

No. 770,179.

PATENTED SEPT. 13, 1904.

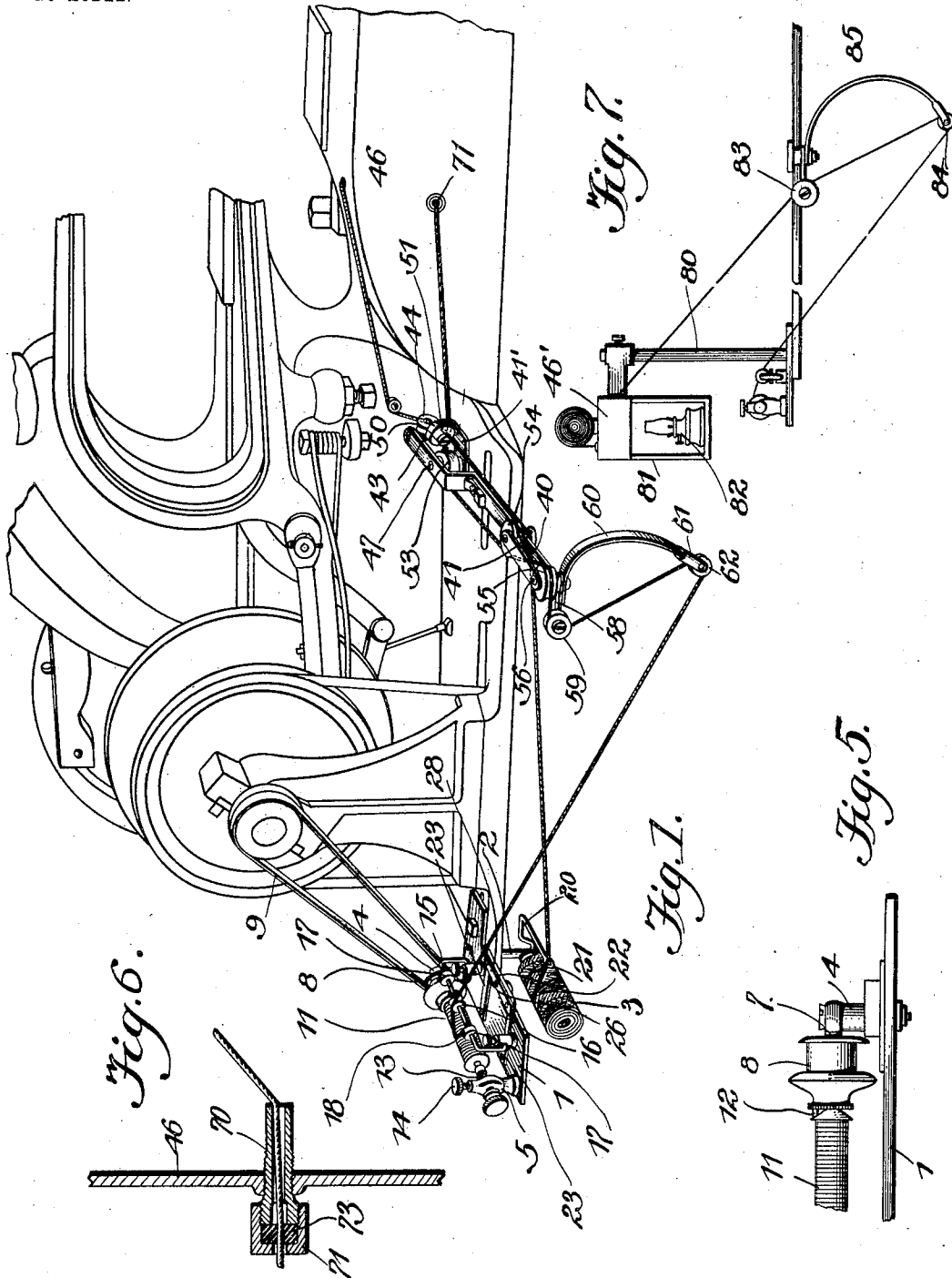
R. H. LEGG.

BOBBIN WINDING ATTACHMENT FOR SEWING MACHINES.

APPLICATION FILED JUNE 16, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
E. C. Stewart
John E. Parker

by *R. H. Legg, Inventor,*
C. A. Snow & Co.
Attorneys

No. 770,179.

PATENTED SEPT. 13, 1904.

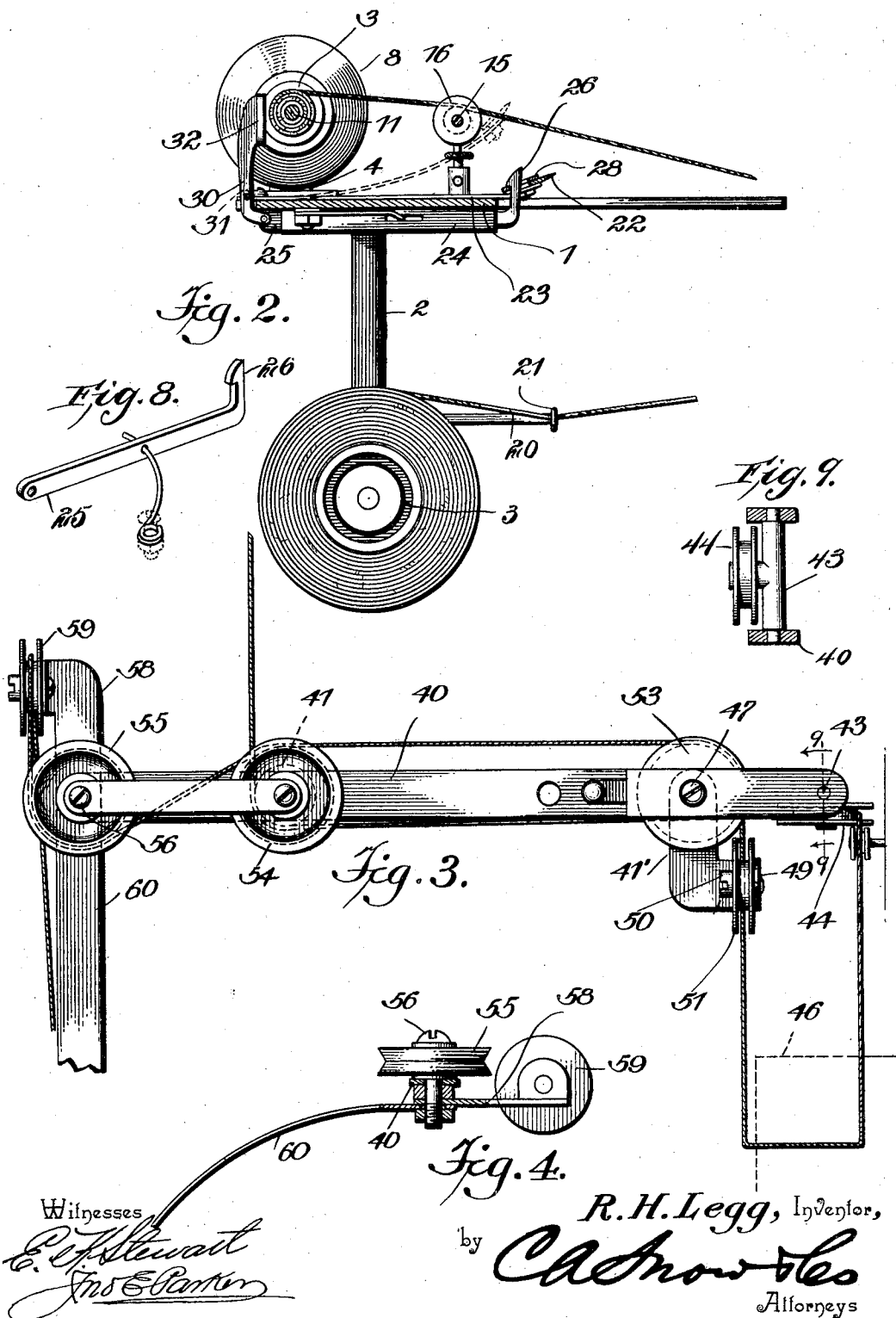
R. H. LEGG.

BOBBIN WINDING ATTACHMENT FOR SEWING MACHINES.

APPLICATION FILED JUNE 16, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

ROLAND H. LEGG, OF CARTHAGE, MISSOURI.

BOBBIN-WINDING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 770,179, dated September 13, 1904.

Application filed June 16, 1903. Serial No. 161,722. (No model.)

To all whom it may concern:

Be it known that I, ROLAND H. LEGG, a citizen of the United States, residing at Carthage, in the county of Jasper and State of Missouri, have invented a new and useful Bobbin-Winding Attachment for Sewing-Machines, of which the following is a specification.

This invention relates to certain improvements in bobbin-winding attachments for sewing-machines, and has for its principle object to provide a device which may be applied to existing forms of machines or may form a part of a machine when constructed for the purpose of automatically winding bobbins while the machine is stitching and without rendering it necessary for the operator to pay any attention whatever to the winding operation.

A further object of the invention is to provide a device of this character in which provision is made for automatically cutting the thread when the bobbin has been fully wound.

A still further object of the invention is to provide in winding mechanism of this class for a take-up or tension device which will hold the thread under practically the same tension during all parts of the winding operation and which will carry the thread from end to end of the bobbin during the winding operation.

With these and other objects in view, as will hereinafter more fully appear, the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a perspective view illustrating the application of the bobbin-winding attachment forming the subject of the present invention to a wax-thread sewing-machine. Fig. 2 is a sectional view, on an enlarged scale, illustrating the construction of the bobbin-support and thread-cutter. Fig. 3 is a detail plan view, on an enlarged scale, illustrating the arrangement of

the thread-guiding rollers. Fig. 4 is a view, partly in section, illustrating the upper portion of the tension mechanism. Fig. 5 is an elevation of one end of the bobbin support and whirl. Fig. 6 is a detail sectional view illustrating the device employed for removing surplus wax from the thread as the thread is withdrawn from the wax-pot. Fig. 7 shows the invention as employed in connection with a detachable wax-pot. Fig. 8 is a detail view of the spring-pressed locking-slide for the thread-cutting knife. Fig. 9 is a transverse sectional elevation of a portion of the mechanism on the line 9 9 of Fig. 3.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The device is intended principally as an attachment for existing machines and comprises in part the base-plate 1, which may be bolted or otherwise secured to the rear portion of the machine or at any convenient point and provided with a support 2 of ordinary construction for the reception of the bobbin or spool 3, from which the thread is supplied to the device. On top of the plate 1 are arranged two standards 4 and 5, the standard 4 being provided with a projecting stud 7, on which is mounted a small whirl 8, the belt-surface of which receives a belt 9, driven preferably from the main shaft of the sewing-machine. In one face of the whirl is an opening for the reception of the tapering end of the bobbin 11, and this face of the whirl is also provided with a steadying-pin 12, entering a corresponding opening in the end flange of the bobbin. The opposite standard is provided with a longitudinally-movable pin 13, having at its inner end an opening for the reception of the opposite end of the bobbin, and said pin may be locked in position by a set-screw 14 after the bobbin has been properly adjusted for winding. In front of the bobbin is arranged a guide-rod 15, supported by suitable posts extending upward from the base-plate, and on said guide-rod is mounted a freely-movable thread-guiding roller 16, which moves along the rod as the thread is wound in successive layers on the bobbin. The limits of move-

ment of the thread-guiding roller are fixed by adjustable collars 17, arranged on the slide-rod and locked in position by a suitable set-screw 18.

5 The support 2 for the lower or supply bobbin is provided with an arm 20, having at its extreme end portion a thread-guiding eye 21, through which the thread passes as it is drawn from the bobbin, and after passing to the wax
10 device returns over the small guiding-roller 16 and is wound on the bobbin.

Arranged in front of the bobbin is a knife-blade 22, carried by a pair of spring-arms 23, having an inherent tendency to move upward
15 and bring the knife into contact with the thread, and this is accomplished automatically in order to cut the thread when the bobbin has been fully wound. On the under side of the plate 1 is secured a guide 24, in which is
20 mounted a spring-held slide 25, having an upwardly-bent front end provided with a terminal bill or hook member 26, adapted to pass through a suitable opening in the knife-blade or in a carrying-bar 28, to which said blade is
25 secured. The rear end of the slide is connected to the lower end of a lever 30, pivoted at an intermediate point between a pair of lugs 31 in the base-plate, and the upper end of said lever is provided with a contact-plate 32,
30 which engages with the thread when the bobbin has been fully wound. When the bobbin is full, the plate is moved outward and results in a corresponding movement of the slide and catch, the knife being released and moved upward by its spring-carrying arms in order to
35 sever the thread. In front of the bobbin-winding device are arranged a series of guiding-rollers for guiding the thread from the supply-bobbin to the waxing device and thence back
40 again to the bobbin to be wound. The several rollers are mounted on a support in the form of a bar 40, and the thread passes to the first of these, 41, this roller being mounted on a depending stud carried by the bar. At the extreme
45 inner end of the bar, which is bent upward to clear the base of the machine, is a depending arm 43, (see Fig. 9,) carrying the second roller 44, and the thread is guided under this roller and up into the wax-pot 46. Secured
50 to the bar 40 is an auxiliary bar or arm 41', the outer end of which is held in proper relation with the main bar by a small pin or bolt 47. At the end of arm 41' is an upwardly-bent portion 49, carrying the stud 50. On the stud
55 50 is mounted a thread-guiding roller 51, under which the thread passes as it is withdrawn from the wax-pot. The connecting pin or bolt 47 carries a fourth guiding-roller, 53, over which the thread is led and from which it
60 passes to a guiding-roller 54 and thence to a roller 55. The extreme outer end of the arm is provided with a pivot-pin 56, forming a bearing for the guiding-roller 55, around which the thread passes, and to this pivot-pin
65 is rigidly secured an arm 58, carrying a thread-

guiding roller 59. Mounted on the pivot-pin is a take-up or tension spring 60, preferably in the form of a bow-spring, said spring being free to swing on its pivot and having its free end bifurcated, as at 61, for the reception of
70 a small thread-guiding roller 62, that normally occupies a position in alinement with the central portion of the bobbin. The thread passes around the several guiding-rollers in the manner described and thence over the
75 final roller to the bobbin to be wound, and the spring is retained under tension during all the winding movement. It will be observed that the spring is free to swing on its carrying-pin, so that the thread will be guided from end to
80 end of the bobbin during the course of winding.

The wax-pot is of the ordinary construction and heated by a lamp or other suitable device, and in one side of the pot is secured a
85 plug 70, having a central bore for the passage of the thread. The outer portion of the plug has external threads for the reception of a hollow cap-piece 71, and between this and the end of the plug is placed a stripping-block 73,
90 formed of rubber or some similar elastic material provided with a suitable opening for the passage of the thread. The stripper serves to remove all excess of wax from the thread and prevents leakage of the liquid wax from the pot.
95

It is obvious that the several members of the device may be arranged in different positions on the machine in accordance with the character of the machine and that the parts may be proportioned in accordance with requirements without departing from the invention.
100

With a device of this character the bobbin-winding mechanism will be operated during the stitching operation of the machine and the operator will at all times have a fresh bobbin
105 waiting for his shuttle without the necessity of stopping at intervals to wind bobbins.

In Fig. 7 is illustrated a modification of the device to be employed when the machine is not supplied with a stationary wax-pot. In
110 this case the wax-pot 46' is carried by a standard 80, and depending from the wax-pot is a frame 81, carrying a heating device 82. The supply-bobbin is arranged above the wax-pot, and as the thread is withdrawn therefrom it
115 passes down and then outward through a plug of the character shown in Fig. 6 to a guiding-roller 83 and thence to a roller 84, carried by a spring-tension arm 85 of the character shown in Fig. 1, and from thence the thread is guided
120 to the bobbin in the manner already described.

Having thus described the invention, what is claimed is—

1. In a bobbin-winder, a pivotally-mounted tension-spring provided at its free end with a
125 thread-guide, said spring having pivotal movement to follow the course of the thread from end to end of the bobbin during the winding operation.

2. In a bobbin-winding machine, a spring-
130

supported thread-guide movable by the thread in a direction longitudinal of the bobbin during the winding operation.

3. In a bobbin-winder, a bow-spring pivoted at one end and provided at its opposite end with a thread-guide movable by the thread in a direction longitudinal of the bobbin during the winding operation.

4. In a bobbin-winder, a bow-spring, a supporting-pivot for one end of the spring, and a thread-guiding roller disposed at the free end of the spring and movable by the thread in a direction longitudinal of the bobbin during the winding operation.

5. A pivotally-mounted spring-tension device having a thread-guide movable longitudinally of the bobbin during the winding operation.

6. In bobbin-winding devices, a stationary thread-guide, a bow-spring disposed adjacent thereto and having a pivotal support, and a second thread-guide carried by and movable with said spring, said second thread-guide being movable in a direction longitudinal of the bobbin during the winding operation.

7. In bobbin-winding devices, a cutting-blade, normally restrained spring-arms for

supporting and impelling the blade in the direction of the thread, a catch for holding the blade in inoperative position, a slide supporting said catch, and a pivotally-mounted lever of which one end is operably connected to the catch, the opposite end of said lever being arranged for contact with the thread accumulating on the bobbin.

8. In bobbin-winding devices, a thread-cutting knife, a pair of springs having their free ends connected to the knife, a support to which the opposite ends of said springs are connected, a catch for holding the knife in inoperative position, a slide carrying the catch, a spring tending to hold the catch in engagement with the knife, and a pivotally-mounted lever having one end connected to the slide, the opposite end of said lever being arranged for engagement with the thread accumulating on the bobbin.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ROLAND H. LEGG.

Witnesses:

S. S. MARRS,

E. W. McFARLAND.