March 11, 1924. 1,486,610

E. N. SIMMONS

SEWING MACHINE THREAD CONTROLLER

Filed May 5, 1923

Fig. 1

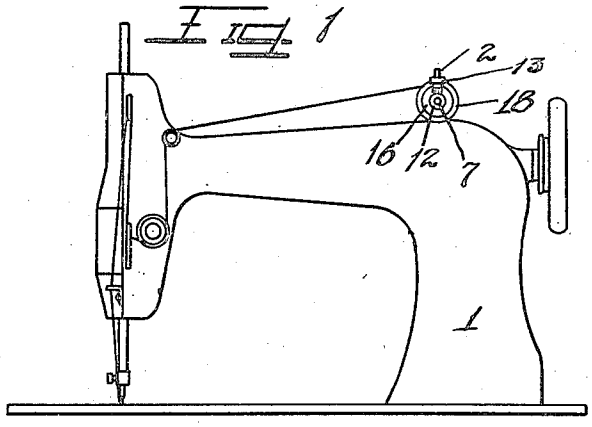


Fig. 2

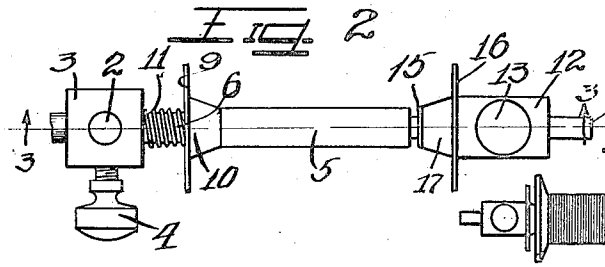


Fig. 4

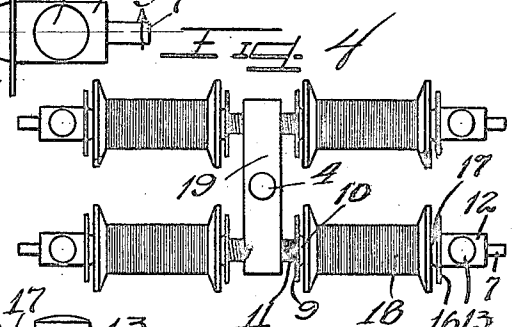
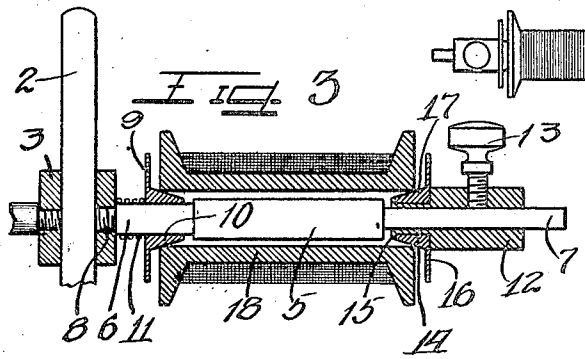


Fig. 3



Witnesses

H. G. Parks

Fred E. Baesler

Inventor

Edward N. Simmons

by Charles W. Hills

Atty.

Patented Mar. 11, 1924. 1,486,610

UNITED STATES PATENT OFFICE.

EDWARD N. SIMMONS, OF CHICAGO, ILLINOIS.

SEWING-MACHINE THREAD CONTROLLER.

Application filed May 5, 1923. Serial No. 636,832.

To all whom it may concern:

Be it known that I, EDWARD N. SIMMONS, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in a Sewing-Machine Thread Controller; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates to an improved sewing machine spool holder adapted to be removably engaged on the spool spindle of a sewing machine head and having adjustable spring controlled bearing members for a spool of thread adapted to control the rotation of the spool and thereby control the feed of the thread into the machine, obviating slack, and holding the spool against rotation in a reverse direction should the thread be suddenly tensioned and then released.

It is an object of this invention to provide a sewing machine thread controller adapted when used on a sewing machine to properly tension thread fed into the machine and preventing any tendency of the thread from becoming slack.

It is also an object of the invention to provide a thread controller for a sewing machine, said controller having spring controlled rotatable bearing members for a spool of thread adapted to obviate slack in the thread by holding the thread properly tensioned at all times.

It is an important object of this invention to provide a thread controller for a sewing machine, said controller being of simple and effective construction and adapted to be readily mounted in place on the spool spindle of a sewing machine and adapted to carry one of a plurality of spools of thread in a horizontal position between resilient bearings so that slack will be eliminated and the thread always properly tensioned.

Other and further important objects of this invention will be apparent from the disclosures in the specification and accompanying drawings.

This invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a front elevation of a sewing machine head having a thread controller embodying the principles of this invention mounted on the spool spindle.

Figure 2 is an enlarged top plan view of a thread controller of this invention without a spool of thread.

Figure 3 is a longitudinal section taken on line 3—3 of Figure 2, showing a spool of thread in position.

Figure 4 is a vertical elevation of a modified form of holder adapted to carry four spools of thread at different elevations and in the same vertical plane.

As shown on the drawings:

The reference numeral 1 indicates a sewing machine frame or head provided with a spool spindle or post 2. The sewing machine may be of any desired type either manually operated or machine operated.

As illustrated in detail in Figures 2 and 3, the sewing machine thread controller comprises a rectangular sleeve or collar 3 having a longitudinal passage through which the spool spindle 2 is adapted to project. A set screw 4 is provided on the sleeve 3 to hold the sleeve in a set position against rotation on the spool spindle. Threaded into one side of the square sleeve 3 is a horizontal shaft or rod comprising a middle section 5, an inner end section 6 of less diameter than said middle section, and an outer end section 7 longer than the inner end section and of less diameter than either the middle section or the inner end section. The end of the inner end section 6 is of reduced diameter and threaded at 8 so that the shaft may be threaded into an opening in the squared sleeve 3. Slidably and rotatably mounted on the inner end shaft section 6 is a disk 9 having a beveled bearing hub 10 integrally formed on one side thereof. A coiled spring 11 is engaged around the shaft end section 6 between the sleeve 3 and the disk 9 to resiliently hold the beveled

bearing 10 against one end of the middle shaft section 5.

Slidably engaged on the outer end shaft section 7 is a collar 12, adapted to be held in a set position by means of a set screw 13. The inner end of the collar 12 is reduced in diameter to form a neck 14, the end of which is provided with a flange 15. Rotatable on the neck 14 is a disk 16 having integrally formed on the inner side thereof a beveled bearing hub 17.

As illustrated in Figure 3, a spool of thread 18 is mounted on the shaft and is supported by the beveled bearings 10 and 17 of the rotatable disks 9 and 16 respectively.

By simply loosening the set screw 13 the collar 12 together with the disk 16 and bearing 17, is adapted to be removed from the shaft section 7 to permit a spool of thread 18 to be placed upon the shaft and against the bearing 10 which is beveled to project into one end of said spool. The collar 12 is now put back upon the shaft section 7 with the beveled bearing 17 projecting into the outer end of the spool 18. The collar 12 is pushed inwardly far enough to slide the bearing 10 and the disk 9 away from the end of the middle shaft section 5, thereby compressing the coiled spring 11 and resiliently holding the spool 18 between the rotatable beveled bearings 10 and 17.

The slidable collar 12 is adapted to permit spools of different sizes to be conveniently carried by the thread controller. As illustrated in Figure 3 the beveled bearings frictionally engage in the ends of the spool, thereby holding the spool against rotating idly on the middle shaft section 5. With a thread controller mounted in place as illustrated in Figures 1 and 3, the thread from the spool 18 is conducted into the sewing machine in the ordinary manner or through suitable guides mounted on the machine head, or, if preferred, on the upper end of the sleeve 3. The unwinding of the thread from the spool 18 is resisted by the action of the coiled control spring 11 which resiliently holds the bearing 10 in engagement with the inner end of the spool. The resistance may be varied by adjusting the collar 12 on the shaft section 7, thereby either compressing or releasing the spring 11. The thread conducted into the machine from the spool 18 is thus always properly tensioned and back lash or a reverse rotation of the spool is done away with. Since the thread is always properly tensioned, there is no slack in the thread as it is conducted into the machine.

Figure 4 illustrates a modified form of a thread controller wherein the construction of the individual spool holders is the same as that illustrated in Figure 3. In this arrangement a longer sleeve 19 is provided and two pair of aligned, oppositely directed spool holders are mounted on the sleeve 19 and are disposed in the same vertical plane.

While two preferred arrangements of spool holders are illustrated and described, it will, however, be understood that any other desired arrangement of the spool holder on a supporting sleeve may be used.

I am aware that numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted otherwise than necessitated by the prior art.

I claim as my invention:

1. A sewing machine thread controller comprising a sleeve, a set screw for holding the same in position on a sewing machine spool spindle, a shaft secured to said sleeve, a bearing member rotatable and slidable on said shaft, a spring on said shaft governing said bearing member, a collar adjustable on said shaft, a set screw for holding said collar in a set position, and a second bearing member rotatably engaged on said collar and adjustable therewith.

2. A sewing machine thread controller comprising a sleeve, means for holding the same in a set position on a sewing machine spool spindle, a shaft having one end threaded radially into the sleeve, said shaft being of greater diameter at its center section than at its end sections, a beveled bearing member rotatably and slidably mounted on the supported end of said shaft, a spring on said shaft between said sleeve and said bearing member adapted to resiliently hold the bearing member in contact with the enlarged center section of the shaft, a collar on the outer reduced end of the shaft, means for holding the collar in a set position, a neck formed on said collar, a flange on the outer end of the neck, and a beveled bearing member rotatably engaged on said neck between the flange and said collar.

3. A sewing machine thread controller comprising a support adapted to be engaged on the spool spindle of a sewing machine, a shaft supported on said support, a plurality of spool supporting bearing members rotatably and slidably supported on said shaft, and means on said shaft for resiliently holding one of said bearing members projected toward the other.

4. A sewing machine thread controller comprising a support, a shaft supported thereon, a spring controlled bearing member slidably and rotatably engaged on one end of said shaft, and a second rotatable bearing member adjustably mounted on the other end of the shaft.

5. A sewing machine thread controller comprising a sleeve adapted to be secured to a spool spindle of a sewing machine, a shaft supported on said sleeve, a plurality

of rotatable beveled bearing members longitudinally movable on said shaft to support a spool of thread therebetween, and means for holding one of said bearing members in a set position of adjustment.

6. A sewing machine thread controller comprising a shaft, means for supporting the same on the spool spindle of a sewing machine, a collar adapted to be removably secured on one end of said shaft, a bearing member rotatably engaged on said collar, and a spring controlled bearing member slidably and rotatably engaged on the other end of said shaft.

7. A spool support comprising a shaft, a spring controlled bearing rotatably and slidably engaged on one end of said shaft, adapted to engage in one end of a spool, a collar adjustably supported on the other end of the shaft, and a second bearing member rotatable on said collar adapted to engage in and support the other end of said spool.

8. A spool support comprising a shaft consisting of a middle section, an inner end section of reduced diameter having the end thereof threaded, and an outer end section of less diameter and longer than the inner end section, a sleeve for receiving the threaded end of the inner end section to support the shaft, a flanged beveled bearing member on the inner end shaft section, a spring for holding the same against the middle shaft section, a collar slidable on the outer end shaft section, said collar having a flanged neck integrally formed on the inner end thereof, means for holding the collar in a set position on the outer end shaft section, and a flanged beveled bearing member rotatably engaged on said flanged neck.

9. The combination with the spool spindle of a sewing machine, of a sleeve adapted to be engaged thereon, means for holding the sleeve in a set position on the spool spindle, and a plurality of oppositely directed aligned spool control holders supported on said sleeve.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

EDWARD N. SIMMONS.

Witnesses:

FRED E. PAESLER,

OSCAR HARTMANN.