

May 3, 1932.

W. MYERS

1,856,882

SEWING MACHINE THREAD LUBRICATING DEVICE

Filed May 5, 1930

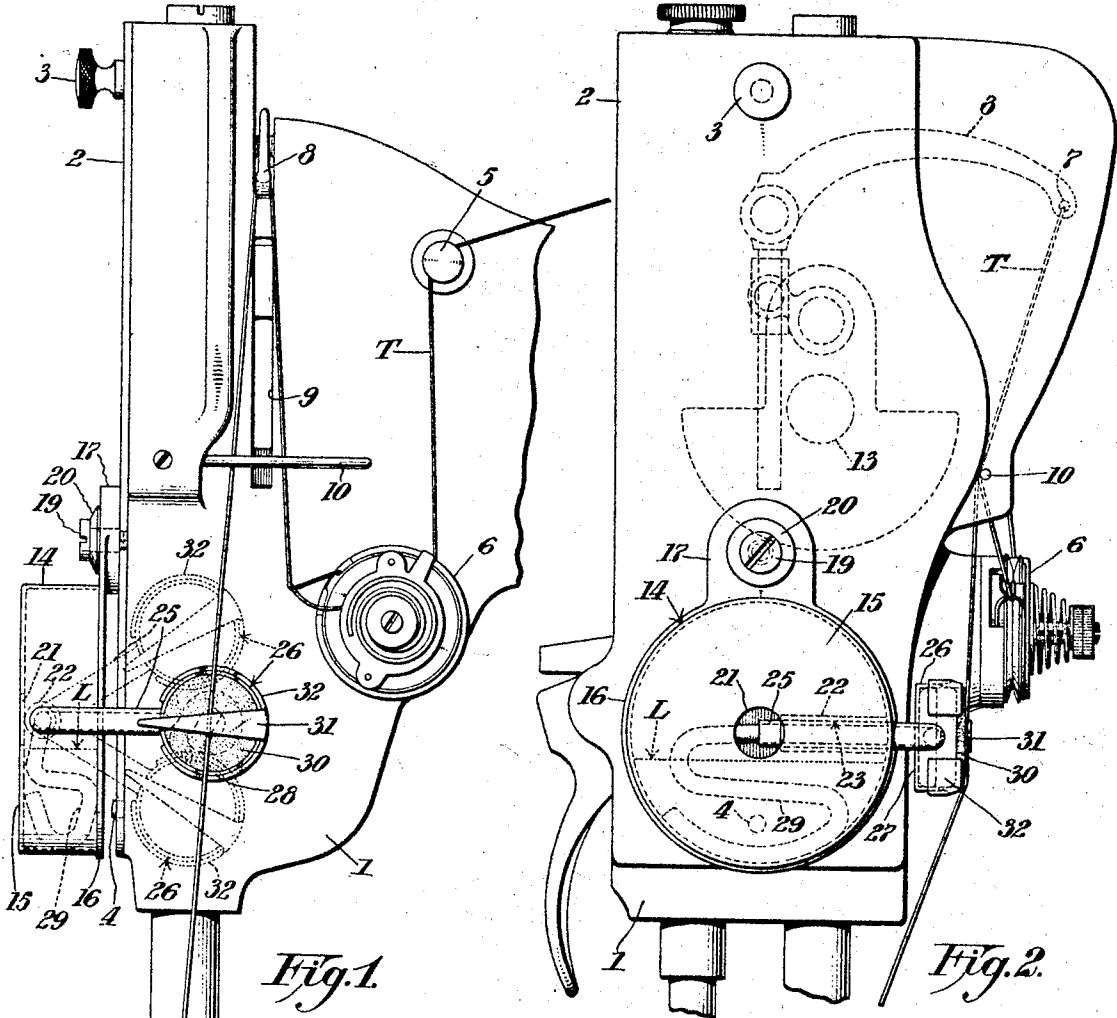


Fig. 1.

Fig. 2.

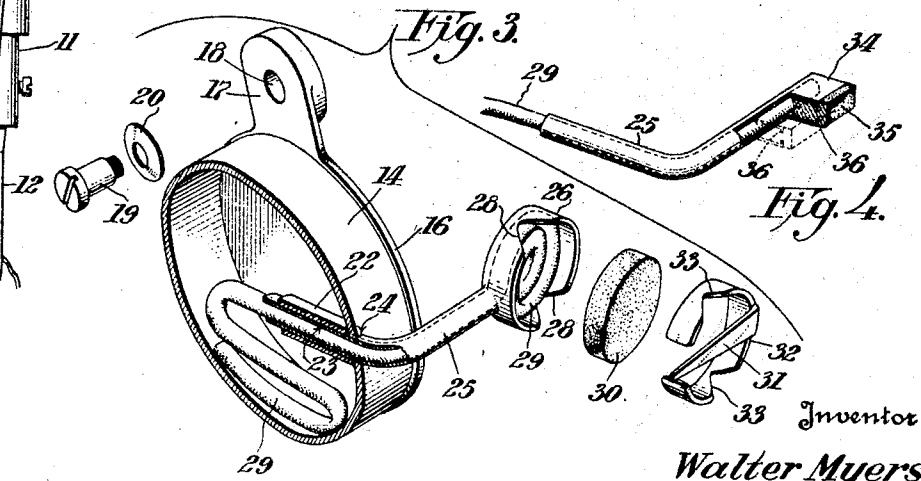


Fig. 3.

Fig. 4.

Inventor
Walter Myers

Witness:
Godfrey Peeling

By Henry J. Miller

Attorney

UNITED STATES PATENT OFFICE

WALTER MYERS, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, OF ELIZABETH, NEW JERSEY, A CORPORATION OF NEW JERSEY

SEWING MACHINE THREAD LUBRICATING DEVICE

Application filed May 5, 1930. Serial No. 449,723.

This invention relates to improvements in thread lubricating and moistening devices for sewing machines and has its primary object to provide means for properly controlling the quantity of lubricant applied to the sewing threads.

A further object of this invention is to provide a sewing machine thread-lubricating device associated with a lubricant-supply reservoir which is so designed as to obviate spilling of the lubricant supply in various tilted positions of the reservoir.

The foregoing and other objects and advantages in view, together with means whereby the same may be carried into effect, will best be understood from the following description of a preferred embodiment thereof illustrated in the accompanying drawings, in which:

Fig. 1 is a view in side elevation of the free end portion of a sewing machine bracket-arm, with the present improved thread-lubricating means applied thereto. Fig. 2 is a front end elevation of the sewing machine bracket-arm. Fig. 3 represents in perspective view, partly in section, the component parts of the thread-lubricating device. Fig. 4 is a perspective view, partly in section, of a modified thread-lubricating pad-holder.

Referring to the drawings, a sewing machine in connection with which a preferred embodiment of the thread-lubricating device is illustrated, has the usual bracket-arm terminating in a head 1 closed at its free end by a face-plate 2. The face-plate 2 is usually applied to the bracket-arm head so as to be readily removable therefrom or capable of being swung sidewise for ready access to the mechanism within said bracket-arm head. A common form of face-plate securing means comprises a screw 3 passing through an aperture near the upper end of the face-plate and threaded into the bracket-arm head, the lower portion of the face-plate being apertured to receive a locating-pin 4 projecting from the bracket-arm head. By slightly loosening the screw 3, the face-plate may be withdrawn from the locating-pin 4 and swung about the screw 3, which may then be tightened to tem-

porarily retain the face-plate in its swung-out position.

In the present machine, the thread T is led from its supply through a suitable guide 5 to a combined tension and slack-thread controller device 6, disposed at the front side of the bracket-arm head 1. From the device 6, the thread is passed through a thread-eye 7 in a take-up arm 8 projecting forwardly through a slot 9 in the front side of the head 1. Leading from the take-up eye 7, the thread is passed under a guide-wire 10 upon the head 1 and through a guide-aperture in the needle-bar 11 to the needle 12 carried by said needle-bar. In the present machine, the take-up is constructed substantially in accordance with the disclosure in the U. S. patent to W. F. Dial et al., No. 695,915, Mar. 25, 1902, deriving its operative movements from the main-shaft 13 in the usual manner. It is to be understood, however, that the present invention is in nowise limited to any specific thread-guiding devices or take-up mechanism and that it may be employed in any connection where it may be desirable to lubricate or moisten thread.

The present improved thread-lubricating device, in its preferred embodiment, includes a lubricant-supply reservoir comprising a cylindrical casing 14, which is preferably integral with a front wall 15 and is soldered or otherwise suitably secured upon a base-wall 16, thereby forming a cylindrical receptacle having substantially parallel closure walls constituted by the flat walls 15 and 16. Projecting from the base-wall 16 is a bossed supporting-arm 17 provided with an aperture 18 in a direction substantially normal to the plane of the base-wall 16. Passed through said aperture 18 is a stud-screw 19 which is threaded into the face-plate 2 and constitutes a pivotal support upon which the reservoir may be swung in a plane parallel with the face-plate. Preferably a friction washer 20 is interposed between the head of the stud-screw 19 and the supporting-arm 17 to retain the reservoir in any position into which it may be swung. One of the objects of the pivotal support for the reservoir is to provide for access to certain types of face-plate

securing means which may be employed and another object is to provide for adjustment of the thread-lubricating means, as herein-after described. The front wall 15 of the reservoir is provided with a filling aperture 21 which is preferably disposed substantially centrally of said wall.

Projecting into the reservoir from the casing 14 and preferably radially from said casing at a point approximately 90° from the arm 17 is a supporting tube 22, which may be soldered or otherwise suitably secured upon the casing so that the tube aperture 23 constitutes a continuation of an aperture 24 provided in the casing. Frictionally disposed within the supporting tube 22 is a tubular arm 25 inserted into said tube 22 through the casing-aperture 24 so as to terminate within the reservoir substantially centrally of the circular casing, the aperture 21 in the front wall of the casing being larger than the diameter of the tubular arm 24 so that the free end of said arm is disposed above the lowest portion of said aperture 21 and therefore above any lubricant in the reservoir in any position into which the reservoir may be swung about its pivot-screw 19 or into which the face-plate 2 may be swung about the screw 3. This construction obviates inadvertent spilling of the lubricant supply through the tubular-arm 25 and, of course, also through the reservoir aperture 21 because of its central location in the front wall thereof whereby the upper level L (shown in dotted lines in Figs. 1 and 2) of the lubricant is necessarily always below the filling aperture 21.

Adjacent the reservoir, the tubular arm 25 is bent substantially at right angles to extend across the front of the bracket-arm head and terminates in a pad-holder. In one embodiment, said pad-holder has a cylindrical wall 26 constituting a flange projecting forwardly from a circular base 27, the wall 26 being provided with diametrically opposite thread-clearance notches, as 28. Coiled against the base of the pad-holder within the cylindrical wall 26 thereof is a lubricant-conducting wick 29 which extends through the tubular arm 25 and into the lubricant supply in the reservoir.

Placed in the pad-holder, in contact with the wick-coil, is a disk-pad 30 which may be of felt or other suitable absorbent material, said disk-pad being retained in its holder by a finger 31 extending across the open face of the disk-pad and carried by a split-ring 32 frictionally clamped upon the cylindrical wall 26 of the pad-holder. The split-ring 32 has thread-clearance notches, as 33, corresponding with the notches 28 in the pad-holder. The thread T leading from the take-up to the needle, may be passed laterally thereby held in contact with the disk-pad 30,

which by a process of absorption becomes partially saturated with lubricant conducted by the wick 29 from the supply within the reservoir. The degree of saturation of the disk-pad and therefore the quantity of lubricant supplied to the thread T may be adjustably determined by raising and lowering the pad-holder relatively to the upper level L of the lubricant in the reservoir so as to change the component of gravity in the capillary action arising in the conducting of the lubricant to the disk-pad. The adjustment may be obtained by swinging the pad-holder about its pivotal support afforded by the frictional engagement between the tube 22 and the tubular arm 25, Fig. 1 of the drawings illustrating in dotted lines two different positions into which the pad-holder may be swung. It will be noted that in one of its dotted line positions the pad-holder is entirely above and in the other entirely below the upper level of the lubricant supply. The degree of thread lubrication may also be varied by changing the pressure of the thread upon the disk-pad. This may be in part effected by the described swinging movements of the pad-holder whereby the angle of the thread is changed. It may also be accomplished by adjusting the finger-carrying ring 32 and, or the pad 30 widthwise of the pad-holder wall 26 and still further by repositioning the reservoir about its pivotal support. Consequently a rather delicate control of the quantity of lubricant supplied to the thread is available in the present construction and this feature is of considerable importance in the stitching of certain articles which are easily soiled by too free lubrication of the thread, but which nevertheless require lubricant adequate for successful stitching.

In the modification illustrated in Fig. 4 of the drawings, the tubular arm 25 terminates in a U-shaped holder 34 for a rectangular pad 35 held gripped between the spaced members of the holder by the inwardly directed, free ends, as 36, of said members. This type of pad-holder may be made very narrow to limit the length of thread in engagement with the pad carried by the holder.

In either of the forms of pad-holders herein described, the pad may be readily repositioned in its holder to present unworn portions thereof in the path of the thread, as will be self-evident. Likewise a wornout pad may be readily replaced by a new pad.

Having thus set forth the nature of the invention, what I claim herein is:—

1. A sewing machine thread-lubricating device, comprising a pad of absorbent material disposed in the path of the sewing thread, a pad-holding receptacle, supporting means for said receptacle, a thread-guiding finger extending crosswise of the thread-engaging face of said pad, and a carrier for said

finger removably supported by said receptacle.

2. A sewing machine thread-lubricating device, comprising a pad of absorbent material disposed in the path of the sewing thread, a cylindrical pad-holding receptacle, supporting means for said receptacle, a thread-guiding finger extending crosswise of the thread-engaging face of said pad, and a split-ring carrier for said finger detachably supported by said receptacle.

3. A sewing machine thread-lubricating device, comprising a lubricant reservoir, a tubular arm having its bore communicating with the interior of said reservoir, a lubricant-absorbent material carried by said arm in the path of the sewing thread, means for supporting said arm for adjustment of said absorbent material directionally in and crosswise of the path of the sewing thread, and means whereby lubricant may be conducted from said reservoir to said absorbent material.

4. A sewing machine thread-lubricating device, comprising a lubricant-absorbent material disposed in the path of the sewing thread, a lubricant-supply reservoir, a holder for said absorbent material pivotally supported by said reservoir, and means for pivotally supporting said reservoir for swinging movements about an axis substantially transverse to the pivotal-axis of said absorbent-material holder.

5. A thread-lubricating device for sewing machines comprising a lubricant-supply reservoir provided with an aperture in the side wall thereof, a tube projecting into said reservoir from a wall thereof to terminate above the lower portion of said wall-aperture, and means whereby lubricant may be conducted through the bore of said tube from a supply within the reservoir to the sewing thread of the machine.

6. A thread-lubricating device for sewing machines comprising a lubricant-supply reservoir provided with an aperture in the side wall thereof, a tube projecting into said reservoir from a wall thereof, a tubular-arm seated in said tube having an end thereof terminating above the lower portion of said wall-aperture, said tubular arm extending through the reservoir wall carrying said tube, and means whereby lubricant may be conducted through the bore of said tubular arm from a supply within the reservoir to the sewing thread of the machine.

7. A thread-lubricating device for sewing machines including a lubricant-supply reservoir having a cylindrical casing and substantially flat side walls, one of said side walls being provided substantially centrally thereof with an aperture, a tubular arm extending into the reservoir through the cylindrical casing thereof to terminate above the lower portion of said side-wall aperture, a thread-lubricating pad carried by said tubular arm

in the path of the sewing thread, and a wick extending from within the reservoir through the bore of said tubular arm to the thread-lubricating pad.

8. A thread-lubricating device for sewing machines comprising a lubricant-supply reservoir having a lubricant outlet, a pivotal support for said reservoir, the lubricant outlet of the reservoir being disposed constantly above the upper level of the largest possible lubricant supply within said reservoir in any position of the reservoir into which it may be swung about its pivotal support, and a wick passing through said reservoir outlet for conducting lubricant to the sewing thread of the sewing machine.

9. In a sewing machine having a frame including a bracket-arm, a face-plate detachably secured upon the free end of said arm, a needle-bar journaled for endwise reciprocation in said bracket-arm, means for directing a sewing thread to a needle carried by said needle-bar, a lubricant-supply reservoir pivotally supported by said face-plate having a lubricant outlet disposed constantly above the upper level of the largest possible lubricant supply within said reservoir in any position of the reservoir into which it may be swung about its pivotal support, an absorbent-material pad disposed in the path of the sewing thread supplied to the needle, and means whereby lubricant may be conducted through said reservoir outlet to said absorbent-material pad.

10. A thread-lubricating device for a sewing machine having a reciprocatory needle and guiding means for directing a thread to said needle, comprising a holder, an absorbent material carried by said holder in the path of the sewing thread leading to the needle, a lubricant reservoir, means for conducting lubricant from said reservoir to the absorbent material in said holder, and pivotal supporting means for the absorbent material holder providing for shifting said holder vertically above the lubricant supply in said reservoir and in the general direction of lead of the sewing thread to the needle, whereby the quantity of lubricant supplied to said absorbent material may be adjustably determined.

In testimony whereof, I have signed my name to this specification.

WALTER MYERS.