L. VEILLEUX AND P. H. LEVEQUE.

THREAD TENSIONING DEVICE.

APPLICATION FILED OCT. 30, 1919.

1,356,026. Patented Oct. 19, 1920.

2 SHEETS—SHEET 1.

FIG. 1.

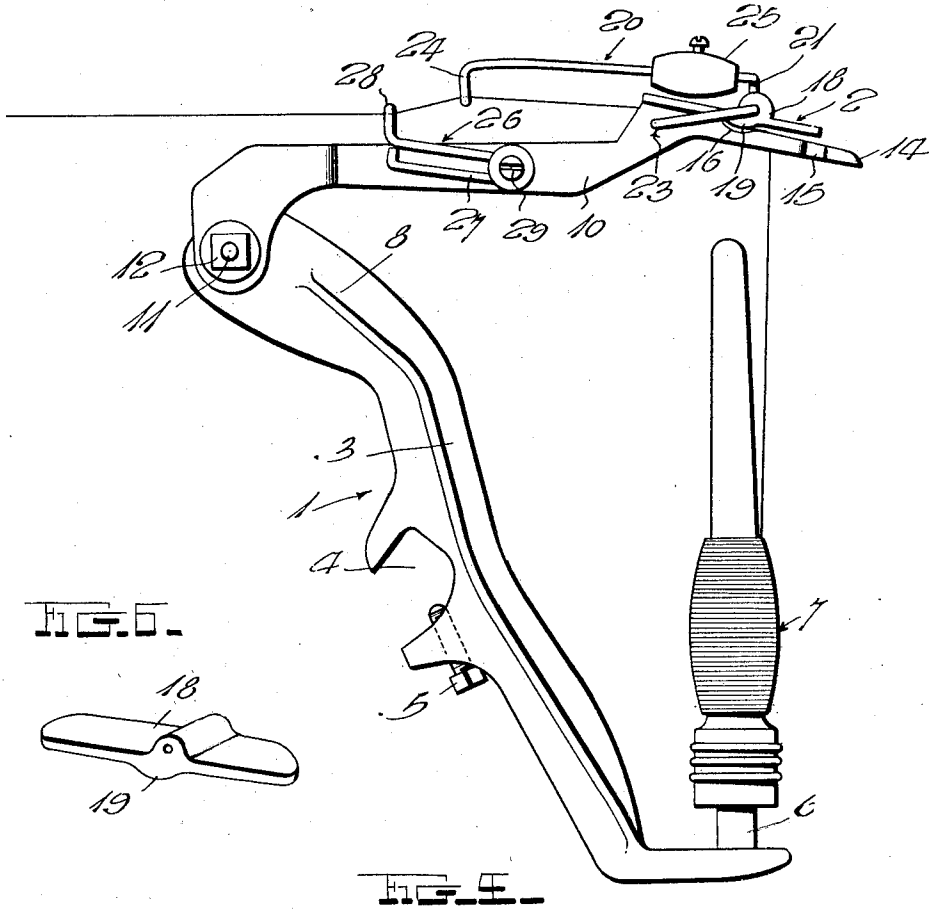
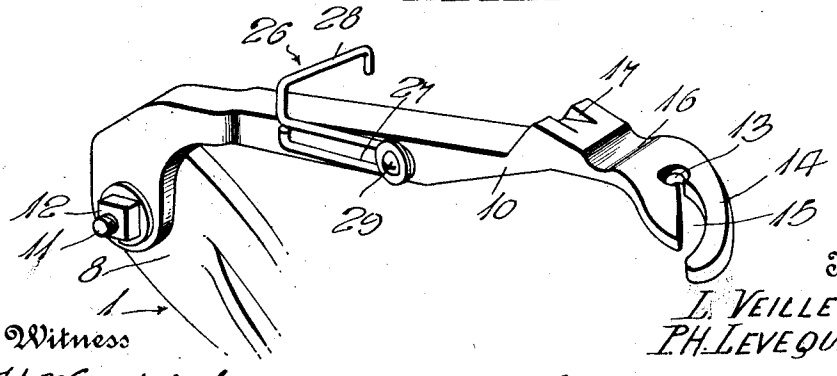


FIG. 6.

FIG. 5.



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2 SHEETS—SHEET 2.

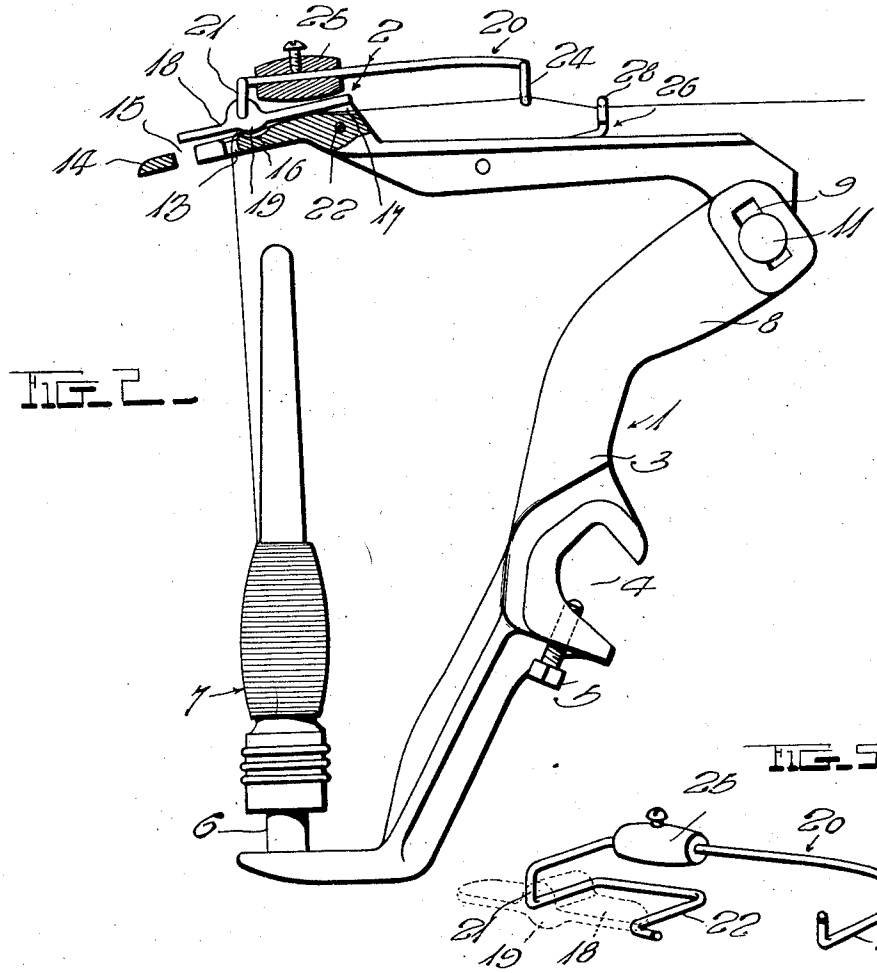


FIG. 2.

FIG. 5.

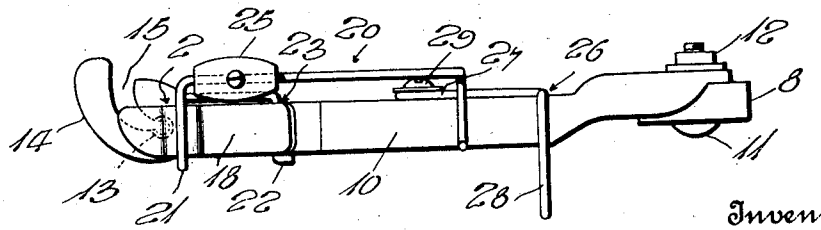


FIG. 3.

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LOUIS VEILLEUX AND PHILIP H. LEVEQUE, OF NEW BEDFORD, MASSACHUSETTS, ASSIGNORS OF ONE-THIRD TO JOSEPH BARNES, OF NEW BEDFORD, MASSACHUSETTS.

THREAD-TENSIONING DEVICE.

1,356,026. Specification of Letters Patent. Patented Oct. 19, 1920.

Application filed October 30, 1919. Serial No. 334,411.

To all whom it may concern:

Be it known that we, LOUIS VEILLEUX and PHILIP H. LEVEQUE, citizens of the United States, residing at New Bedford, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Thread-Tensioning Devices; and we do 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.

This invention relates to improvements in thread tensioning devices.

One object of the invention is to provide a device of the above mentioned character in which the construction is such that thread will be passed beneath a friction member, which normally retains it under the proper or desired tension, the friction member being automatically released from excessive pressure upon the thread by the action of the thread itself.

Another object of the invention is to provide a device of the above mentioned character which is readily and effectively adjustable to various sizes of bobbins or other like members which may be employed therewith.

A further object of the invention is to provide a device of the above mentioned character which is simple in construction, yet highly effective in use, one which is strong, durable and inexpensive to manufacture.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a side elevation of a device constructed in accordance with our invention.

Fig. 2 is a like view, partly in section, of the opposite side of the device.

Fig. 3 is a top plan view thereof.

Fig. 4 is perspective view of a portion of the supporting frame with the tensioning device removed.

Fig. 5 is a detail perspective view of the friction shoe supporting arm.

Fig. 6 is a detail perspective view of the friction shoe.

In carrying out our invention we employ a supporting frame which is adapted to be secured to a machine or other support, and which has means associated therewith to retain a bobbin thereon. The thread leading from the bobbin is passed over this supporting frame 1 which carries tensioning mechanism 2. The latter normally presses the thread against the support and retains it under tension. The construction and arrangement of this tension mechanism 2 is such that it will be automatically operated by the action of the thread to reduce excessive friction and permit a more free passage of the thread over the frame.

Referring more specifically to the construction of these parts as shown in the drawings it will be seen that the frame 1 includes a bracket 3 which is provided intermediate its ends with a notch 4 and set screw 5 to permit it to be secured in position upon a suitable machine or other support (not shown). The lower end of the bracket is turned laterally and is provided with a short vertical stub axle 6 which serves to retain a bobbin 7 thereon. While we have shown an axle for retaining the bobbin in position, we desire it to be understood that any other suitable means may be employed for this purpose. The bracket 3 is provided adjacent its upper end with an offset portion 8 having a slot 9 therein. The frame also includes an adjustable arm 10 which is secured to the bracket 3 by means of a fastening bolt 11. Bolt 11 extends through the slot 9 and through the arm 10 and retains the arm 10 on the bracket 3 when the nut 12 is tightened, as is obvious. This construction serves to permit several sizes of bobbins to be used. That is, when it is desired to use a bobbin of a greater height than the one shown, the nut 12 is loosened and the arm 10 swung upward to the desired height. Of course such movement of the arm would ordinarily throw the thread guide or eye 13 out of alinement with the bobbin, but with the construction shown this will be obviated, as by reason of the slot 9 the arm may be moved laterally with respect to the bracket 3, thereby bringing the eye 13 directly above the bobbin 7. Of course too, this construction permits the arm to be folded down after the bobbin 7 is removed, thereby making the device very compact. The outer free

end of the arm 10 is provided with an offset head 14 which is bifurcated as at 15 to facilitate the insertion of the thread. The head is also provided with a transverse notch 16 and a thread passage 17 the purpose of which will be more fully disclosed in the following description.

The tension mechanism 2 includes a friction shoe 18 which is pivotally mounted on the head 14 and which is adapted to press the thread against the upper face of the head 14 over which the thread passes, thereby retarding its passage and placing it under tension. The entire shoe is not designed to bear against the thread, as the friction would be too great. So, we provide the shoe with an enlarged downwardly projecting portion 19 which is designed to fit in and press the thread into the notch 16, thereby preventing excessive friction, yet providing sufficient friction to retain the thread under tension. Any suitable mechanism may be employed for retaining the shoe 18 in position on the frame, but we prefer to employ an arm or thread actuating lever, designated as a whole by the numeral 20, and we pivot this lever between its end on the supporting frame and in turn pivot the friction shoe on the same. The construction of this arm or lever is more clearly shown in Fig. 5. By reference to this figure it will be seen that the arm is constructed from a single piece of wire which is bent between its ends as at 21 to form a pivot for the shoe. One end 22 is bent laterally to form a pivot for the arm and this portion extends through the head 14 as shown at 23. The opposite end is also bent laterally in the same direction and its extremity turned up to form a thread guide 24 over which the thread passes. The shoe is normally pressed against the thread by its own weight and by an additional weight 25 carried by the arm 20. This weight 25 is readily adjustable on the arm 20 to decrease or increase the pressure of the shoe on the thread, and when the pressure is greater the tension is also greater and vice versa. During the operation of the device the thread passes through the eye 13, under the portion 19 of the shoe, through the thread passage 17, over the thread guide 24 and under a second thread guide 26 to the spool or other device upon which it is to be wound or to which it is fed. The friction shoe normally retains the thread under sufficient or desired tension, and when the tension becomes too great, the action of the thread on the guide 24 will automatically raise the friction shoe slightly. thereby reducing the tension. However, as soon as the thread becomes slack again, the action of the weight 25 will return the friction shoe to its original or normal position. The thread guide 26 serves to retain the thread in contact with the guide 24 at all times and it also serves to increase the tension on the thread. It is obvious, that without this additional guide 26, the arm 20 would not readily tilt. In other words, by moving this member 26, which is adjustable, to and from the guide 24, the arm 20 will be tilted downward much easier when the thread is pulled. For instance by moving it closer to the guide 24 the thread will incline almost directly downward toward the arm 10, hence, a slighter, pull on the thread will actuate the friction shoe. The construction of this member 26 is such that it may be adjustable longitudinally and vertically with respect to the thread guide 24. We prefer to construct it from a single piece of wire as shown. This wire is bent at one end to form a loop portion 27, and it is bent laterally at its opposite end as at 28 and extends over the arm 10. A screw 29 passes through the loop 27 and retains the device in position and permits it to be adjusted to various positions.

It is believed that the foregoing description is sufficient to enable any one skilled in the art to clearly understand the manner in which the device is used and operates, and further description is therefore deemed unnecessary.

It is to be understood that various changes in the shape, size, and arrangement of parts of the invention may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described our invention, we claim:—

1. A device of the class described comprising a supporting frame over which a thread is adapted to pass, a lever pivoted between its ends on said supporting frame, a friction shoe pivotally mounted on the lever, it serving to press the thread against the support, and counter-balancing means on said lever, said means being such that it is overcome at times by the action of the thread on the lever, thereby automatically varying the tension of the thread.

2. A device of the character set forth comprising a supporting frame over which a thread is to be passed, an arm pivotally mounted on said supporting frame, a friction shoe pivotally mounted on said arm and normally pressing the thread on the supporting frame, said arm having a thread guide at its free end, and an adjustable weight on said arm.

3. A device of the character set forth comprising a supporting frame over which a thread is to be passed, an arm pivotally mounted on said supporting frame, a shoe pivoted on the arm, said arm being composed of a single piece of wire, the intermediate portion being bent to form a pivot for the friction shoe, a portion of the wire being bent laterally and passed through

the supporting frame to form a pivot for the arm, and another portion of the wire being bent laterally to form a thread guide.

4. A device of the character set forth comprising a supporting frame over which the thread is to be passed, means actuated by the thread to vary the tension of the thread, said means including a thread guide; and a second thread guide carried by said supporting frame, said last named thread guide being longitudinally and vertically adjustable with respect to the first named thread guide.

5. A device of the character set forth comprising a supporting frame over which the thread is to be passed, a friction shoe adapted to press the thread against the supporting frame, means actuated by the thread to vary the pressure of the shoe on the thread, said means including a thread guide; a second adjustable thread guide the latter being composed of a single strip of wire, said wire being bent at one end to form a loop portion, the opposite end being bent laterally and extended over a portion of the supporting frame, and a headed retaining member for said wire extending through said loop and carried by said frame.

In testimony whereof we have hereunto set our hands.

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