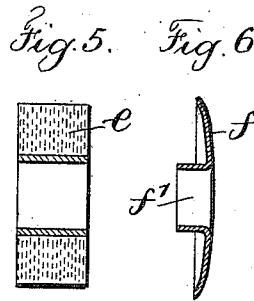
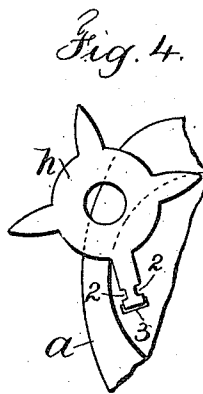
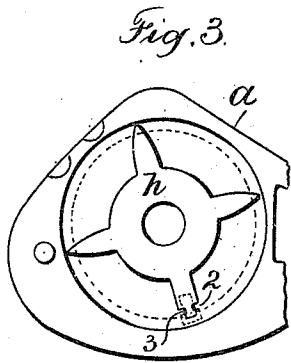
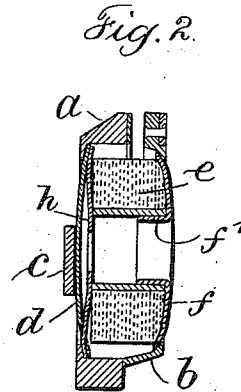
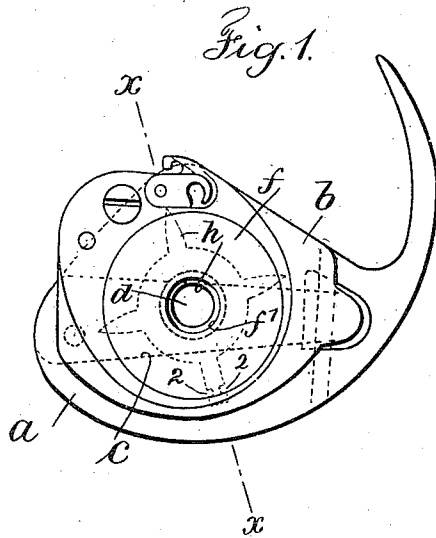


H. A. BATES.  
SHUTTLE FOR SEWING MACHINES.  
APPLICATION FILED JUNE 1, 1910.

986,125.

Patented Mar. 7, 1911.



Witnesses

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# UNITED STATES PATENT OFFICE.

HENRY A. BATES, OF MIDDLETOWN, CONNECTICUT.

SHUTTLE FOR SEWING-MACHINES.

986,125.

Specification of Letters Patent.

Patented Mar. 7, 1911.

Application filed June 1, 1910. Serial No. 564,367.

*To all whom it may concern:*

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

My invention relates to sewing machine shuttles and particularly to bobbin holders for sewing machine shuttles and the same is an improvement upon the devices shown and described in Letters Patent granted to me September 19, 1893, No. 505,305, and February 20, 1894, No. 515,187, and October 13, 1896, No. 569,316, with the object of simplifying the construction, lessening the number of parts and particularly dispensing with the central pin, reducing the cost of construction and more effectively and securely connecting the spring in position to prevent accidental displacement.

The shuttle of my improvement is made of two parts hinged together and adapted to receive a commercial thread bobbin or cop between said parts.

I provide at one side a disk sufficiently thin to be sprung into the cavity of the shuttle and be held firmly by the friction of its edge, and a bobbin friction-spring mechanically connected directly to said disk. At the other side of the shuttle, I provide an eyelet disk adapted to extend over the thread bobbin and into its open center and this eyelet disk fits into the open side of the shuttle with the edge of the eyelet disk bearing against the annular ledge surrounding the open center and it revolves with the thread bobbin. The operator can hold the bobbin and eyelet disk in the shuttle by grasping the parts through the open side of the shuttle so as to facilitate the threading operation. This construction makes unnecessary a central pin.

In the drawing, Figure 1 is a plan of a shuttle of two parts with the device of my invention contained therein. Fig. 2 is a cross section at about the dotted line *x, x*, of Fig. 1. Fig. 3 is a plan of the principal portion of one of the shuttle members showing the spring in position. Fig. 4 is a plan

showing the spring and also showing a fragment of one of the shuttle members in the act of connecting the spring thereto. Fig. 5 is a cross section of the thread bobbin or cop and Fig. 6 a cross section of the eyelet disk.

The parts *a b* composing the shuttle frame or body are of about the form shown in Fig. 1. They are to be hinged together and they are like similar parts shown and described in my aforesaid patents. Alone by themselves they are open through the center, and in connection with these parts I prefer to employ as shown in Figs. 1 and 2, a spring cross-bar *c* which is also shown and described in my aforesaid patents.

*d* represents a disk of metal which is sufficiently thin particularly around its edge to be sprung into the cavity of one member of the shuttle so that it is firmly held by the friction at its edge and as shown backs up closely adjacent to the spring cross-bar *c*. This disk *d* provides for the member *a* a thin wall or surface.

*e* represents the commercial thread bobbin or cop of well known construction and form. The eyelet disk has a slightly curved or convexed surface portion *f* and an eyelet portion *f'*; the former extending over an outer surface of the bobbin or cop and the latter or eyelet portion *f'* fitting into the open center of the thread bobbin or cop *e*. This eyelet disk is independent of the member *b* of the shuttle, and there is no fit of contact between said parts as a protective surface to the cop as in the structure of my aforesaid patents, but said eyelet disk with the thread bobbin is free to revolve in the shuttle, the annular ledge surrounding the open center of the member *b* overlapping the edge of the eyelet disk which in turning slides freely over said surface.

The spring *h* is to be connected in a fixed relation to the disk *d* shown in Figs. 3 and 4, and particularly in Fig. 4 it will appear that the spring is composed of a circular central portion and radial arms that are equally spaced apart. One of these arms is preferably made parallel-sided or substantially so beyond the circular central portion

of the spring and in contradistinction to the tapering form of the other arms, this parallel-sided arm is slightly longer than the others and it is provided with oppositely disposed notches 2 near the free end.

Figs. 3 and 4 show that the thin wall of the disk  $d$  of the member  $a$  of the shuttle is provided with a slot 3, and while Fig. 3 shows the spring as connected in a fixed relation to the said disk and shuttle, Fig. 4 shows the act of bringing the parts into the connected relation. The slot 3 is elongated and in length agrees with a radial line from the center of the disk  $d$  and cavity. Because the width of the parallel-sided arm of the spring is greater than the width of the slot in the disk  $d$ , it is necessary to turn the one with reference to the other into a position as shown in Fig. 4 at right angles to the position shown in Fig. 3, and to a radial line from the center of the disk  $d$ , and in which the width of the parallel-sided arm alines with the length of the slot and in this position the end of the arm is passed through the slot and the spring is thereafter given a quarter turn so as to bring the arm lengthwise parallel with the length of the slot and with said radial line, with the narrow portion of the arm coming between the notches 2 extending across the slot and in which position the parts will be interlocked so that any direct line pull would not be able to separate them. It is in this position that the spring  $h$  rests in the cavity of the shuttle with the ends of the tapering arms just short of engagement with the walls of the cavity. I do not limit my invention to this precise form of interlocking connection and engagement. The spring is therefore free to perform its spring function but secured against accidental displacement and it is adapted to receive the commercial thread bobbin or cop down in the cavity resting upon the spring as shown in the section Fig. 2, with the eyelet disk  $f^1$  against the opposite side of the thread bobbin and held in place against the under surface of the other member of the shuttle when the parts are snapped together; said position being fully illustrated by Fig. 2. When the parts are thus assembled the spring exercises its function to prevent too rapid unwinding of the thread from the thread bobbin and to apply tension against unwinding; the friction against a too rapid unwinding being between the thread bobbin and spring on one side and between the edge of the eyelet disk  $f$  and the inner edge of the member  $b$  of the shuttle on the other side.

I claim as my invention:

1. The combination with a sewing ma-

chine shuttle comprising two parts hinged together and one of said parts having a circular cavity and the other an open side, and a disk having a spring edge adapted to be forced into position in the member of the shuttle having the cavity and said disk provided with a slot, of a spring having a plurality of arms adapted to be received in said cavity and having one of its arms constructed to pass through and into engagement with said slot in an out-of-normal position and the spring then turned into concentric relation with said cavity so as to be held against accidental displacement.

2. The combination with a sewing machine shuttle comprising two parts hinged together and one of said parts having a circular cavity and the other an open side and the part having the circular cavity provided with a thin wall or surface having a slot formed therein, of a spring having a plurality of arms adapted to be received in said cavity and to bear upon the inner surface of said wall and said spring having one of its arms constructed to pass through and into engagement with the said slot when said spring is in an out-of-normal position and said arm to engage said slot when said spring is turned into concentric relation with said cavity so as to be held against accidental displacement.

3. The combination with a sewing machine shuttle, comprising two parts hinged together and one of said parts having a circular cavity and the other an open side, and a disk having a spring edge adapted to form an outer surface to the shuttle member having the cavity and to be forced to position within the cavity and held by the friction of its edge and said disk having an elongated slot in length agreeing with a radial line from the center of the cavity, and a spring adapted to be placed in the bottom of the cavity and having an arm with parallel sides oppositely notched near its end and adapted to be passed through said slot so that the portion of said arm between said notches extends across the slot and the spring is locked in position by the overlapping ends of the arm on the opposite side of the disk.

4. The combination with a sewing machine shuttle, comprising two parts hinged together and one of said parts having a circular cavity and the other an open side, of a disk having a spring edge adapted to be held within the cavity of the shuttle by the friction of its edge and forming one outer surface to said member of the shuttle, a thread bobbin adapted to be received in the cavity of said member and an eyelet disk having a

portion extending over the opposite surface  
of the thread bobbin and a portion extend-  
ing into the open center thereof against the  
inner edge thereof and said eyelet disk com-  
5 ing within the part of the shuttle having the  
open side when the parts are brought to-  
gether and revoluble with the thread bobbin,  
and a spring secured to the first aforesaid

disk for applying friction to the thread  
bobbin.

Signed by me this 27th day of May 1910. 10

HENRY A. BATES.

Witnesses:

GEO. T. PINCKNEY,  
E. ZACHARIASEN.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."

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