

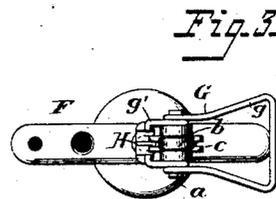
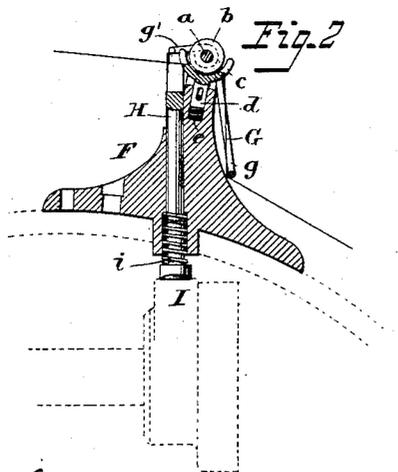
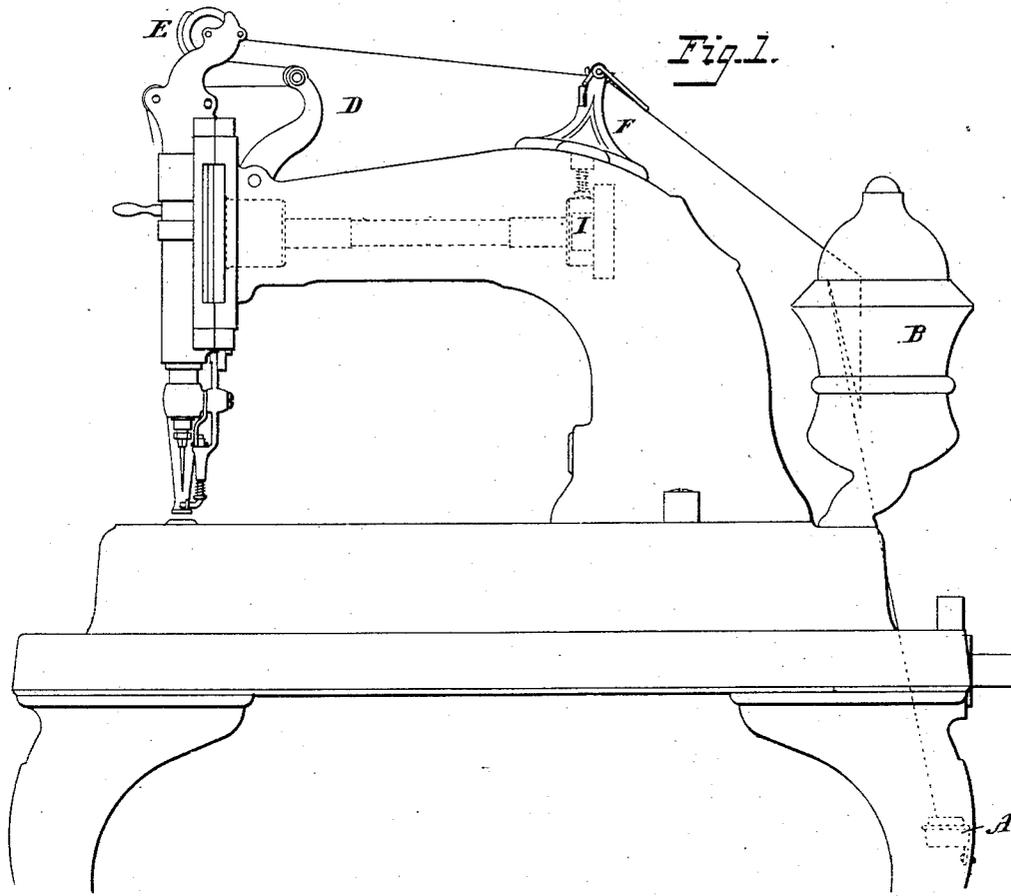
(No Model.)

S. W. WARDWELL, Jr.

THREAD REGULATING DEVICE FOR SEWING MACHINES.

No. 310,482.

Patented Jan. 6, 1885.



Attest:
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UNITED STATES PATENT OFFICE.

SIMON W. WARDWELL, JR., OF WOONSOCKET, RHODE ISLAND.

THREAD - REGULATING DEVICE FOR SEWING - MACHINES.

SPECIFICATION forming part of Letters Patent No. 310,482, dated January 6, 1885.

Application filed January 22, 1883. (No model.)

To all whom it may concern:

Be it known that I, SIMON W. WARDWELL, Jr., of Woonsocket, Providence county, Rhode Island, have invented certain Improvements in Thread - Regulating Devices for Sewing-Machines, of which the following is a specification.

My invention has for its object to secure uniformity in stitching with sewing-machines, especially with those using waxed thread. Heretofore when the thread has been drawn from the ball for a new stitch in many wax-thread sewing-machines the resistance has been variable, owing to inequalities in the winding of the ball, to changes of position of the latter, its gradual decrease in size and weight, &c., and these variations of resistance, being multiplied many times by the deflections of the thread between the ball and the needle, result in variations in the stretch of the thread and in want of uniformity in the work. To avoid such results I provide means whereby to relieve the thread feeding or drawing appliance, whatever it may be, from the necessity of overcoming the resistance of the stripper and other frictional devices, so that the resistance is always uniform, and work of uniform character is produced even by unskilled and otherwise inefficient workmen.

The improvement may be applied to different machines having gripping devices for holding the thread immovably while the take-up tightens the stitch.

I have illustrated it in Figure 1 of the drawings in connection with a "Wardwell" wax-thread machine, described by my Patent No. 218,464. In Figs. 2 and 3, I show the device detached in sectional and top views, respectively.

In the said machine the thread is carried from the ball in a pocket, A, through the wax-pot B and stripper therein, over friction-rollers, to the take-up D through the gripper E, which holds the thread immovably while the stitch is being drawn into the fabric by the take-up, thus preventing it from moving either backward or forward. The loop is formed by drawing the thread through the needle and spreading it below the work-plate for the passage of the shuttle. Between the stripper and

the take-up I arrange the equalizing device. This consists, as shown, of a bracket, F, with a transverse pin, *a*, on which turns a friction-roller, *b*, and against the latter bears a shoe, *c*, secured to a rod, *d*, extending into a recess in the bracket, and pressed with a uniform pressure toward the roller by a spring, *e*. The thread passes between the shoe and roller, whereby a uniform strain is imparted. Upon the pin *a* is hung a lever, G, the long arm *g* of which bears on the thread, and the short arm *g'* is above a rod, H, passing through the bracket, and having a head at the lower end, which is maintained in contact with a cam, I, (shown in dotted lines,) upon the upper needle-bar-operating shaft of the machine by a spring, *i*. The lever G is light in weight and hung loosely, so that it will not affect the movements of the thread, except as hereinafter specified, and upon any tension drawing the thread taut the lever will assume the position shown in Fig. 1. The parts are so timed that when the thread is firmly gripped by the gripper E the rod H will be elevated, and by contact with the short arm *g'* of the lever will throw the long arm downward to the position shown in Fig. 2, thus bending the thread, so as to cause a quantity to be drawn from the ball through the intermediate appliances. The rod H then descends and leaves the lever loose, so that on the next action of the thread-feeding devices there will be only slack thread between the drag *b c* and the ball, and there is then no resistance at this time to the forward movement of the thread. As the friction on the thread between the drag and the needle is but slight and always uniform, I thus avoid the inequalities in action, resulting often in a variation in the stretch of the thread of from one-tenth to three-tenths of an inch, and am enabled to secure work of an almost absolutely uniform quality with the labor of comparatively unskilled workmen.

It will be obvious that other means than those described may be employed for moving the lever G, and that other devices than the lever may be used for dragging the thread from the ball while it is being gripped. Thus an arm moving vertically may be substituted for a hinged arm; or an arm moving horizon-

tally and having a catch seizing the thread so as to drag it forward on the forward movement of the arm may be used.

I am aware that a positively-operated clamp has been arranged between the spool and the needle, together with means for drawing the thread from the spool; but in such case the gripper is not positive, and does not hold the thread immovably, as in my device.

10 I claim—

1. The combination, in a wax-thread sewing-machine having a reciprocating needle, a wax-pot, and a take-up device, of a positive gripper holding the thread immovably during the action of the take-up, and a movable arm interposed between the gripper and the wax-pot, and constructed to draw a definite portion of the thread from the pot during the time it is held by the gripper, and to then release the thread and permit it to pass freely to the needle, substantially as and for the purpose set forth.

2. The combination, with a wax-thread sewing-machine having a reciprocating needle, a

wax-pot, and a take-up device, of a positive gripper holding the thread immovably during the action of the take-up, and mechanism arranged and operated between the gripper and wax-pot, whereby a definite portion of thread is drawn from the wax-pot while it is held by the gripper, substantially as specified. 25 30

3. An attachment consisting of the bracket F, lever G, and sliding rod H, adapted to be detachably secured to a sewing-machine, substantially as set forth. 35

4. The combination, with the lever G and appliances for vibrating the same, of a wheel, b, shoe c, and spring, whereby said shoe is pressed with a uniform pressure against the wheel, substantially as set forth. 40

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

SIMON W. WARDWELL, JR.

Witnesses:

JEFFERSON ALDRICH,
G. E. BISHOP.