

R. K. HOHMANN.
TAKE-UP FOR SEWING MACHINES.
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977,630.

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Fig. 2.

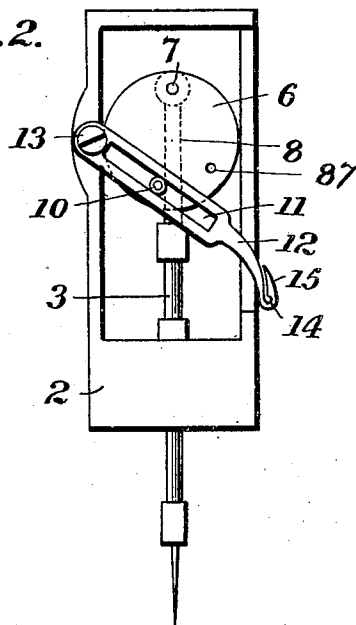


Fig. 1.

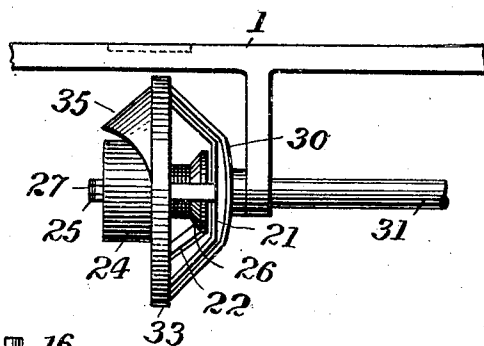
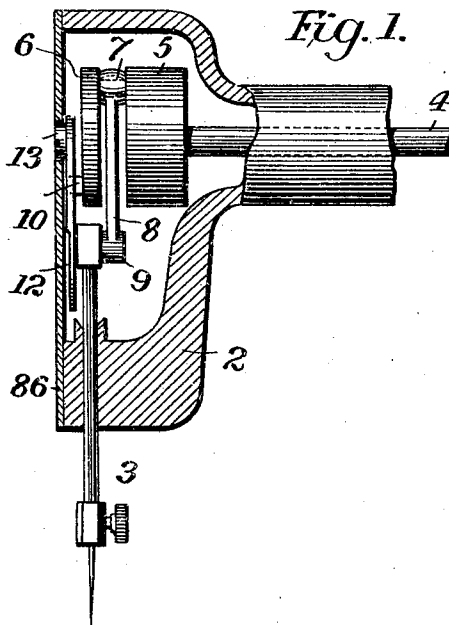
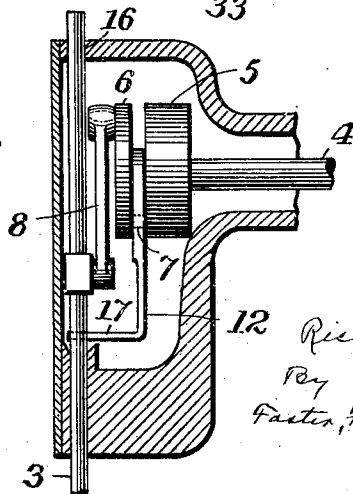


Fig. 3.



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UNITED STATES PATENT OFFICE.

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TAKE-UP FOR SEWING-MACHINES.

977,630.

Specification of Letters Patent.

Patented Dec. 6, 1910.

Original application filed October 10, 1908, Serial No. 457,141. Divided and this application filed January 18, 1909. Serial No. 472,941.

To all whom it may concern:

Be it known that I, RICHARD K. HOHMANN, a citizen of the United States, and resident of San Diego, in the county of San Diego and State of California, have invented certain new and useful Improvements in Take-Ups for Sewing-Machines, of which the following is a specification.

This invention relates to sewing machines and particularly to the take-up used in the type known as rotary machines producing a lock stitch.

The main object had in view is the production of a practical and commercially successful machine which shall include a lower thread holder adapted to receive any ordinary spool of thread as well as any ordinary bobbin now used in rotary machines.

With the large specially constructed lower spool carrier which must be used for holding an ordinary spool of thread it is necessary to have a coöperating specially constructed take-up, and the present invention relates to that take-up.

This case is a division of my co-pending application No. 457,141, filed October 10, 1908.

The novel features of my present invention and the operation thereof will be understood from the following description taken in connection with the accompanying drawings.

In the drawings,—Figure 1 is a side view partly in section, showing a portion of a work plate and head of a machine, together with my thread holders and looper below the work plate; Fig. 2 is an end view of the head with the end plate removed; Fig. 3 is a longitudinal section of the head showing a modified construction for operating the needle bar and take-up.

In the drawings, 1 represents the work plate of the machine and 2 represents the head in which the needle bar 3 reciprocates vertically. This needle bar is operated from a rotary shaft 4 which carries upon its end a head made up of the two circular disks 5 and 6 rigidly connected together by wrist pin 7. The wrist pin 7 passes through an eye in the end of the link arm 8 which is pivotally connected at 9 to the upper end of the needle bar 3. On the outer face of the disk 6 there is a roller 10 working in the slot 11 in the take-up arm 12, which

take-up arm is pivotally supported at 13 immediately adjacent the edge of the disk 6. This take-up arm is provided at its outer end with the usual eye 14 to receive the thread and the slot 15 to permit the easy insertion of the thread. It will be observed that the rotation of the shaft 4 will reciprocate the needle bar 3 vertically and that the roller 10 working in the slot 11 will turn the take-up arm 12 upon its pivot 13. It will be observed further that by reason of the position of the pivot 13 and the relation of the arm 12 to the roller 10 the elevation of the arm will be effected during about one-fourth of the revolution of the disk 6 and that thus the motion of the arm in ascending is much quicker than when descending. This is because the roller 10 is working in the slot near the pivot when the arm is ascending and is further removed from the pivot when the arm is descending, and it will be understood that the timing of the upward motion of the take-up may be adjusted and controlled by the position of the roller 10 on the face of the disk 6.

It will be observed that in the form shown in Fig. 1 the needle bar does not pass through the top of the head 2 but terminates therein below the disk 6. In Fig. 3 I have shown a modified construction in which the needle bar passes through the head at 16 and it is connected to the front of the disk 6 by means of the link arm 8. In this instance the take-up arm 12 passes between the disks 5 and 6 and the wrist pin 7 works in the slot 11, thus effecting the same motion as in the construction shown in Fig. 1. The arm 12 in this instance is pivoted to the rear of the head 2, the pivotal support being concealed by the other parts in Fig. 3. In this form however I prefer to bend the end 17 of the arm 12 so as to bring the eye 14 thereof to the front edge of the head. The plate 86 is secured in place by any suitable means and is removable so as to permit access to the parts. This quick acting take-up with a long throw is specially designed for use with my thread carrying and looping means for the lower thread indicated in Fig. 1, and more fully described in my application No. 457,141. My lower thread holder is carried on the end of a rotary shaft 31 and is made large enough and of such form as to hold a spool 26 in line

with the shaft. The shaft 31 has rigidly secured thereto a carrying head 30 having spider arms supporting the bearing rim 33 in which is rotatively mounted the spool holder, and this rim has the downwardly inclined plate 35 of peculiar shape secured to its upper edge. This plate guides the loop of thread around the holder. The holder itself embodies an open ended cylindrical portion 24 large enough to receive an ordinary spool, and an inner end 21 supported by spider arms 22. The spool 26 is mounted upon a central spindle 25 and is held in the holder by pivoted spring arm 27 carried on the end of said spindle. The holder has a marginal bearing rim fitting in a groove within rim 33. It will be observed that to pass the thread around a holder of this kind it is necessary to draw up this loop very quickly and positively. As is more fully described in my companion application, my holder in rotating releases the loop of thread after it has turned about three quarters of its revolution, and consequently the thread may be drawn up very quickly during the last quarter of the stroke. As above indicated most of the upward stroke of my take-up is during the last quarter of the revolution. The timing of the take-up may be varied by changing the position of roller 10 on the disk as indicated at 87.

I have found that an ordinary cam cannot be made to successfully give the take-up the necessary long quick upward stroke, and to secure a successful take-up for this purpose it is necessary that it shall act posi-

tively in both directions. My slot 11 and roller 10 arranged as described not only raise the take-up arm quickly and positively, but act as a stop to prevent the arm from continuing its upward motion by momentum, and serve as a positive means for lowering such arm at the proper instant. It will be understood that the proper and accurate timing of the movements of the take-up are essential to success. To prevent derangement of the mechanism it is necessary that the parts be few in number and simple in construction.

Having thus described the invention, what is claimed is:

In a sewing machine, the combination with the head of the machine provided with a vertically reciprocating needle bar, of a rotary shaft having secured to its end two separated rotary disks rigidly secured together by a pin near the circumference and the outer disk also carrying on its outer surface a pin near the circumference, a longitudinally slotted take-up arm pivotally supported at one end near the margin of said disks and having one of said pins working in said slot, and a link arm connecting the other pin with said needle bar, the said pins being so related that the take-up will commence its up stroke as the needle goes down.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD K. HOHMANN.

Witnesses:

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