

A. EPPLER.
 THREAD WAXING DEVICE FOR SEWING MACHINES.
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1,015,304.

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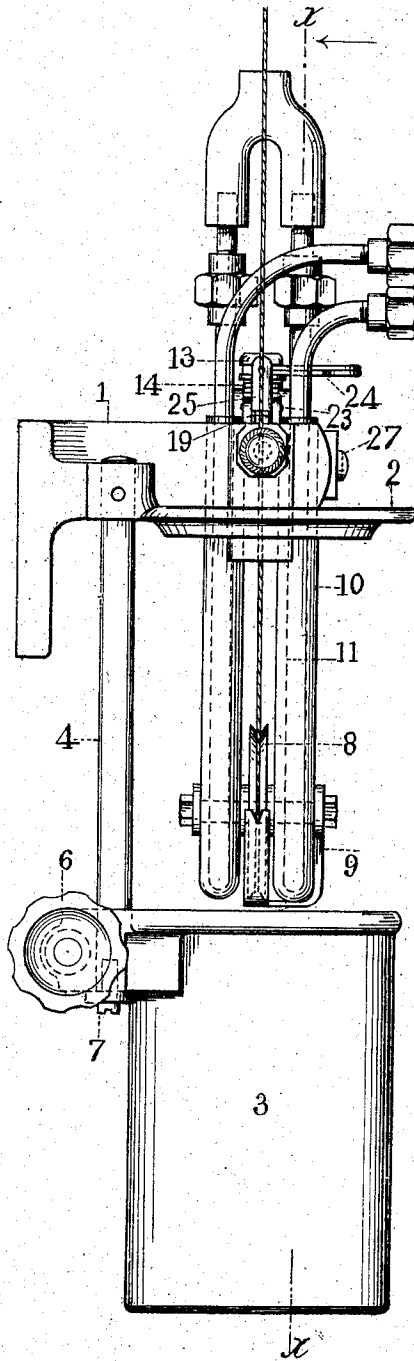


Fig. 1

Witnesses:
 Samuel F. Dorsey
 Alfred H. Hildreth

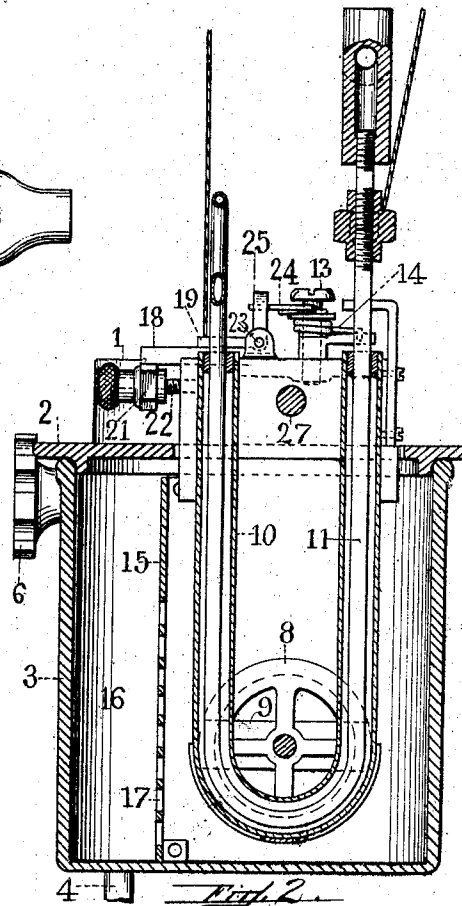


Fig. 2

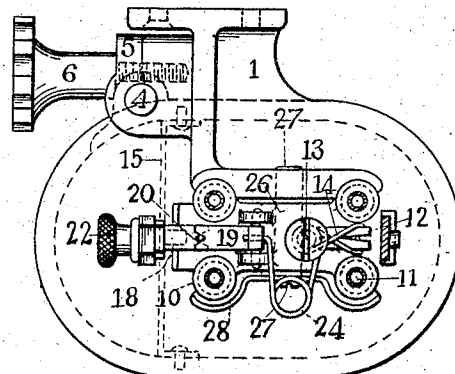


Fig. 3

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UNITED STATES PATENT OFFICE.

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THREAD-WAXING DEVICE FOR SEWING-MACHINES.

1,015,304.

Specification of Letters Patent.

Patented Jan. 23, 1912.

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To all whom it may concern:

Be it known that I, ANDREW EPPLER, 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 Thread-Waxing Devices for Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in thread-waxing devices for sewing machines.

In thread-waxing devices as commonly constructed a wax pot holding a supply of fluid wax is mounted in fixed position on the sewing machine and provided with means for heating it by steam or otherwise, and the thread to be waxed is conducted in a bight into and out of the wax about suitable guides, of which one is immersed in the wax. The thread, after passing through the wax, is drawn through a rubber stripper for removing the surplus wax, the stripper being usually compressed upon the thread by an adjusting nut. In a device of the kind described it is necessary, when threading the machine with a fresh thread, to remove the lower thread guide from the wax-pot in order to pass the thread around it, and the thread is passed through the stripper by means of a hooked wire thrust through the perforation of the rubber block.

One object of the present invention is to produce a thread-waxing device which may be threaded without these inconveniences the device being so arranged that it may be threaded without disturbing any of the thread guides, and without the use of any implement for threading the stripper.

Another object is to produce a wax pot having improved means for heating the wax by which the boiling of the wax, with the overflowing and deterioration resulting therefrom, is avoided without the necessity of watchfulness on the part of the operator.

A further object of the invention is to produce an improved stripper for thread-waxing devices, in which hardened steel or other durable material is substituted for rubber, with a consequent increase in durability, and which may be threaded more

conveniently than the ordinary form of stripper.

The invention consists in the improved thread-waxing device hereinafter described, as defined in the claims.

In the drawings Figure 1 is a side elevation of a thread-waxing device embodying the present invention with the wax pot in lowered position, Fig. 2 is a vertical section on the line $x-x$, Fig. 1, looking from right to left, showing the wax pot in raised position, and Fig. 3 is a plan view.

The illustrated embodiment of the invention is constructed as follows:—

The wax-pot, thread-guiding devices, and wax-heating devices are carried by a bracket or support 1 which is secured to the frame or column of the sewing machine on which the thread-waxing device is used. The support 1 is provided with a flat portion 2 which forms normally a cover for the wax pot. The wax pot 3 is mounted on a vertical rod 4 fixed to the support 1, the pot being provided with a split sleeve 5 and a hand screw 6 by means of which it may be secured in various vertical positions upon the rod 4. A washer 7 on the lower end of the rod 4 prevents the wax pot from becoming disengaged from the rod. The wax pot is normally in the position of Fig. 2 and the thread is guided about a pulley 8 which normally occupies a position within the wax pot so that the thread is drawn down into the wax and permeated thereby in the usual manner. The pulley 8 is journaled on a frame 9 fixed to two vertical U shaped tubes 10 fixed to the support 1, which serve not only to support the pulley 8 but act also as heating members to melt the wax in the wax pot and maintain it in liquid condition during the operation of the sewing machine. These tubes 10 form jackets for steam tubes 11 which pass through them, there being an air space between the steam tubes 11 and the jackets 10. The steam tubes 11 are preferably made of copper, while the jacket tubes 10 are made of iron. Since the conductivity of iron is less than that of copper the iron serves to diminish the danger of excessive heating of the wax, particularly at points where the tubes 11 may accidentally come in contact with the tubes 10. Before passing around the pulley 8 the thread is drawn

through the jaws 12 of a dry-thread tension device of ordinary form, the jaws 12 being pivoted upon a screw 13 and pressed together by a spring 14 so as to subject the thread to slight tension. After passing around the pulleys 8 and through the wax, the thread is drawn through a stripper by which the surplus wax is removed before the thread is delivered to the sewing machine.

- 10 In order to maintain the supply of wax in the wax pot during the long-continued operation of the sewing machine, it is necessary occasionally to insert pieces of cold wax in the wax pot. To prevent contact between
15 imperfectly melted wax and the thread, the wax pot is provided with a diaphragm 15 extending from top to bottom thereof. This affords a space 16 in which the cold wax may be placed, and the diaphragm 15 is
20 provided with perforations 17 through which the wax, when melted, may pass into the main portion of the wax pot.

- The stripper is of a novel form in which the thread, instead of passing through a
25 rubber block in the usual manner, is drawn between two opposite surfaces of hardened steel or other hard material. The stripper comprises two metal blocks 18 and 19 provided at their contiguous ends with notches
30 20 between which the thread passes. The notched ends of the blocks overlap as shown in Fig. 3 so that the contiguous extremities of the notches form between them an opening which is adjusted to a size sufficient to
35 permit the thread to pass, the surplus wax being scraped or pressed from the thread by the metal surfaces. In order that the opening in the stripper may be adjusted for varying conditions, the block 18 is ar-
40 ranged to slide longitudinally and is provided with a downwardly extending lug 21 engaged between collars on an adjusting screw 22 threaded into the support 1. By turning the adjusting screw 22 the block
45 18 may be adjusted longitudinally toward and from the block 19. To permit knots or enlargements in the thread to pass through the stripper the block 19 is pivotally mounted at 23 in ears on the support and is normally held down against the block 18 by
50 a spring 24 which engages at one end an upward extending arm 25 fixed to the block 19, the other end of the spring engaging the screw 13. When an enlargement of the
55 thread encounters the under side of the block 19 the block yields upwardly and permits the enlargement to pass, whereby breakage of the thread is avoided. The block 19 immediately afterward returns to its normal position.

- The support 1 is provided for convenience with a separable portion in the form of a block 26 secured to the body of the support by a screw 27. The stripper and the dry
65 thread tension are mounted on the block

26, and between the block and the body of the support one of the heating members is clamped, as shown in Fig. 3, the other heating member, being clamped against the block 26 by a clamp member 28 engaged by the screw 27.

The steam tubes 11 are connected with any suitable source of steam, preferably with the exhaust steam of the heating devices of the sewing machine. By the use
75 of the jackets 10 providing air spaces about the steam tubes, overheating of the wax is prevented, and this is a valuable feature since it obviates the possibility of the wax boiling over and becoming damaged by
80 overheating while dispensing with the watchfulness on the part of the operator necessary to prevent such an occurrence in the wax pot of ordinary form.

The provision for vertical adjustment of
85 the wax pot independently of the heating devices and thread pulley greatly facilitates the threading of the device, and enables the operator at any time to examine the condition of all parts of the mechanism by merely
90 loosening the hand screw 6 and lowering the wax pot, it being unnecessary to disconnect or disturb in any way the thread-guiding and controlling devices. This arrangement also facilitates the cleaning of the pot,
95 which is occasionally necessary, it being necessary merely to lower the pot and swing it to one side of the fixed parts of the device in order to permit convenient access to the interior of the wax pot, or the screw 7
100 may be removed and the pot removed entirely from the rod 4. Another advantage of the vertical adjustment of the wax pot resides in the fact that this adjustment may be used to control the heating of the wax.
105 By moving the wax pot up and down the extent to which the heating members are submerged in the wax may be varied and thus any desired temperature may be maintained in the wax.
110

An important feature of the arrangement of the heating members and the thread guides resides in the fact that the thread, as it is drawn through the wax, passes in close proximity to the heating devices, and
115 is, indeed, closely embraced thereby. When the steam is first turned on to commence the operation of the sewing machine the wax adjacent to and between the heating members is first melted, and as this is the portion of the wax in which the thread is immersed the operation of the machine may be begun almost immediately, without waiting for the whole body of wax in the pot to melt. The thread truck also, being in metallic
125 contact with the heating members, is quickly heated thereby.

The novel form of stripper facilitates
130 threading the device, since by lifting the block 19 the thread may be drawn sidewise

into the notches between the blocks, an operation much more convenient than that of passing it through the perforated rubber block in the usual form of stripper. The durability of this form of stripper is also much greater than that of a rubber stripper since it may be made of tool steel hardened outright, in which case it will operate for months without wear or the necessity for any adjustment except when different sizes of thread are used in the machine.

The invention is not limited to the details of construction and operation of the illustrated embodiment or to the conjoint use of all of its features, but may be embodied in other forms broadly defined in the claims.

Having now described the invention, what is claimed is:—

1. A thread-waxing device having, in combination, a support, thread guides mounted thereon, and a wax receptacle movably mounted on the support so as to be movable into or out of a position in which the thread is immersed in the wax, substantially as described.

2. A thread-waxing device, having, in combination, a support, a thread guide mounted thereon and acting to hold a bight of thread, and a wax receptacle adjustably mounted on the support, the wax receptacle normally inclosing the thread guide but being movable downward to expose the thread guide, substantially as described.

3. A thread-waxing device having, in combination, a wax receptacle, a heating member partially immersed in the wax receptacle, and means for supporting these parts having provision for relative adjustment of the parts to vary the extent to which the heating member is immersed, substantially as described.

4. A thread-waxing device having, in combination, a wax receptacle, a heating member located in the wax receptacle, and an air jacket inclosing the heating member and preventing contact of the wax therewith, substantially as described.

5. A thread-waxing device having, in combination, a wax receptacle, a steam pipe therein, and a tube loosely surrounding the steam pipe to prevent contact of the wax therewith, substantially as described.

6. A thread-waxing device having, in combination, a wax receptacle, two parallel U shaped heating tubes extending down into the wax receptacle, a thread truck located between the lower portions of the tubes, and means for supporting the wax receptacle and the tubes, substantially as described.

7. A thread-waxing device having, in combination, a wax receptacle, means for guiding the thread thereinto, and a stripper comprising two metal blocks relatively adjustable transversely to the lead of the thread having oppositely disposed notches

forming between them an opening for the passage of the thread, one of said blocks being mounted to yield in the direction of the lead of the thread, substantially as described.

8. A thread-waxing device having, in combination, a wax receptacle, means for guiding the thread thereinto, and a stripper comprising two metal blocks relatively adjustable transversely to the lead of the thread having contacting surfaces and oppositely disposed notches normal to said surfaces the adjacent extremities of the notches forming between them an adjustable opening for the thread, one of said blocks being mounted to yield in the direction of the lead of the thread, substantially as described.

9. A thread waxing device, having, in combination, a wax receptacle, means for guiding the thread thereinto, a stripper comprising two metal blocks having oppositely disposed notches forming between them an opening for the passage of the thread, means for adjusting one of said blocks toward and from the other and means for supporting the other block while permitting it to yield in the direction of the lead of the thread.

10. A thread-waxing device having, in combination, a support, a heating member mounted in fixed position on the support, and a wax pot normally inclosing a portion of the heating member but adjustable toward and from the same, substantially as described.

11. A thread waxing device, having, in combination, a wax receptacle, means for guiding the thread through the wax and means for heating the wax in proximity to the thread while maintaining the walls of the receptacle relatively cool comprising a heating member extending into the wax receptacle in proximity to and parallel with the thread, substantially as described.

12. A thread waxing device, having, in combination, a wax receptacle, means for heating the wax in proximity to the thread while maintaining the walls of the receptacle relatively cool comprising a heating member extending downwardly into and surrounded by the wax in the receptacle and devices for guiding the thread through the wax in close proximity to the surface of said heating member and parallel thereto, substantially as described.

13. A thread waxing device, having, in combination, a wax receptacle, means for heating the wax in proximity to the thread while maintaining the walls of the receptacle relatively cool comprising a heating member extending into the wax in the receptacle and surrounded thereby, and means for guiding the thread through the wax in close proximity to the surface of said heat-

ing member and parallel thereto, substantially as described.

14. A thread-waxing device having, in combination, a wax pot, a copper heating tube therein, and a jacket of less conductivity than the copper tube forming an air space about the latter, substantially as described.

15. A thread-waxing device having, in combination, a wax pot, an iron tube therein and a copper steam tube passing loosely through the iron tube, substantially as described.

16. A thread waxing device, having, in combination, a wax receptacle, a U-shaped heating tube containing a heating fluid extending down into the wax in the receptacle, and a thread guide located at the lower portion of the tube to guide the thread in proximity to the tube and parallel therewith, substantially as described.

17. A thread waxing device, having, in combination, a wax pot, a cover therefor, means for heating the wax in proximity to the thread while maintaining the walls of the pot relatively cool comprising a heating member extending downwardly from the cover of the pot into and surrounded by the wax in the pot, and devices for guiding the thread through the wax in proximity to the surface of the heating member and parallel thereto, substantially as described.

18. A thread waxing device, having, in combination, a wax pot, means for heating the wax in proximity to the thread while maintaining the walls of the receptacle relatively cool comprising two vertical heating members located in close proximity in the

wax pot, and means for guiding the thread vertically between the heating members, substantially as described.

19. A thread waxing device, having, in combination, a wax receptacle, means for guiding the thread thereinto, a stripper comprising two overlapping metal blocks relatively adjustable transversely to the lead of the thread and having oppositely disposed notches forming between them an opening for the passage of the thread, means for pivotally supporting one of said blocks, and a spring acting on said block to permit it to yield in the direction of the lead of the thread when engaged by a knot or other irregularity in the thread, substantially as described.

20. A thread waxing device, having, in combination, a wax receptacle, means for guiding the thread thereinto, a stripper comprising two overlapping metal blocks having oppositely disposed notches forming between them an opening for the passage of the thread, means for adjusting one of said blocks toward and from the other, a pivotal support for the other block, and a spring acting on said last mentioned block to permit it to yield in the direction of the lead of the thread when engaged by a knot or other irregularity in the thread, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses.

ANDREW EPPLER.

Witnesses:

FARNUM F. DORSEY,

FRED O. FISH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."