

UNITED STATES PATENT OFFICE.

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BOBBIN-WINDING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 302,926, dated August 5, 1884.

Application filed March 20, 1884. (Model.)

To all whom it may concern:

Be it known that I, CHARLES MIEHLING, a citizen of the United States, residing in the city of New York, in the county and State of New York, have invented a certain new and useful Improvement in Bobbin-Winding Attachments for Sewing-Machines, of which I declare the following to be a full, clear, and exact description, so that any person skilled in the art to which it appertains can make, construct, and use the same, reference being had to the accompanying drawings, which form part of this specification, and to the letters and figures of reference thereon.

15 The invention relates to bobbin-winding attachments for sewing-machines.

It consists of the mechanisms hereinafter set forth and claimed.

20 The accompanying drawings represent my invention attached to a sewing-machine.

Figure 1 is a front elevation, partly in section, of the invention applied to the machine. Fig. 2 is a side elevation of the same, also partly in section.

25 Like letters of reference in the several figures indicate like parts.

G is the bed-plate of the sewing-machine.

B is the main shaft of the machine. On this shaft is fixed the geared collar *b*, adapted to take into a geared vertical shaft or spindle, A, having a gear at *a*, and thereby drive said vertical spindle with the motion of the shaft B when the gear *a* is down, so as to lock into the gear *b*, which is the position of the parts shown in the drawings. This vertical spindle A passes freely through the bed-plate G of the machine, but is carried by the frame D of the attachment, in which it revolves freely, but is incapable of motion up or down independently of said frame D. The frame D is mounted as shown, whereby it is capable of an up-and-down motion. It carries with it the spindle A, and the extent of the motion is intended, and is just sufficient, to enable the spindle A to be moved down into gear with the collar *b*, or up out of gear with said collar. A coiled spring, E, which is strained when the spindle A is down in gear with *b*, constantly tends to spring the frame D up and the spindle A out of gear with the collar, and this is the posi-

tion of the parts when the attachment is not in operation. When the frame D is held forcibly down and the spindle A is in gear with the shaft B, the spindle revolves with the motion of the shaft. The spindle A is a smooth tapering spindle above, having the usual taper of, say, one inch in sixty-four, in order to readily receive and tightly hold the bobbin C in place and cause it to revolve with the spindle, so that the winding of the bobbin may be effected.

L is the spool supplying the thread to the bobbin, as shown. It will of course be a separate spool from the spool supplying thread to the needle, where it is desired to do the sewing and the bobbin-winding simultaneously.

The lever H is an automatic detaching-lever. It is pivoted at *h* in the frame of the machine, or in a part securely attached thereto, as shown. It has a projecting arm, *e*, which takes over a ledge, *f*, of the frame D, when the latter is in its lowest position—that is, when the spindle A is in gear with the shaft B—which is the position of the parts shown in the drawings in full lines, the dotted lines showing the position of the parts when the attachment is out of gear with the machine and at rest. The arm *e* of this lever H is forced over the projecting ledge *f* by the coiled spring F, and whenever the frame D is pressed down into its lowest position the arm *e* snaps over the ledge *f*, and the frame D is thereby held down and the spindle A is held in gear with the shaft B, and is revolved until the lever H is pressed back, when the frame D and the spindle A spring up (under the action of the spring E) and out of gear with the shaft B, when the spindle A stops revolving. In order that this hold of the lever H upon the frame D may be secure, and to avoid any liability to accidental slipping off of the arm *e* from the ledge *f*, I prefer to make the coiled spring F quite strong, and to slightly bevel the under surface of the arm *e*, so that one edge only shall rest upon the ledge *f*, and that the extreme end of the arm, and, lastly, to slightly recess the projecting ledge *f*, so that there shall be a slight ridge along the edge of such ledge nearest to the lever H. This detaching-lever H has preferably a short arm,

d, by pressing down upon which with the finger the operator can at any moment, without stopping the machine, throw the arm *e* off the ledge *f*, and thereby allow the frame D and spindle A to spring up, thus instantly stopping the winding of the bobbin. The coiled spring F is shown in the drawings as operating upon this arm; but it is immaterial upon what part of the lever it operates, so long as it operates, as described, to snap the arm *e* over the ledge *f* and keep it there until it is forced off. The extended vertical arm of the lever H is adapted, preferably in the manner shown in the drawings, to bear against the thread that is being wound on the bobbins, and to be forced outward by the same, carrying with it the arm *e*, which is of such a length as to be forced off the ledge *f* and clear of it just when the bobbin is full of thread, and not before. When the arm *e* is thus forced off the ledge *f*, the frame D and spindle A spring up, and the bobbin stops revolving. Thus the revolving of the bobbin, and so its winding, is automatically stopped when the bobbin is full of thread, and this irrespective of the motion of the machine itself. The revolving of the bobbin may be stopped at any time before the bobbin is full, by the operator pressing down the arm *d* of the detaching-lever H, as we have heretofore seen.

A short arm, K, hinged to the upper end of the lever H at *g*, projects in between the sides of the bobbin C, passing freely in and out without binding against the walls of the bobbin, as the lever H rocks on its center at *h*. This arm K presses against the thread that is being wound upon the bobbin C as the latter revolves, and as the mass of thread grows with the winding the arm K and lever H are forced out. The lengths of the arms K and *e* are so proportioned to each other that the arm *e* shall be just forced off the ledge *f* when the bobbin C is full of thread. The automatic laying of the mass of thread on the bobbin is accomplished by the arm K, whose extremity is tapered, as shown in the drawings, whose length or part of it is perforated with a hole emerging at or near the tapered extremity, through which the thread is fed onto the bobbin with the effect of building up the mass of thread wound on the bobbin with substantial regularity, for the

point of the arm K will constantly shift to the part of the bobbin that is least wound.

The operation of my improved device is as follows: The frame D and spindle A being up in their highest position and at rest, a bobbin is put onto the spindle A securely, and the thread is passed through the eye of the arm K and caught around the bobbin. The spindle A is then pressed down into its lowest position, when the arm *e* instantly snaps over the ledge *f*, and the spindle and bobbin instantly begin revolving with the shaft B. The operation of winding is now entirely automatic, the mass of the thread being evenly distributed on the bobbin, and the operator giving her attention to the sewing, which may thus be progressing at the same time. When the bobbin is full, the arm *e* is forced off the ledge *f*, and the attachment springs up out of gear with the machine and comes to rest. The operator has then only to remove the full bobbin from the spindle A, when a full bobbin is wanted for any purpose, and replace it with an empty bobbin, as described, at the same time pressing the spindle down.

I have shown the attachment as deriving its motion from the main shaft of the machine under the bed-plate; but it is evident that any convenient revolving part of the machine may be utilized for this purpose, and the attachment secured at any convenient place.

What I claim as new, and desire to secure by Letters Patent, is—

1. As a bobbin-winding attachment for a sewing-machine, the frame D, having ledge *f*, the spring E, the geared spindle A, and collar *b*, in combination with the automatic detaching-lever H, having arm *e* and spring F, and the independent pivoted thread-guide K, substantially as and for the purposes set forth.

2. The combination of the frame D, having ledge *f*, the spring E, the geared spindle A, and collar *b*, with the lever H, having arm *e* and spring F, and the pivoted hollow thread-guide K, substantially as and for the purposes set forth.

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Witnesses:

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