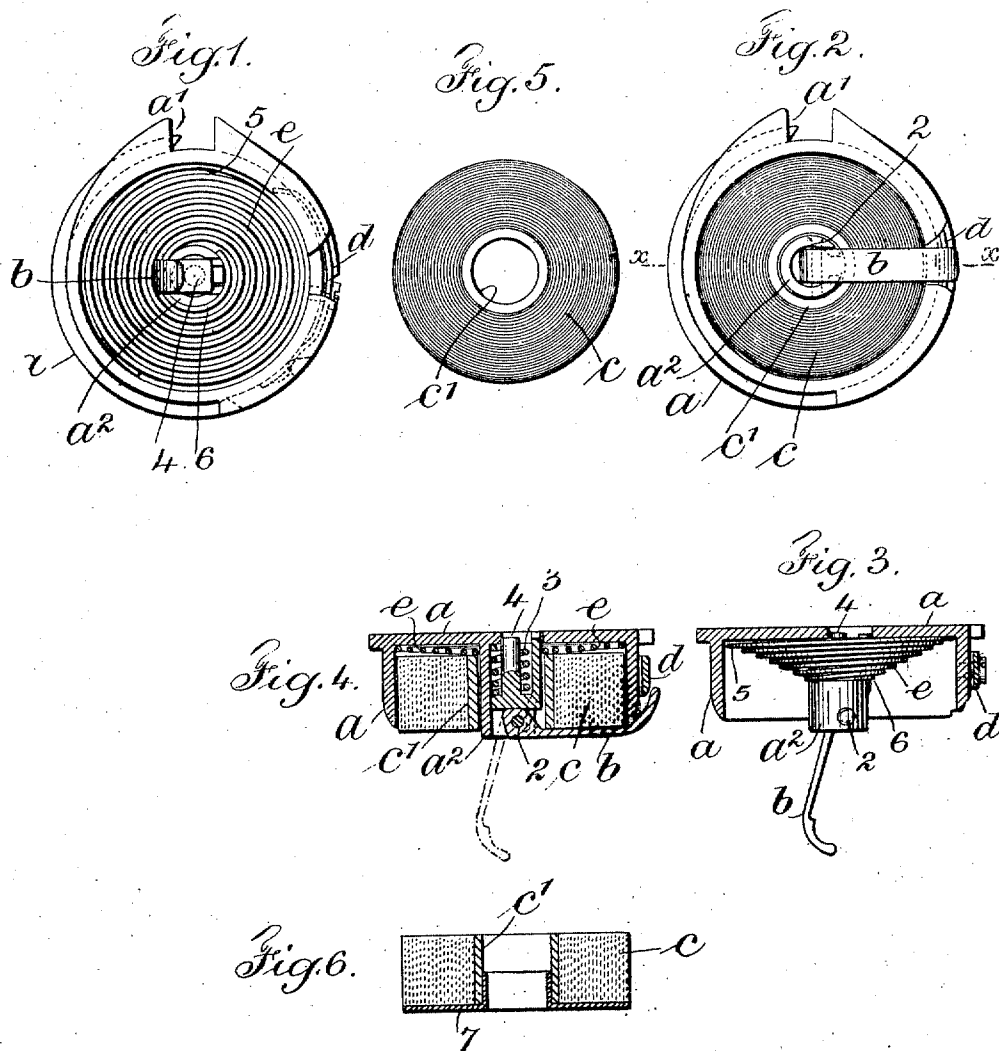


H. A. BATES.
SEWING MACHINE SHUTTLE.
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986,124.

Patented Mar. 7, 1911.



Witnesses
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UNITED STATES PATENT OFFICE.

HENRY A. BATES, OF MIDDLETOWN, CONNECTICUT.

SEWING-MACHINE SHUTTLE.

386,124.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HENRY A. BATES, a citizen of the United States, residing in Middletown, in the county of Middlesex and State of Connecticut, have invented an Improvement in Sewing-Machine Shuttles, of which the following is a specification.

My invention relates to an improved bobbin case or holder adapted to receive a commercial thread bobbin without the employment or intervention of other inclosing parts, and the device of my invention is designed as an improvement upon the device shown and described in Letters Patent granted to me January 5, 1909, #908,833.

In the device of my present invention I employ a bobbin case or shell adapted to have connected thereto the usual hook employed in this art and a pivoted lever secured to a slotted tubular pin of the bobbin case or shell. This bobbin case or shell is adapted to receive a volute spring and over the volute spring a removable commercial thread bobbin; the said thread bobbin being passed into the bobbin case or shell over the lever in an out-turned position so that when the lever is turned down it extends over the thread bobbin and holds the same in place simultaneously establishing a function of tension by the volute spring against the under side of the thread bobbin and producing a friction between the outer surface of the thread bobbin and the under side of the lever as turned down.

The parts are so proportioned that I may if desired, place over at least one side of the thread bobbin a thin metal disk adapted to prevent soiling the outer surface of the thread bobbin and which disk is preferably provided with a tubular hub of very thin metal adapted to fit into the core of the thread bobbin. The spring is coiled for compression in the direction of the axis of the thread bobbin and its convolutions are therefore adapted to be brought into the same plane or substantially the same plane by the introduction into the bobbin case or shell of the commercial thread bobbin.

In the drawing, Figure 1 is a plan representing the bobbin case or shell of my invention with the volute spring in position and the lever out-turned ready to receive the thread bobbin. Fig. 2 is a plan of the shell with the thread bobbin in position and the lever turned down to hold the same in place. Fig. 3 is a cross section through the bobbin

case or shell and an elevation of the central tubular pin and lever substantially in the position shown in Fig. 1. Fig. 4 is a central cross section at about the dotted line a, a , of Fig. 2. Fig. 5 is a plan of the thread bobbin alone, and Fig. 6 is a cross section of the thread bobbin showing applied thereto the thin metal disk and its tubular metal hub.

The bobbin case or shell a is adapted to have connected thereto as is usual in this art a hook a^1 which parts when so connected form the shuttle.

The central tubular pin a^2 is advantageously formed as a part of the bobbin case or shell a and its outer end may project slightly to advantage beyond the plane of the circumferential free edge of the bobbin case or shell a . With this bobbin case or shell and pivotally connected to the central tubular pin is a lever device b ; 2 being the pivot pin of the lever device as thus connected.

4 represents a plunger device in the central tubular pin a^2 and 3 a helical spring bearing against the under side of the plunger and inner surface of the bobbin case exerting an outward pressure to hold the lever device b either in the position Figs. 1 and 3, or in the position Figs. 2 and 4.

The commercial thread bobbin is represented at c and the tubular core thereof at c^1 , and d represents a thread tension device which is common in this art, forming part of the bobbin case or shell and connected upon the outer surface thereof.

e is a volute spring shown under compression and tension in Fig. 4 and in its free position without compression or tension in Fig. 3. The larger base convolution 5 of the spring fits snugly within the bobbin case or shell a at the base thereof so as to prevent accidental displacement and the smaller convolution 6 comes at the center or top of the spring directly around the central tubular pin a^2 .

Figs. 1 and 3 which agree in the position of the parts, show the bobbin case or shell and parts formed therewith, ready to receive the commercial thread bobbin c which is passed over the lever b and down around the central tubular pin a^2 against the spring e , flattening the same and putting it under tension. The lever device b is turned over after the introduction of the commercial thread bobbin from the position Fig. 3 to

the position Figs. 2 and 4, in which the upper surface of the thread bobbin comes against the under surface of the lever and this lever serves to hold the same in position and establish a friction as between the spring *a* and the under surface of the lever to prevent a too free unwinding of the thread bobbin.

I have shown in Fig. 6 a disk and tubular hub 7 of thin metal which may be employed if desired in connection with the devices of my improvement; it only necessitating a little larger opening in the core of the thread bobbin to receive the tubular hub formed with this disk; the function of the disk mainly being to preserve the surface of the thread of the thread bobbin clean for use, covering the same up so that oil or dirt that may be in proximity thereto will not attach to the thread. My invention is in no wise limited by the said disk and its tubular hub.

As between the device of my present invention and the device of my patent aforesaid, it will be noticed that in the device of the present invention I do not employ the bobbin case *c*, nor the covering disks to the thread bobbin, but form of the bobbin case holder *a* a bobbin case or shell and first place therein the volute spring employing the lever device directly against the surface of the commercial thread bobbin. By this form of my invention over and above the form of said patent I am enabled to reduce

the thickness through the shuttle and to increase the size of the commercial thread bobbin and the amount of the thread carried thereby by about fifteen or twenty per cent., which effects a marked saving in both the cost of the shuttle and the useful life of the thread bobbin, to say nothing of the time usually consumed in taking out the cores of expended thread bobbins and placing in the shuttle fresh bobbins.

I claim as my invention:

In a sewing machine shuttle, a bobbin case or shell having a cylindrical part and a back and open on one side and adapted to receive a cored commercial bobbin of thread only, a central tubular pin, a spring actuated lever device pivoted to the tubular pin and adapted to be turned down over the thread bobbin to hold the same in the bobbin case, and a volute spring within the bobbin case with its larger convolution at the base substantially fitting the bobbin case and a central portion extending around the tubular stem and said spring coming between the bobbin case or shell and the thread bobbin and acting expansively for friction and to assist in the separation of the parts when the lever is released.

Signed by me this 4th day of March 1910.

HENRY A. BATES.

Witnesses:

GEO. T. PINCKNEY,
E. ZACHARIASEN.