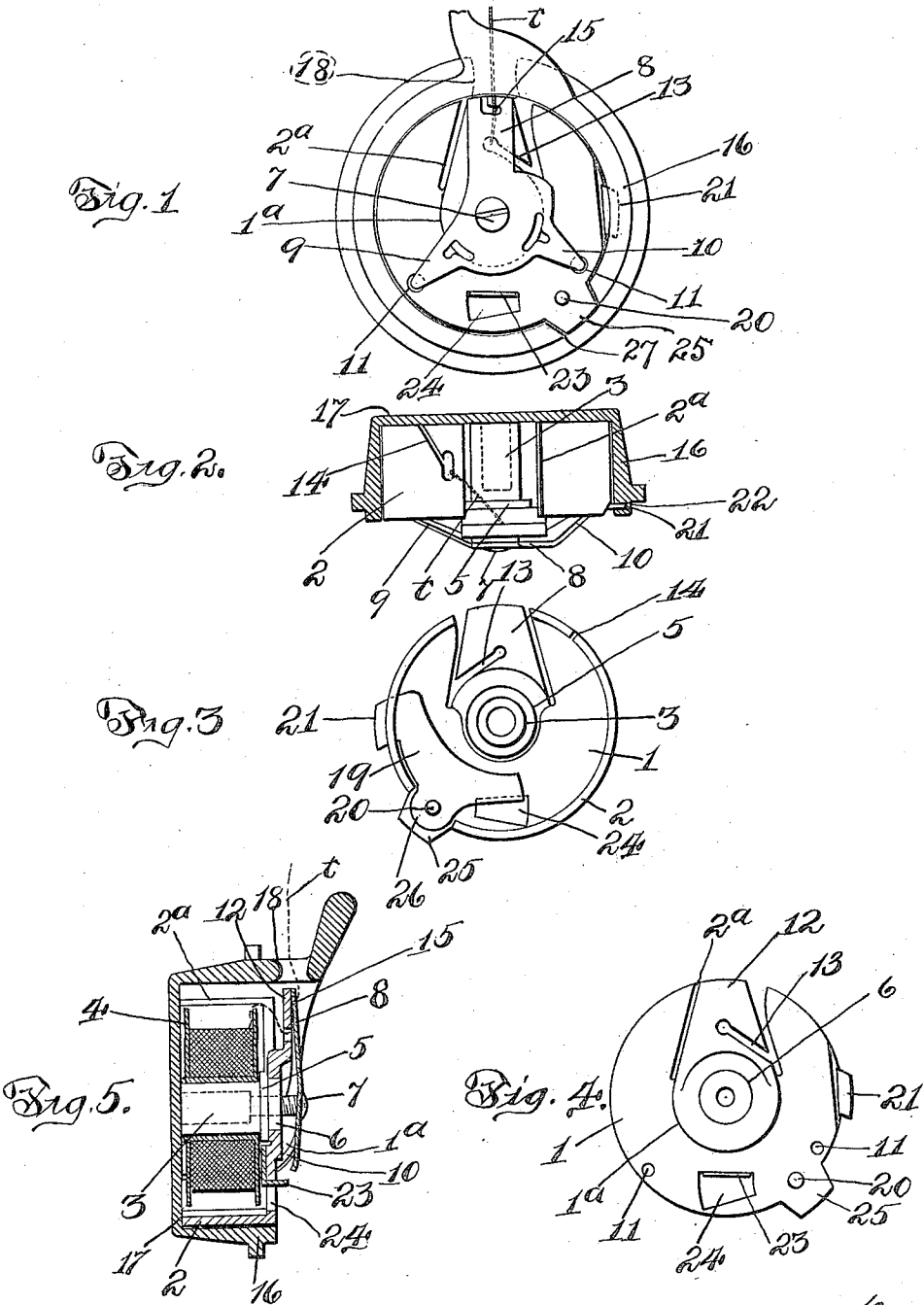


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COMBINED BOBBIN CASE AND TENSION FOR ROTARY SEWING MACHINES.  
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Witnesses:  
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by C. E. Smith & Co. Attys

# UNITED STATES PATENT OFFICE.

CHRISTOPHER WINKEL, OF BELVIDERE, ILLINOIS, ASSIGNOR TO NATIONAL SEWING MACHINE COMPANY, OF BELVIDERE, ILLINOIS, A CORPORATION OF ILLINOIS.

COMBINED BOBBIN-CASE AND TENSION FOR ROTARY SEWING-MACHINES.

934,869.

Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed December 26, 1903. Serial No. 186,594.

*To all whom it may concern:*

Be it known that I, CHRISTOPHER WINKEL, a citizen of the United States, residing at Belvidere, in the county of Boone and State of Illinois, have invented certain new and useful Improvements in a Combined Bobbin-Case and Tension for Rotary Sewing-Machines, of which the following is a full, clear, and exact specification.

This invention relates to the tension for the lower thread of a rotary sewing machine and to the case for holding the bobbin which carries the same while the hook, or other means, takes the loop around the supply of lower thread in the act of forming or locking the stitch.

One of the objects of this invention is to give the thread a straight run from the front side of the bobbin case upward so that it will not be subjected to sharp bends and undue friction.

Another object is to make the bobbin case, together with the tension, readily removable from the front side of its support or carrier, so that the bobbin case may be threaded up and the tension adjusted before it is inserted in its support or carrier.

Another object is to provide improved and simple means whereby the tension will be accessible from the front side of the bobbin case, so that it may be adjusted without removing the bobbin case.

A further object is to provide an improved form of bobbin case and support therefor in two parts with means in one of said parts for holding the bobbin and a simple and convenient lock or latch for locking the parts together, whereby the bobbin-holding part or case may be readily removed from the front side. And a still further object is to provide an improved, simple and inexpensive construction of bobbin case and tension.

With these ends in view my invention consists in certain features of novelty in the construction, combination and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings and more particularly pointed out in the claims.

In the said drawings—Figure 1 is a front elevation of a bobbin case with its tension and support embodying this invention. Fig. 2 is a plan view thereof with the case support in section. Fig. 3 is a detail view of the case

with the bobbin removed, showing the same in rear elevation. Fig. 4 is a front elevation with the tension removed, and Fig. 5 is a vertical section of the mechanism shown in Fig. 1, showing also the bobbin.

The bobbin case proper is in the form of a cup or shell comprising an end wall 1 and a surrounding annular flange 2, which is concentric with a journal or pin 3 secured centrally to the inner side of the end wall 1 and on which the bobbin 4 revolves as usual. The end wall and its flange 2 are made in one piece, preferably drawn up from sheet metal, and the end wall is formed with a central aperture for the attachment of the bobbin pin 3, which is formed with a shoulder 5 abutting against the inner face of the end wall and outwardly from this shoulder extends a cylindrical stud 6 which is upset or riveted in the aforesaid central opening in the end wall, thus rigidly securing the bobbin pin 3 in place. The inner end of the pin 3 is shown hollow for the sake of lightness and in its outer end is threaded an adjusting screw 7 serving as a means of at once adjusting the tension and holding the tension spring in place. The tension spring is shown as composed of a single spring plate through the center of which, or a point near the center, the screw 7 passes, and which spring is formed with a tension tongue 8 projecting upwardly and with two steady-arms or projections 9, 10, extending laterally and inwardly and bearing against the outer face of the end wall 1, which may be provided with countersinks 11 for receiving the extremities of the arms 9, and thus holding the tension spring from rotating on its adjusting screw and support 7. The upper side of the annular flange of the bobbin case is cut away, as shown at 2<sup>a</sup>, to form a clearance for the needle, and the end wall 1 directly opposite, or at the end of this clearance, is struck up to form a tongue 12 directly behind the tension tongue 8 and against which the tension tongue 8 bears, the tongue 12 being forced outwardly into a different plane from that of the end wall 1, and in the side of this tongue 8 is formed a slot or eye 13 which receives the thread from a slotted eye 14 in the flange 2, and from the eye 13 the thread passes upwardly between the two tongues 8, 12 and emerges through a slot or eye 15 in the upper end of the spring tongue 8, and hence, the ten-

sion on the thread being produced in the main by the friction against the two tongues 8, 12, may consequently be regulated by the screw 7.

5 The end wall 1 is formed with a boss 1<sup>a</sup> where the stud 6 passes through in order to provide sufficient stock for holding said stud, but such degree of thickness is not required for the tongue 12.

10 The bobbin case thus described may be supported or carried in proper relation to the hook not shown by any suitable support, but preferably by a support of annular or shell-like form in which the bobbin case may  
15 be inserted from the outer side, and when inserted locked in position by a simple catch carried on one of the parts and engaging with the other. In the drawings I have shown the bobbin case support composed of  
20 a shell open at its outer side and comprising an annular surrounding wall 16 which receives the annular wall or flange 2 of the bobbin case, and a back wall 17 against which the inner edge of the flange 2 abuts  
25 when the bobbin case is in place, and thus the bobbin is held from lateral displacement on its supporting pin 3.

The bobbin case support thus constituted may be provided with an aperture 18 in its  
30 upper side for the passage of the thread to the goods, and which support may be secured in place on the sewing machine mechanism in proper relation to the hook and coöperating parts in the usual or any suitable way,  
35 well understood in the art and not necessary to describe, and the particular form of bobbin case support indicated in these drawings is an example of a suitable form for use in connection with my improved bobbin  
40 case and constitutes the subject-matter of my pending application Serial No. 185,976 filed December 21, 1903.

For the purposes of the present invention it is sufficient that the bobbin case support be  
45 of an annular form to receive the bobbin case and to coöperate with a lock or latch for holding the bobbin case in place. This lock or latch consists of a pivoted plate 19 which is secured against the inner face of  
50 the end wall 1 by means of a pivot 20 and has a bolt 21 projecting through the flange 2 and adapted to engage in a slot 22 in the inner side of the flange or wall 16 of the bobbin case support. The other end of the plate  
55 19 is turned outwardly to form a thumb-piece 23 which projects through an aperture 24 in the wall 1, so as to be accessible to the thumb of the operator, whereby the bobbin

case, together with its tension and bobbin, may be removed without disturbing the tension or the threading of the lower thread. 60

25 is a tongue struck outwardly from the annular flange 2 contiguous to the end wall 1 so as to form at once room for the accommodation of the hub 26 on plate 19 through  
65 which the pivot 20 passes, and a guide for engaging in a notch or countersink 27 in the end of flange 16, and thereby compelling the parts to go together in their proper relation.

Having thus described my invention, what I claim as new therein and desire to secure by Letters Patent is:— 70

1. In a device for the purpose described the combination of a cup shaped bobbin case having an end wall arranged at an angle  
75 to the axis of said case, a tongue struck up from said end wall and having an eye for the thread extending through the edge of the tongue, and a tension spring bearing against the outer face of said tongue over  
80 said eye and having an eye for the thread in its upper edge above said first eye.

2. A device for the purpose described, the combination of a bobbin case, a bobbin case support provided with a recess in one of  
85 its walls, said case comprising a rear wall having an aperture therein, and a circumferential flange, said flange being provided with a slot, a centrally disposed pin projecting from the face of the wall within the  
90 flange, and a latch pivoted to the face of the wall and movable in a plane parallel with said wall, one end of said latch projecting through the slot in the flange and the other end being bent out of the plane of the body  
95 portion and projecting through the aperture, to form a thumb-piece for operating the latch to cause the projecting end to enter the recess in the case support when the case is  
100 inserted therein.

3. In a device for the purpose described, the combination of a bobbin case having its end wall provided with a tongue struck out therefrom and standing in a plane beyond  
105 and parallel to the plane of the wall, and having a downwardly opening slot intermediate its ends, and a tension device secured to the outer face of the wall and resting against the tongue, said tension device being  
110 also provided with an open slot disposed in an opposite direction to the slot in the tongue.

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