(No Model.)

M. V. PALMER.

SEWING MACHINE COP.

No. 360,108. Patented Mar. 29, 1887.

Fig. 1

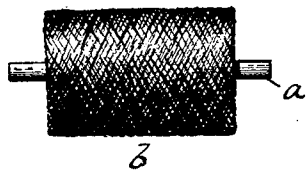


Fig. 2

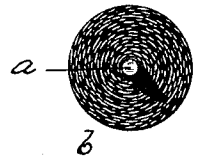


Fig. 3

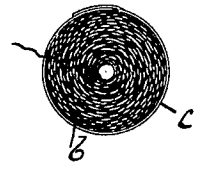


Fig. 4

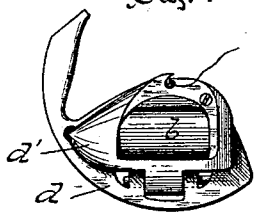


Fig. 5

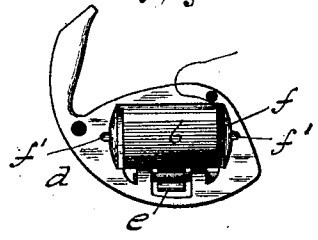
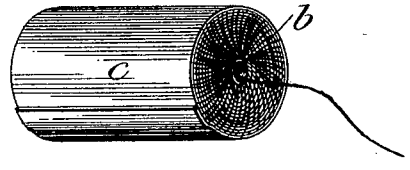


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

MARO V. PALMER, OF WILLIMANTIC, ASSIGNOR TO THE WILLIMANTIC LINEN COMPANY, OF HARTFORD, CONNECTICUT.

SEWING-MACHINE COP.

SPECIFICATION forming part of Letters Patent No. 360,108, dated March 29, 1887.

Application filed November 19, 1885. Serial No. 183,263. (No model.)

To all whom it may concern:

Be it known that I, MARO V. PALMER, of Willimantic, in the county of Windham and State of Connecticut, have invented certain new and useful Improvements in Sewing-Machine Cops, of which the following is a description, reference being had to the accompanying drawings, where—

Figure 1 is a side view of the cop in one stage of its manufacture, shown as wound upon a central pin with a traverse motion of the thread in winding, on enlarged scale. Fig. 2 is an end view of the same. Fig. 3 is an end view of the cop, with the central pin removed, and a jacket or cover inclosing it. Fig. 4 is an end view of a closed shuttle, such as is used in one form of the Singer sewing-machine, with my improved cop held in the shuttle. Fig. 5 is a like view of the shuttle, except that the cover or side of the shuttle is removed, so as to show the position of the cop within the shuttle. Fig. 6 is a perspective view of the cop on enlarged scale, as in Figs. 1 to 3.

My invention relates to the class of cops that are particularly adapted for use in sewing-machines, and its object is to provide a peculiar cop in place of the bobbin or like means for supporting a mass of thread, usually wound in a cylindrical form, that shall be free from the defect present in prior devices.

My invention consists in a mass of thread wound into a round form, with a traverse motion of the thread in winding, and leaving a central opening through the mass, the latter being closely covered or wrapped in a cover of firm material—as paper—on the periphery, but not on the ends, they being left uncovered from the center to the edge, to promote freedom of movement of the thread in unwinding from the center of the mass, as more particularly hereinafter described and claimed.

I have termed this new device a "cop," but the word "bobbin" best expresses its use, although there is no spool or interior support upon which thread is to be held while unwinding, as in the ordinary form of bobbin used in a shuttle.

It has been customary to make a bobbin for the class of shuttles for use in which my improved device is particularly adapted with a barrel, flanged heads, or the like on each end and projecting-pins upon which the bobbin turns as the thread is drawn off. These bobbins have been made of various shapes and materials; but in all cases the thread has been wound upon them without crossing the threads—that is, in the manner in which it is wound upon spools of cotton or thread for general use. When the thread is rapidly unwound from such a bobbin, it is liable to and does run ahead in such a manner as to cause a sudden twitch or pull upon the thread, which disturbs the tension and seriously limits the speed at which the machine can be run. Provision has to be made in the shuttle for supporting the bobbin in a position for it to rotate freely, and the cost of the bobbin is quite an item to the manufacturers and to the users of the machine. I am aware, however, that in the patent of F. W. Boland, dated January 3, 1871, No. 110,730, there is shown and described a device designed to dispense with the use of a bobbin or roller for the shuttle-thread; and I do not broadly claim such a device or cop as is therein shown and described, my within-described device being an improvement on the said Boland device as regards the cover or wrapper for the thread.

In the accompanying drawings, the letter *a* denotes the pin upon which the thread is wound in one step in the process used in making my improved cop. This pin is placed in suitable bearings in a machine and the thread is compactly wound upon it, preferably in a cylindrical form, and at the same time is given a traverse or sidewise motion. The winding is continued until a cylinder of a sufficient size has been produced, when the thread is cut, fastened off, and the mass of thread removed from the machine. The pin is then removed, leaving an opening through the center of the mass *b*, and its periphery is covered with a jacket, *c*, of comparatively firm material, that will preserve the shape of the mass until the thread is more or less completely withdrawn by drawing from the inside. This jacket *c* is made of a strip of paper or like flexible material of a width of about the length of the cop,

and it is wrapped about the latter and its end secured by glue or like adhesive material, the periphery of the cop alone being covered by the jacket, the ends being left uncovered and open, as illustrated in the drawings, as I gain thereby a greater freedom of movement in paying out of the thread as it unwinds from the cop. This jacket is made of paper of a sufficient thickness to preserve the cylindrical or other form into which it may be desirable or convenient to wind the thread with the traverse motion of the thread in winding, and it serves a useful purpose in keeping the thread clean in handling, packing, and transporting the cop, as well as in aiding to preserve the particular form of the bobbin until the thread is unwound. The traversing of the thread in the successive layers as the bobbin is formed of course aids also in preserving the general shape of the mass, as the shell becomes thinner by the unwinding of the thread from the inside.

This cop is made of a convenient size to adapt it to fit within a sewing-machine shuttle, which may be of the form shown in the drawings in Figs. 4 and 5, where the letter *d* denotes one body part of the shuttle and *d'* the other body part, which is hinged to the first and is held closed by means of the spring *e*. This shuttle is adapted for use in the Singer sewing-machine and has a central bobbin-socket, *f*, the sockets *f'* for the trunnions or axis of the old form of bobbin being shown in Fig. 5. With my improved cop, however, there is no need of any such pivot-bearings, the cop being placed in the socket *f* and closed within the shuttle, the end of the thread being drawn from the inside of the cop and led through the usual outlet or guide to the tension device and needle in the ordinary manner.

When the cover of my improved cop is formed of a separate material from the mass of thread, the latter can be entirely used up, and by the use of my improved cop there is an economy as compared with prior devices, not only in the time and labor saved in making the old form of bobbin and in preparing a shuttle for its use, but a much greater quantity of thread can be placed in the same bobbin-socket in a shuttle, and therefore the same machine can run for a longer time without the need of putting a new supply of thread in the shuttle.

The advantage in the freedom of unwinding and absence of any disturbance of the tension in the use of my improved bobbin has already been referred to.

I am aware that it is not new to wind a mass of thread with a traverse, and also that it is not new to unwind a mass of thread or cord by drawing it from the center of the mass; and devices having such advantages or peculiarities of construction I do not broadly claim.

I claim as my invention—

As an improved article of manufacture, a cop formed of thread wound into a mass, with the thread crossed to and fro at an angle with the axis of the mass in successive layers, the said mass having a central opening throughout its length, and having also a cover of firm material, as paper, closely enwrapping the periphery of the mass, the ends thereof being left uncovered, all substantially as described.

MARO V. PALMER.

Witnesses.
JOHN M. HALL,
E. S. BOSS.