No. 653,717. Patented July 17, 1900.

S. W. WARDWELL, JR.

TENSION FOR SEWING MACHINES.

(Application filed Oct. 15, 1894.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1

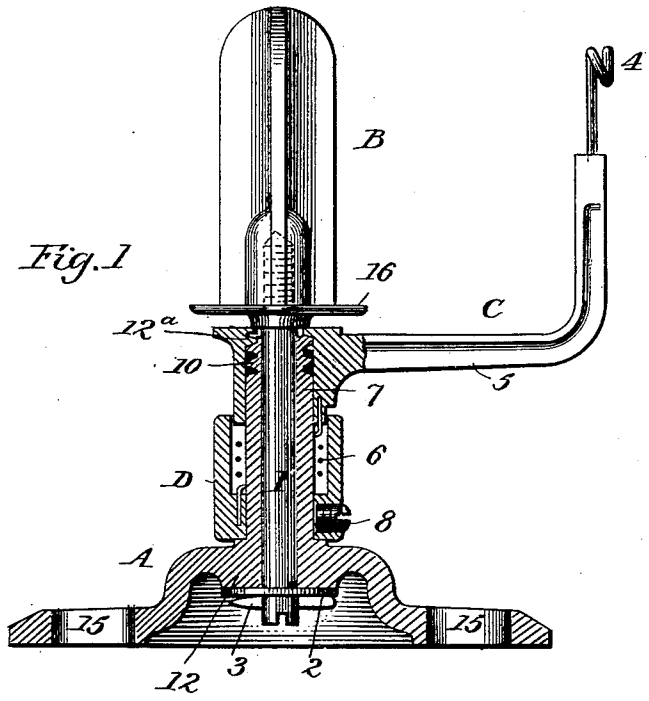


Fig. 4.

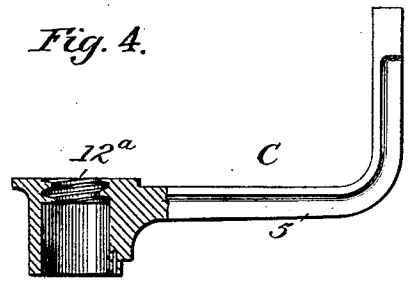
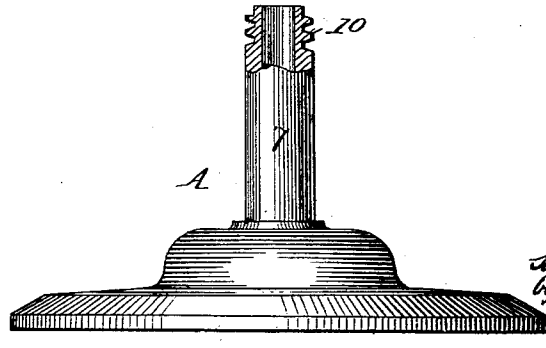


Fig. 3.



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Fig. 2.

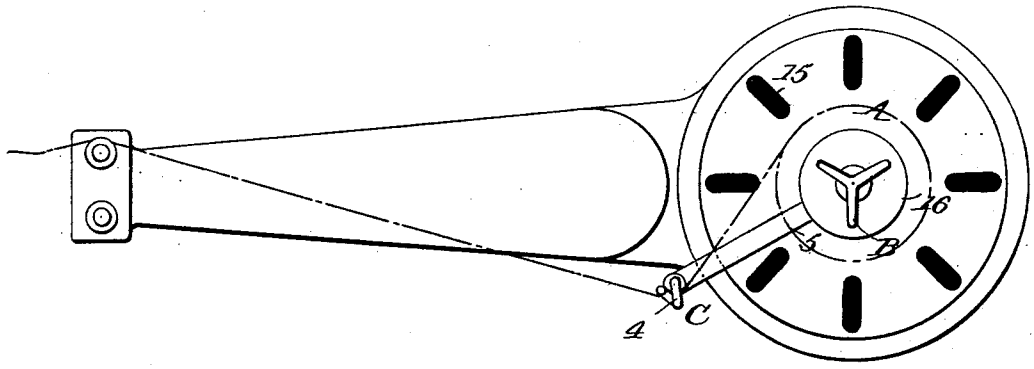
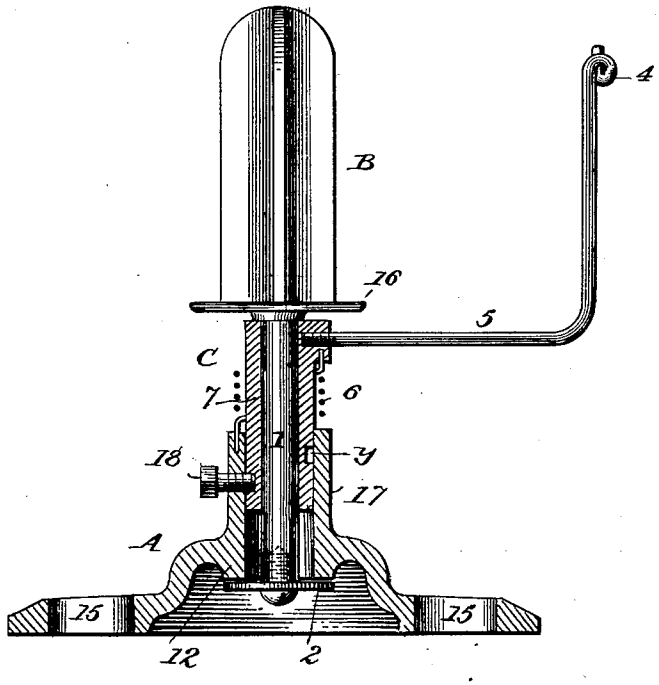


Fig. 5.



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UNITED STATES PATENT OFFICE.

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TENSION FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 653,717, dated July 17, 1900.

Application filed October 15, 1894. Serial No. 525,946. (No model.)

To all whom it may concern:

Be it known that I, SIMON W. WARDWELL, Jr., a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Unrollers for Bobbins, of which the following is a specification.

My invention relates to an unroller for bobbins, cops, &c.; and it consists of a device for supporting a bobbin or cop, a thread-guide through which the thread passes from the bobbin or cop to a sewing or other machine, and means whereby the thread-guide is shifted in position, according as the thread is more or less taut, and thereby more or less friction is applied to resist the rotation of the bobbin, all as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation of my improved unrolling device for bobbins, cops, &c. Fig. 2 is a plan view. Fig. 3 is an elevation of the support in part section. Fig. 4 is a detached view of the cam and thread-guide, showing the hub in central vertical section. Fig. 5 is a sectional elevation illustrating a modification.

The holder or bobbin-support B for the bobbin or tube of the cop or spool is constructed in any suitable manner. As shown it is in the form of a finger adapted to enter the opening in the bobbin or tube and provided with flanges or wings and at the bottom with a disk 16. From the disk 16 extends a rod, stem, or spindle 1, which constitutes an extension of the holder and passes through a guide-opening in a suitable base or support A, and when the spool or cop is placed upon the holder B the thread may be carried from the spool through a guide or eye 4 to the sewing-machine or other machine in which the thread is used. In many machines in which threads are so used—as, for instance, in sewing-machines—the thread is drawn off by a series of jerks, which renders it necessary to employ some means for controlling the bobbin or spool to prevent the thread from "overwinding," and I therefore combine with the parts above described a brake device which is brought into action to control the movements of the bobbin or spool holder by changes in the position of the eye or guide 4, through which the thread passes. Thus in the construction shown in Figs. 1 to 3 I make use of a friction-brake in the form of a shoulder or disk 2 upon the lower end of the spindle 1, held in position by a cross-bar 3 below a stop or friction surface upon an annular projection 12 of the stand A, and I employ means whereby the holder and its spindle 1, with the cop, may be elevated, so as to bring the disk or shoulder 2 into contact, with greater or less friction, with the surface of the stop or projection 12. In order that this friction may be controlled by the tension or draft upon the thread, I make the eye or guide 4 the means of elevating the spindle 1. Thus a cam C in the form of a sleeve has an internally-threaded projection 12^a, which fits an external thread 10 upon a hollow tube 7, constituting a part of the stand A, through which tube the spindle 1 passes. From the cam C extends an arm 5, which carries the eye or guide 4. A spring 6 is connected at one end with the cam C and at the other with the stand or with a movable sleeve D, which may be set in different positions upon the tube 7 and secured by means of a set-screw 8.

The stand A is provided with openings 15, through which screws may pass for securing the stand to a table or other support.

The device is put in position so that the threads passing from the bobbin to the needle of the sewing-machine or other device and through the guide 4 will be deflected by the said guide, which normally is in a position out of the direct line between the bobbin and the machine, in which position the spring 6 tends to hold the parts. When so held, the cam C is in its most elevated position, bears against the bottom of the disk 16, and has lifted the spindle 1 until the disk 2 is in frictional contact with the projection 12, so that only a very strong draft upon the thread will suffice to turn the bobbin. When, however, such draft is applied, it tends to straighten the thread between the bobbin and the machine and to swing the guide 4, and with it the arm 5 and cam C, thereby carrying the cam to a lower position and lowering the spindle 1 and disk 2 until it bears with less friction against the projection 12, or, as shown

in Fig. 1, is removed from contact with the said projection altogether. In proportion as the spindle 1 and the disk 2 are lowered the friction is reduced and the holder B and its spool or bobbin can turn more or less freely; but the instant that the thread becomes slack the guide 4, with its arm, will swing so as to elevate the spindle 1 and bring the disk 2 against the projection 12, acting as a friction-brake to retard the rotation of the holder B, with its spool or bobbin, and thereby prevent overrunning or overwinding.

The force exerted by the spring 6 may be regulated by turning the sleeve D, to which one end of the spring is connected, and the said sleeve may be set to a greater or less height, so as to regulate the extent to which the disk 2 may be carried below the face of the projection 12.

In the construction shown in Fig. 5 the operation is the same as that of the construction shown in the other figures; but in this case the cam C is in the form of a sleeve, which enters an annular projection or hub 17 of the base A, and a pin 18 extends through said hub to an inclined slot *y* in the cam C. The spring 6 is secured at one end to the hub 17 and at the other to a projection from the tubular cam C.

It will be evident that other details of the device may be modified in their construction without departing from the main features of my invention.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. The combination with a bobbin-holder, of a disk connected therewith, a bearing for said disk, a support for said bearing, means for carrying the disk to and from said bearing, and a thread-guide and spring connected with said means to shift the same from a normally-contacting position to an extent proportioned to the draft upon the thread, substantially as described.

2. The combination of a bobbin-holder, a discular bearing connected therewith, a stand having a fixed bearing-face for said discular bearing, of means for shifting the position of said discular bearing, and a spring and a thread-guide connected with said means, the parts arranged to insure a maximum frictional pressure when the tension on the thread is relaxed, substantially as described.

3. The combination of the holder, rod and disk, a stand having a bearing for said disk, means for elevating and depressing the rod and disk, and a thread-guide and a spring connected with said means, substantially as described.

4. The stand having a bearing 12, a bobbin-holder, a rod extending from said holder through the stand, a disk carried by said rod parallel to said bearing 12, a cam turning upon the stand and carrying said rod, a spring connected with the cam and stand, and a thread-guide connected to said cam, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SIMON W. WARDWELL, JR.

Witnesses:
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ARTHUR B. CUMMINGS.