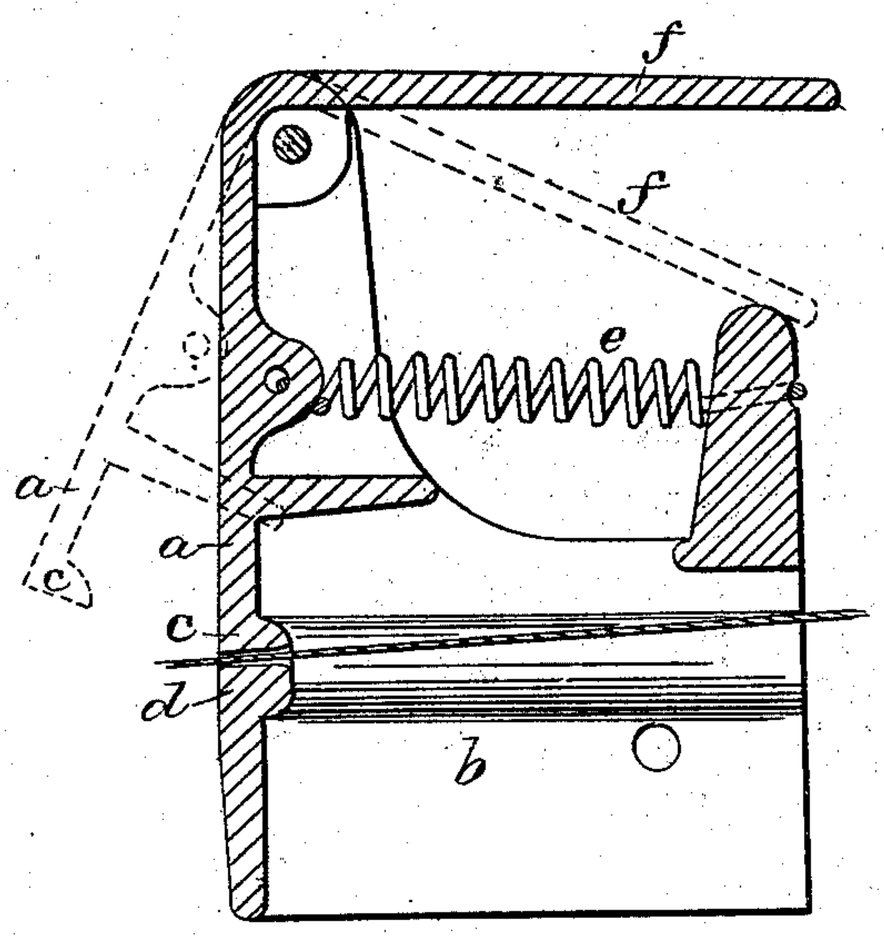
McKAY & BLAKE.

Thread Waxer for Sewing Machines.

No. 43,077. Patented June 7, 1864.



Witnesses.
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UNITED STATES PATENT OFFICE.

GORDON McKAY, OF BOSTON, AND LYMAN R. BLAKE, OF QUINCY, ASSIGNORS TO GORDON McKAY, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN THREAD-WAXERS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **43,077**, dated June 7, 1864.

To all whom it may concern:

Be it known that we, GORDON McKAY, of Boston, in the county of Suffolk and State of Massachusetts, and LYMAN R. BLAKE, of Quincy, in the county of Norfolk and State aforesaid, have invented certain Improvements in Devices for Stripping Superfluous Wax from Thread; and we do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of our invention sufficient to enable those skilled in the art to practice it.

In the preparation of thread for use by those sewing-machines known as "waxed-thread machines," which employ a crochet-needle, the general waxing of the thread is imperfect, as is well known, caused by imperfection of the device used in waxing, termed the "stripper," which prior to our invention has been made of material which is quite compressible and soft, being generally rubber, leather, or cloth. Such strippers have been made by perforating the compressible material with a hole for the passage of the thread; or a slit has been cut in the material, through which the thread has been made to pass, and this slit formation has been most used, because more easily threaded than the hole through the material. The compressible material has also been put in the shape of a tube, through which the thread has been drawn, and this and the forms before mentioned have had appliances connected therewith by which the material of the stripper has been compressed upon the thread as the stripping material wore away by the friction consequent upon the passage of the thread and wax. With these strippers knots and enlargements of the thread were drawn through the thread-passage therein by compressing the material of the stripper, and in their movement wearing away and enlarging the passage. When the material was too tightly compressed upon the thread it for a time removed too much wax therefrom. Wearing away of the material of the stripper enlarged the hole. Then for a short time it allowed the proper amount of wax to pass the stripper and to remain upon the thread; but the continued passage of the thread soon increased the aperture in the stripper, so that too much wax remained upon the thread, and as the aperture generally wore oblong more wax was left on one surface or side of the thread than on the other. As the uniformly-good performance of waxed-thread sewing-machines cannot be obtained without uniformity in the waxing of the thread used, and as the quality of the sewing accomplished depends upon there being a sufficiency of wax left upon the thread, the utility of a device which, while made of a material not practicably compressible, not soft and subject to wear, like substances before named, and which will at the same time admit the passage of knots and enlargements in the thread, becomes apparent. We have found by experiment that thread can only be perfectly waxed by drawing it through a round hole or tube of a size suited or gaged to the diameter of the thread, and made in hard incompressible material—such as steel or iron, for example; but enlargements and knots in the thread cannot be drawn through a hole in such material when the hole is of a size suited to leaving only the proper quantity of wax on the thread. Therefore we have devised a stripper made of hard incompressible material, so that enlargements can pass the stripper without breaking the thread in which they exist. In the old strippers the boundary of the thread-passage remained unbroken during the passage of an enlargement in the thread, but was stretched. In our stripper the boundary of the thread-passage separates into parts, the position of which, or of some of which, is changed, but not their form or size.

Our invention consists in so constructing a stripper made of hard incompressible material as to permit the separation into parts of the boundary of the stripping hole or tube, while at the same time the normal diameter of the said hole or tube cannot be lessened by pressing the parts which form its boundary in upon or toward the center of the hole; also, in so constructing such a stripper that it shall automatically permit passage of enlargements in the thread; also, in such a construction of such a stripper as will cause its parts to automatically assume their normal position after passage of an enlargement in the thread.

The drawing illustrates in longitudinal vertical section a metallic device embodying our invention.

An arm, *a*, is pivoted to a frame, *b*, which frame or bed may be of any convenient size or

form. The arrangement of *a* and *b* with reference to each other is such that there are faces of each, *c* and *d*, which come into contact with each other, and *c* is maintained in contact with *d* by the pull of spring *e*. In the joint formed by contact of the faces *c* and *d* are made one or more holes, half of each being formed in the material of *a* and of *b*, said holes being of any size suitable to the size of the thread to be waxed, and being made in the general direction in which the thread is drawn through the instrument. The drawing shows the arm *a* in black lines in its normal position, in which it operates while stripping the superfluous wax from the thread, and the red lines show the position which the arm *a* assumes when a knot or other enlargement of the thread is drawn up to, through, and past the stripper, thus allowing the knots to pass freely through the device without attention on the part of the operator, while the arm *a* will return automatically to its normal position and to its stripping function as soon as the enlargement has fairly passed beyond the device. A handle, *f*, which forms part of *a*, affords a convenient means for lifting *a* by hand to the position shown in red lines whenever it becomes necessary to introduce the end of a thread between the faces *c* and *d*. The strength of the spring *e* must be sufficient to keep the arm *a* from swinging outward under the passage of thread of uniform size, but must not be so stiff as to cause the thread to break before allowing the arm *a* to yield to pass a knot or other enlargement.

Various modifications of the device described may be made without departure from our invention. For instance, the device shown in the drawing might be reversed so that it would not operate automatically. It could, however, be operated by the attendant, who would depress the lever *f* upon the appearance of an enlargement, and then when this had been drawn through or past the stripper the operator would release the lever and allow it to close; or a plug of cylindrical or conical form might be made to fill a cylindrical or conical hole, the plug being secured to the piece in which the hole is formed by a flat spring, which would serve to keep the plug in its normal position in the hole and as an arm for it to swing outward upon. A suitable groove or grooves for the thread could be made in the joint between the plug and its container, half of the groove in each. It will be obvious that the operation of this device, in automatic action, in passing obstructions through or past it, and in returning to its normal condition in the act of stripping the wax from the thread would be precisely similar to that of the construction shown in the drawing, which is the form we prefer.

We claim—

A device for stripping superfluous wax from thread and for other analogous uses, when arranged to operate substantially as described.

Executed by us this 26th day of January, A. D. 1864.

GORDON McKAY.
LYMAN R. BLAKE.

In presence of—
J. B. CROSBY,
F. GOULD.