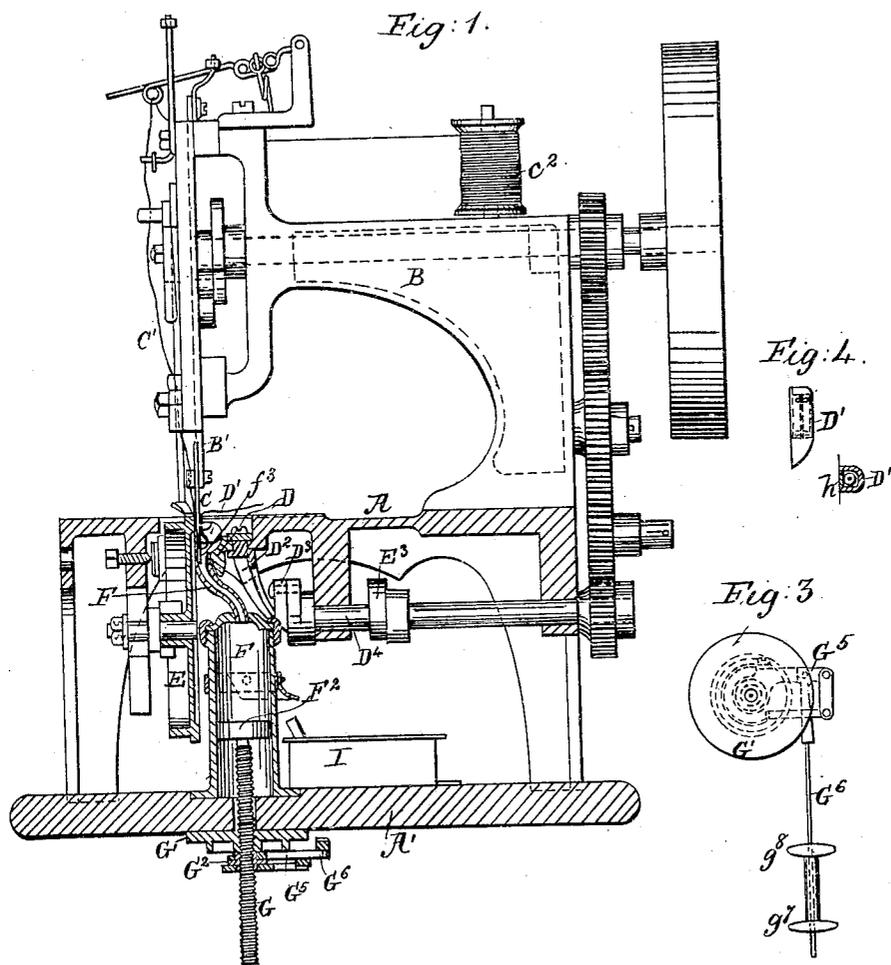


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Thread Waxing Attachment for Sewing Machines.

No. 50,917.

Patented Nov. 14, 1865.



Witnesses.
 H. S. Forbush
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Inventors
 Jos. S. Dawley
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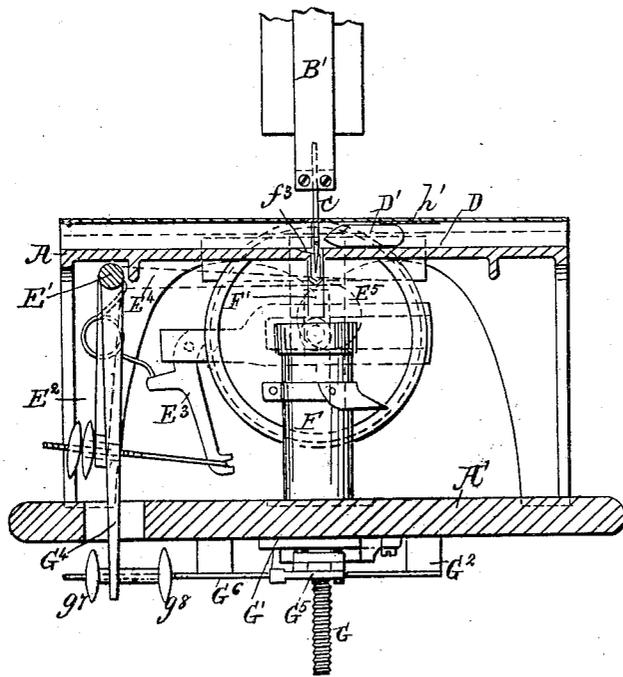
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Fig. 2.



Witnesses.
 Chas. L. Lusk
 H. Langworthy

Inventors:
 Jos. S. Dawley
 John Blocher

UNITED STATES PATENT OFFICE.

JOB S. DAWLEY AND JOHN BLOEHER, OF BUFFALO, NEW YORK.

IMPROVEMENT IN THREAD-WAXING ATTACHMENTS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **50,917**, dated November 14, 1865.

To all whom it may concern:

Be it known that we, JOB S. DAWLEY and JOHN BLOEHER, of the city of Buffalo, county of Erie, and State of New York, have invented a certain new and Improved Thread-Waxing Attachment for Sewing-Machines; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure I is a sectional side elevation of our improved device as applied to and combined with a sewing-machine. Fig. II is a cross-sectional elevation of the same. Fig. III is a plan of wax-feeding mechanism, and Fig. IV is a plan and cross-section of closed shuttle.

This invention is designed for and particularly applicable to double-thread sewing-machines; and it consists, first, in maintaining (by a proper feeding device) a supply of wax, in a liquid or semi-liquid state at or near the needle-throat, into which the upper or needle thread will be carried at each descent of the needle, in a manner to wax the same after it has passed through the fabric being sewed, thereby overcoming all difficulties in regulating the tension which exists where the thread is waxed before passing through the fabric, as has heretofore been the case in thread-waxing devices; second, in feeding the wax from the wax-holding cylinder or reservoir to the required point, as above stated, by providing said cylinder with a movable bottom or piston, the movement of which expels the wax from the cylinder through a conducting tube or nozzle to said point; third, in making said movement of the piston automatic by the connection thereof with some moving part of the sewing-machine; fourth, in forming a wax-receptacle in the shuttle-race at or near the needle-throat, which receptacle is kept filled by the feeding mechanism; fifth, in making the shuttle with a sliding door or other suitable device by which the shuttle-thread may be inclosed therein and the wax prevented from entering therein as the shuttle traverses back and forth over said wax-receptacle, the shuttle-thread being waxed from the upper thread outside of its tension device as it passes over the heel of the shuttle.

The drawings represent our invention as applied to and combined with a "Singer" sew-

ing-machine, the construction and operation of which is so well known as to require only a general explanation, said construction and operation not being changed in the least by the addition of our waxing device.

Letters of like name and kind refer to like parts in each of the figures.

A represents the bed-plate of the machine, and A' the top of the table upon which it rests.

B represents the needle-arm; B', the needle-bar; C, the needle; and C' its thread, passing from the spool c^2 through the usual tension devices and guides to the needle.

D represents the shuttle-race; D', the shuttle; D², the shuttle-driver; D³, shuttle-driver crank; D⁴, shuttle-driving and feed eccentric-shaft.

E represents the feed-wheel; E', rock-shaft; E², rock-shaft arm, connecting with and operating friction-feed lever E³. The rock-shaft receives its motion by an arm, E⁴, from the eccentric E⁵ on shaft D⁴.

These parts are all arranged and operate in the same manner as is common to this class of machines.

F represents a wax-holding cylinder or reservoir secured to the table-top A', with its axis vertical, and located below the shuttle-race, and as nearly in line as may be convenient or practicable with the needle-throat, so that a connection from its top may be easily formed with the needle-throat by a tube or nozzle, F'. This cylinder has a movable bottom or piston, F², fitted therein, an upward movement of which will expel the wax therefrom through the tube or nozzle into the needle-throat. The bottom of the shuttle-race is also hollowed or concaved at or near the needle-throat, to form a receptacle, f^3 , for the wax which is fed up from the cylinder. The piston-rod G extends downward through the bottom of the cylinder and through the table-top A' and through a feed-nut, G'. It has a screw-thread cut thereon, which fits a corresponding thread in the feeding-nut. This nut is supported between the bottom of the table A' and a bridge-piece, G², so that it can neither move up or down, and the piston is prevented from turning by a longitudinal feather, g^3 , on the inside of the cylinder, so that a revolution of the nut causes a vertical movement of the piston in the cylin-

der. The movement of this nut is produced from that of the rock-shaft *E'*, which gives movement to the feed-wheel *E*, which feeds the fabric by the extension therefrom of an arm, *G⁴*, which is connected with the friction feed-pawl *G⁵* by the rod *G⁶*, so that the vibration of said arm gives an intermittent rotary motion to the nut and causes the slow and gradual raising of the piston to maintain a proper supply of wax in the receptacle at the needle-throat. The extent of each movement of the nut and piston may be regulated as required, to produce this result, by turning the thumb-wheels *g⁷* and *g⁸* on the rod *G⁶*, so as to allow more or less lost motion. The descent of the needle through the fabric being sewed carries with it the needle-thread, and dips the loop thereof into the wax contained in the receptacle *f³*, which, being in a liquid state, saturates the thread, or so much thereof as is required for that stitch.

Heretofore, so far as our knowledge goes, the needle-thread has been waxed only before passing through the fabric, thereby creating great difficulties in the proper adjustment of the tension. By our invention no wax is applied to the thread until after it has passed all the tension devices and through the fabric, thereby overcoming the difficulties of adjustment and rendering the machine capable of working more easily than is usual in waxed-thread machines.

To extend the application of our invention to the waxing of the lower or shuttle thread, we make the shuttle *D'* with a sliding or hinged door, *h*, so that the bobbin containing said thread may be inclosed within the shuttle in a manner to prevent the wax entering therein as the shuttle traverses back and forth over the wax-receptacle *f³* and prevent the contact of the thread with the wax until after it leaves the shuttle and its tension devices. In this connection we propose to place the shuttle-thread-tension devices within the shuttle, so that there need be only one opening into the shuttle for the thread to pass through. As the shuttle is thrown through the loop of the upper thread the drawing up of said loop just before dipped in the liquid wax will carry with it by adhesion such a quantity of the wax as will, when the loop draws over the heel of the shuttle and comes in contact with the shuttle-thread, be sufficient to thoroughly saturate and wax the same.

To prevent the deposit of wax on the heel of the shuttle, which might cause the loop to stick thereon as it draws over, the heel of the

shuttle is cleaned as it approaches the end of its backward movement by coming in contact with a piece of felt or other suitable material attached to the race-cover, as shown at *h'*, said felt being kept saturated with benzine.

To keep the bottom and the face side of the shuttle clean, a recess may be made in the race and a sponge inserted therein, which, being saturated with benzine or other suitable substance, will have the desired effect. Properly-prepared liquid wax will retain its liquid state when not exposed to the atmosphere. The wax in the cylinder, being exposed only at the nozzle thereof, which is quite small, will generally retain its liquid form until used up. In case it should solidify, the application of heat to the cylinder from a lamp, *I*, will return it to its liquid state.

Our invention is evidently applicable to any sewing-machine (either single or double thread) the construction of which will permit the location of a wax-receptacle at or near the needle-throat. It is especially applicable to double-thread shuttle-machines, and is believed to be the only one in which the waxing of the shuttle-thread has been successfully effected. It further possesses the advantages of simplicity of construction and operation and durability, and makes the sewing-machine to which it is applied capable of an extended and heretofore impracticable use.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. Maintaining (by a proper feeding device) a supply of wax in a liquid or semi-liquid state at or near the needle-throat, for the purpose and substantially as herein described.
2. The combination, with the wax-holding cylinder or reservoir, of a movable piston or bottom, for the purpose and substantially as herein described.
3. The combination, with the cylinder and piston, of automatic wax-feeding mechanism, operating in the manner and for the purpose described.
4. The wax-receptacle *f³*, formed at or near the needle-throat, for the purpose set forth.
5. The wax-receptacle *f³*, in combination with the closed shuttle *D'*, for the purposes and substantially as described.

JOHN S. DAWLEY.
JOHN BLOEHER.

Witnesses:

W. H. FORBUSH,
F. A. LANGWORTHY.