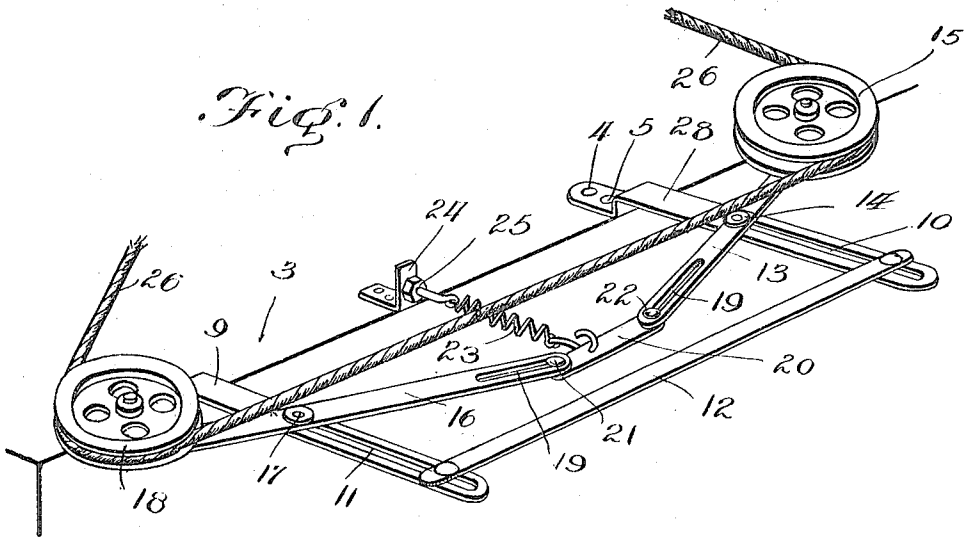
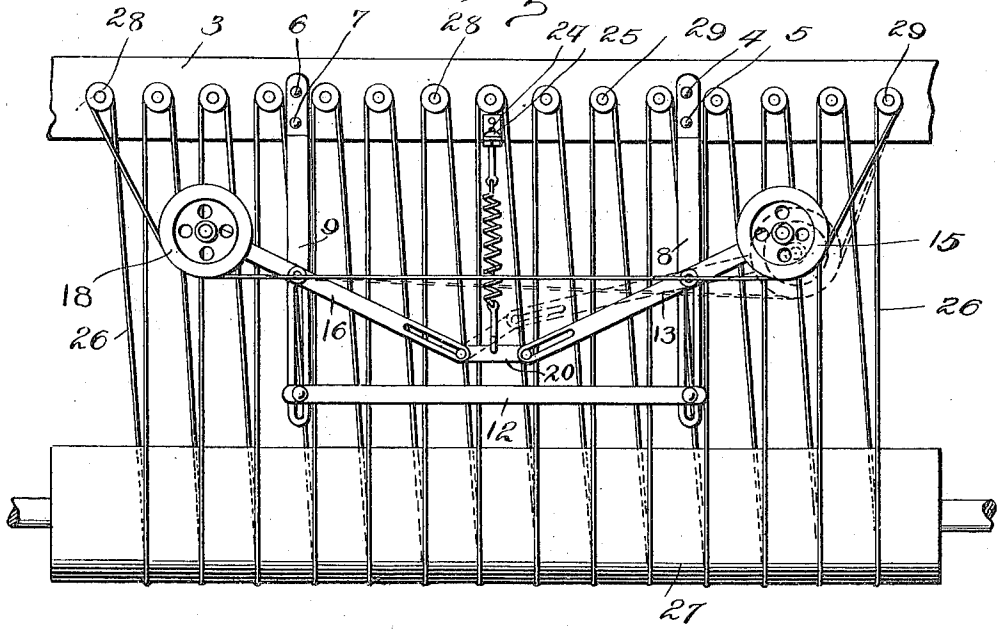


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

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TENSION-REGULATOR FOR SPINNING-MACHINES.

1,137,053. Specification of Letters Patent. Patented Apr. 27, 1915.

Application filed April 3, 1914. Serial No. 829,320.

To all whom it may concern:

Be it known that we, JOHN G. CUNNINGHAM and FRANK W. MANION, citizens of the United States, residing at Waterford, in the county of Saratoga and State of New York, have invented certain new and useful Improvements in Tension-Regulators for Spinning-Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to spinning machines and has for its object the provision of mechanism adapted to efficiently regulate the tension of the spindle driving band in order to obviate all slacking of the said band.

A further object of this invention is to provide a tension regulator for spindle driving bands, adapted to take up all slack in the spindle driving band in such a manner that the speed of the driving band will automatically cause the regulation of the tensioning device in order to tighten the band.

A still further object of the invention is to provide a tension regulator for spindle driving bands which shall be adapted to automatically take up all sudden shocks or unusual strains upon the driving band, thus preventing breaking the driving band.

With these and other objects in view, this invention consists in the combination and arrangement of the various related elements of a tension regulator for spindle driving bands as hereinafter described and more particularly set forth in the appended claims.

Referring to the drawing forming a part of this application wherein similar reference numerals indicate similar parts wherever used: Figure 1 is a detached perspective view of the device. Fig. 2 is a top plan view of a portion of a spinning machine showing the device in operative position.

The numeral 3 designates the usual spindle carrier support common to machines of the character adapted for coöperation with the present device. Secured to this support by means of screws 4, 5, 6 and 7, or any other suitable fastening means, are two members 8 and 9, each provided with a longitudinal slot 10, 11, and braced at their outer ends by means of a cross rod 12 mounted upon the members 8 and 9 by means of bolts engaging the slots 10, 11.

Slidably mounted upon the member 8 is an arm 13, carrying a bolt 14 engaging the slot 10 to allow longitudinal movement of the arm 13 relative to the member 8, when it is desired to adjust the position of the arm. Upon the outer end of the arm 13 is a loose pulley wheel 15, the purpose of which will be hereinafter described. A similar arm 16 is mounted on the member 9, and is adjustable by means of a bolt 17. The outer end of arm 16, is provided with a pulley wheel 18. The inner end of each of the arms 13 and 16 is provided with a slot 19 and 19. The arms are connected by means of a short link 20 carrying bolts 21 and 22 which loosely engage the slots 19 and 19 respectively, whereby the bolts may slide during the operation of the device. The function of the slots 19, 19 is similar to that of the slots 10, 11. Any shock which would tend to allow either of the arms 13—16 to slide outwardly in their respective slots 10—11 would also be taken up by the movement of the members 21, 22 within their respective slots 19, 19, thus assisting the spring 23 in tensioning the band. One end of a spring 23 is secured to the link and its opposite end is fastened to an angle iron 24 upon the spindle support 3 by means of an adjustable securing device 25. The spring 23 is so tensioned as to normally exert a pull upon the link member toward the spindle support 3 and to thus cause a relative outer movement of the outer ends of the arms 13 and 16 and the pulley wheels 15 and 18.

The operation of the device is as follows: The usual spindle driving band 26 is passed around the drum 27 and around the various spindles 28 and 29 in the well known manner. The band is also passed around the pulleys 15 and 18. By this arrangement it will be seen that the action of the spring 23 will pull the member 20 toward the spindle support 3 which will cause the inner ends of the arms 13 and 16 to move in a similar direction, thus acting as levers, using the bolts 14 and 17 as fulcrums and causing a relative outward movement of the pulleys 15 and 18, exerting a tightening pressure upon the band 26, thus taking up all slack.

The slots in the various members allow

the parts to move freely in case of sudden shock or pressure upon the band 26, thus obviating the danger of breaking the band. The slots 19, and the link 20 perform a very important function in that when a sudden pull is exerted on one of the pulleys its arm may move independently of the companion arm and pulley, as indicated in dotted lines in Fig. 2. Of course when this occurs the companion arm, will through the link connection and the spring become adjusted the same as the arm receiving the sudden pull. This feature is of importance for it allows of a quick action of the parts when the frame is reciprocated rapidly, and it materially diminishes the strain on the driving band.

What we claim as new and desire to secure by U. S. Letters Patent, is:—

1. A tension regulator for spinning machines, comprising a plurality of supports, an arm pivotally and slidably mounted on each of said supports, band receiving means carried at the outer end of each of said arms, a link loosely connecting the inner ends of said arms, to permit one of the arms to move independently of the other, and tensioning means connected to the link and adapted to cause a movement of said arms whereby to tighten a band engaged by said band receiving means.

2. A tension regulator for spinning machines, comprising a plurality of supports, an arm pivotally and slidably carried by each of said supports, the inner end of each arm being provided with a slot, a loose pulley carried at the outer end of each arm, a link loosely connecting the inner ends of said arms, pivots extending from the ends of the link and passing loosely through the slots in the arms to permit one arm to move independently of the other arm, a spring adapted to exert a pull upon the link in one direction to cause an opposite movement of the outer ends of said arms.

3. A tension regulator for spinning machine bands, comprising a pair of supports provided with slots therein, an arm mounted on each of said supports, pivots extending from the arms and projecting through the slots whereby to adjust the position of the arms, a loose pulley on the outer end of each arm, the inner end of each arm having a slot, a link interposed between the inner ends of the arms, pivots extending from the outer ends of the link and loosely passing through the slots in the arms, a spring connected to said link to exert a pull in one direction upon said link whereby to cause an opposite movement of the outer ends of the arms, the slots in the arms and the pivots loosely engaging therein permitting independent movement of either arm.

4. In a spinning machine, the combination with the spindle rail, of a pair of supports mounted thereon and having slots therein, an arm mounted on each of said supports by means of a bolt on said arm engaging the slot, and adapted to slide in said slot upon sudden loosening of the strain on said arm, a drum, a loose pulley on the outer end of each arm, a spindle driving band engaging each of said pulleys and the drum, a link loosely connecting the inner ends of said arms, a spring connected to said rail and said link adapted to pull the link and the ends of the arms toward the rail whereby to cause an outward movement of the outer ends of the arms to take up the slack of the band carried by the pulleys.

5. A tension regulator for spinning machines, comprising supports, arms pivotally mounted on the supports, the inner end of each arm having a slot, a pulley mounted on the outer end of each arm, a link interposed between the inner ends of the arms, connections extending from the link and passing loosely through the slots, whereby to permit one arm to move independent of the other, and tension means for causing the outer ends of the arms to move in an opposite direction to the inner ends.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN G. CUNNINGHAM.
FRANK W. MANION.

Witnesses:
H. R. VAN KLEECK,
FRED H. POTTER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."