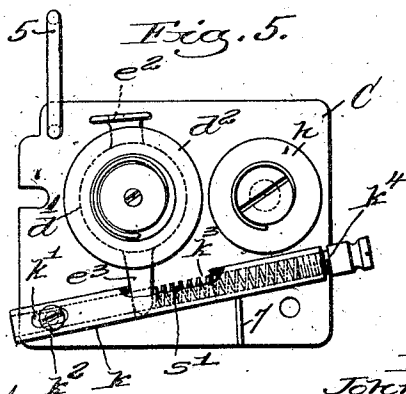
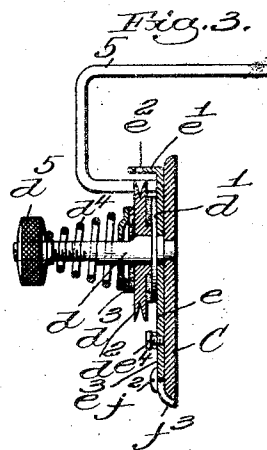
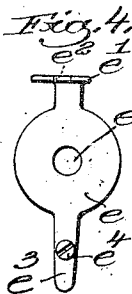
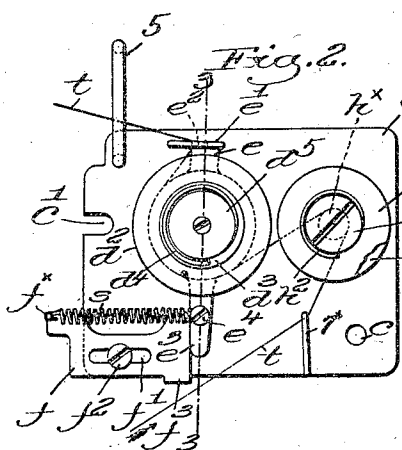
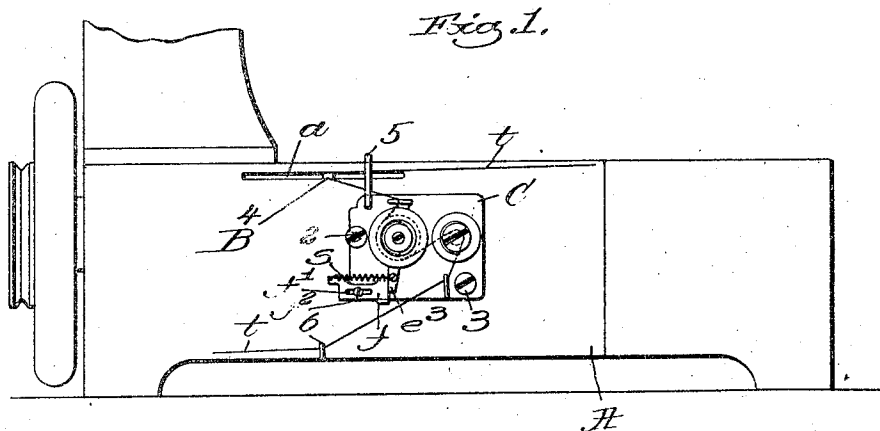


J. MAITLAND.
 THREAD CONTROLLING MEANS FOR SEWING MACHINES.
 APPLICATION FILED FEB. 17, 1909.

937,705.

Patented Oct. 19, 1909.



witnesses:
 Fred L. Greenhaf.
 Joseph M. Ward.

Inventor.
 John Maitland,
 by Henry O. Gregory
 Att'y.

UNITED STATES PATENT OFFICE.

JOHN MAITLAND, OF SWAMPSCOTT, MASSACHUSETTS, ASSIGNOR TO THE REECE BUTTON HOLE MACHINE COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

THREAD-CONTROLLING MEANS FOR SEWING-MACHINES.

937,705.

Specification of Letters Patent.

Patented Oct. 19, 1909.

Application filed February 17, 1909. Serial No. 478,511.

To all whom it may concern:

Be it known that I, JOHN MAITLAND, a citizen of the United States, and resident of Swampscott, county of Essex, State of Massachusetts, have invented an Improvement in Thread-Controlling Means for Sewing-Machines, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention has for its object the production of a simple, compact and readily adjustable means for controlling the thread of a sewing machine, the controlling means being so constructed and arranged that it can be bodily applied to or removed from the machine when necessary.

My invention is particularly adapted for use in connection with buttonhole finishing machines such as shown in United States patent to Reece, No. 404,863 dated June 11, 1889, though not restricted to such application. In that and other similar machines it has been customary to mount upon the side of the machine base a spring-controlled thread-tension wheel around which the thread is carried and thence through the guide-eye of a spring-wire auxiliary take-up, also fastened on the machine base, and this thread-controlling mechanism has in practice been a source of great trouble and annoyance. To adjust the parts it has been necessary to tip the machine up in order to get at the fastening means for the different parts, and the spring-wire take-up required most careful and skilful attention in order to effect the proper operation thereof. The strength of the spring-wire varied from time to time, it would not retain its adjustment for any definite period, and it would frequently break, putting the machine out of commission until the broken part could be removed and a new one substituted.

In my present invention I mount the thread-controlling means on a base-plate which is readily attached to or removed from the machine base, and I have eliminated the spring-wire take-up altogether by providing a strong and inherently rigid take-up arm, which is fulcrumed on the base-plate coaxially with the thread tension wheel. Said take-up arm is provided with a guide-eye for the thread, and it is directly acted upon by a retracting spring which can

be easily and quickly adjusted to vary the resistance to the pull of the thread.

The various novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a front elevation of a portion of the base of a sewing machine, with one embodiment of my invention applied thereto in operative position; Fig. 2 is an enlarged view of the thread-controlling means embodying my invention, detached from the machine and partly broken out; Fig. 3 is a part sectional view thereof on the line 3-3, Fig. 2; Fig. 4 is a plan view of the take-up arm, detached; Fig. 5 is a view similar to Fig. 2 but showing a different form of the adjustable spring-control for the take-up arm, the housing for the spring being partly broken out.

Referring to Fig. 1 the base A of the sewing machine is horizontally slotted at a for the passage therethrough of the vibrating take-up lever B⁴, substantially as in the patent referred to.

Herein I have shown the various parts of the thread-controlling means as mounted upon a metal base-plate C, having a hole c and a notch c', Fig. 2, for the reception of attaching screws 2, 3, Fig. 1, by which the base-plate is readily and quickly secured in place upon the machine base A. By removing screw 3 and loosening screw 2 the plate and everything mounted thereon can be removed bodily from the machine whenever necessary.

A post d, Fig. 2, is fixedly attached to the base-plate and is provided with a rigid disk d' quite near and parallel to the base-plate, which disk sustains a grooved thread-tension wheel d² rotatably mounted on the post, acted upon by a washer d³ and spring d⁴, the spring being varied as to the pressure by a nut d⁵, the tension wheel, washer, spring and nut in themselves being of usual construction. The part of the post d between the disk d' and the base-plate passes loosely through a hole e, Fig. 4, in the enlarged portion of a flat take-up arm e made of stiff or inherently rigid plate metal and upturned at one end at e' and provided with a guide-eye e² which is adjacent the periphery of the wheel d². The tail or opposite end e³ of the arm projects beyond the periphery of

the wheel d^1 as shown in Figs. 1, 2 and 3, said arm lying flat upon the base-plate C and being free to rock upon the post, the fixed disk d' relieving the arm from any pressure due to the spring d^1 , as will be evident. This arm constitutes an auxiliary take-up, the thread t after passing around the grooved wheel d^2 being led through the eye e^2 and thence to the main take-up lever B^1 of the machine, under the wire guide 5 fixed to the base plate, and I have provided a manually-adjustable retracting spring s , Figs. 1 and 2, for the take-up arm e . One end of the spring is attached at e^1 to the tail of said arm and its other end is hooked around a lug f^* on a plate f longitudinally slotted at f' and adjustably clamped on the base-plate by a screw f^2 , the slotted plate having an ear f^3 bent over the edge of the base-plate as a guide.

As clearly shown in Fig. 2 the plate f serves as a stop for the take-up arm, the contraction of the spring holding the tail e^3 against the plate, and by moving the latter to the left or right the resistance to the pull of the thread is increased or diminished as required. That is, by moving the plate to the right, viewing Fig. 2, the amplitude of swing of the arm e will be diminished when the thread is taken up by the action of the lever B^1 , and the spring will not be stretched so much, but if the plate f is moved to the left practically all of the swing of the arm e will be against the action of the spring, and there will, in consequence, be a greater resistance to the pull of the thread. When the take-up lever B^1 , Fig. 1, is moved to the left the pull of the thread swings the auxiliary take-up e to the left, against the stress of the spring s , so that regulation of the latter imparts the requisite pull or drag to the thread.

It will be seen that the resistance of the take-up arm e is adjusted with absolute independence of the adjustment of the thread-tension wheel d^2 , and when the spring s breaks or weakens a new one can be quickly substituted without any disturbance of the other parts of the apparatus.

All adjustments can be made while the thread-controlling means is in operative position on the machine base, and all the parts are in plain sight and instantly accessible.

The thread t is led from the spool through a guide 6, Fig. 1, on the machine base, around a guide 7 on the base-plate C and between two tension members or disks h , h' , Fig. 2, rotatably mounted on a stud h^* on the base-plate and then to the wheel d^2 , a spring h^2 and nut h^3 serving to press the disks together with an adjustable pressure. These spring-pressed disks are not in themselves new, but I have mounted them on the base-plate C at one side of and adjacent the tension wheel d^2 to properly govern the

thread as it passes to the wheel and to make the thread-controlling means self-contained and removable as a unit from the sewing machine when necessary.

In Fig. 5 I have shown the retracting spring s' for the auxiliary take-up arm as inclosed in a tubular housing k slotted at k' to receive the screw k^2 by which it is adjustably attached to the base-plate C, the tail e^3 of the take-up arm projecting into the housing through a slot k^3 in its side. The spring s' is in this instance normally expanded, being compressed when the pull of the thread swings the take-up arm, and the tension of the spring is varied by the screw-stop k^4 which is adjustably held in the end of the housing, and by adjustment of the latter, by means of slot k' and screw k^2 the stopping of the take-up arm when retracted can be varied somewhat. The spring can be removed and a new one inserted by withdrawing the screw-stop k^4 from the housing k , as will be obvious.

By making the take-up arm e of plate metal I secure inherent rigidity and strength thereof, with the necessary freedom of vibrational movement, controlled by the adjustable retracting spring.

It will be observed that no tipping up of the machine base is necessary with my improved thread-controlling means; that all the parts thereof are accessible instantly and at all times, and that strength and durability of parts are secured, while the device in its entirety can be taken off and applied quickly and easily without the employment of skilled labor.

The adjustment of the spring controlling the auxiliary take-up can be effected while the sewing machine is in operation, if desired, and with great accuracy and nicety, so that the coöperation of the auxiliary take-up with other parts of the thread controlling means can be secured with great exactitude.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. Thread-controlling means for sewing machines, comprising a detachable base-plate, a fixed post thereon having a rigidly attached disk near the base-plate, a spring-controlled thread-tension wheel rotatably mounted on the post above and supported by the disk, an inherently rigid auxiliary take-up arm fulcrumed on the post between the disk and the base-plate and having a guide-eye for the thread, upturned adjacent the periphery of the wheel, a spring adjustably mounted on the base-plate and acting upon the take-up arm to vary the resistance thereof to the pull of the thread, and opposed spring-pressed tension disks rotatably mounted on the base-plate near the tension wheel.

2. Thread-controlling means for sewing machines, comprising a detachable base-plate, spring-pressed tension members and a spring-controlled thread-tension wheel, rotatably mounted side by side on the base-plate, an inherently rigid take-up arm fulcrumed coaxially with the wheel between it and the base plate and provided with a guide-eye for the thread, and with an oppositely extended tail, a tubular, longitudinally slotted housing on the base-plate, the tail of the take-up arm entering the slot in the housing, and a manually adjustable retracting spring within the housing and co-operating directly with the tail of said take-up arm. 15

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

JOHN MAITLAND.

Witnesses:

THOMAS J. CARTY,

WILLIAM J. McLAUGHLIN.