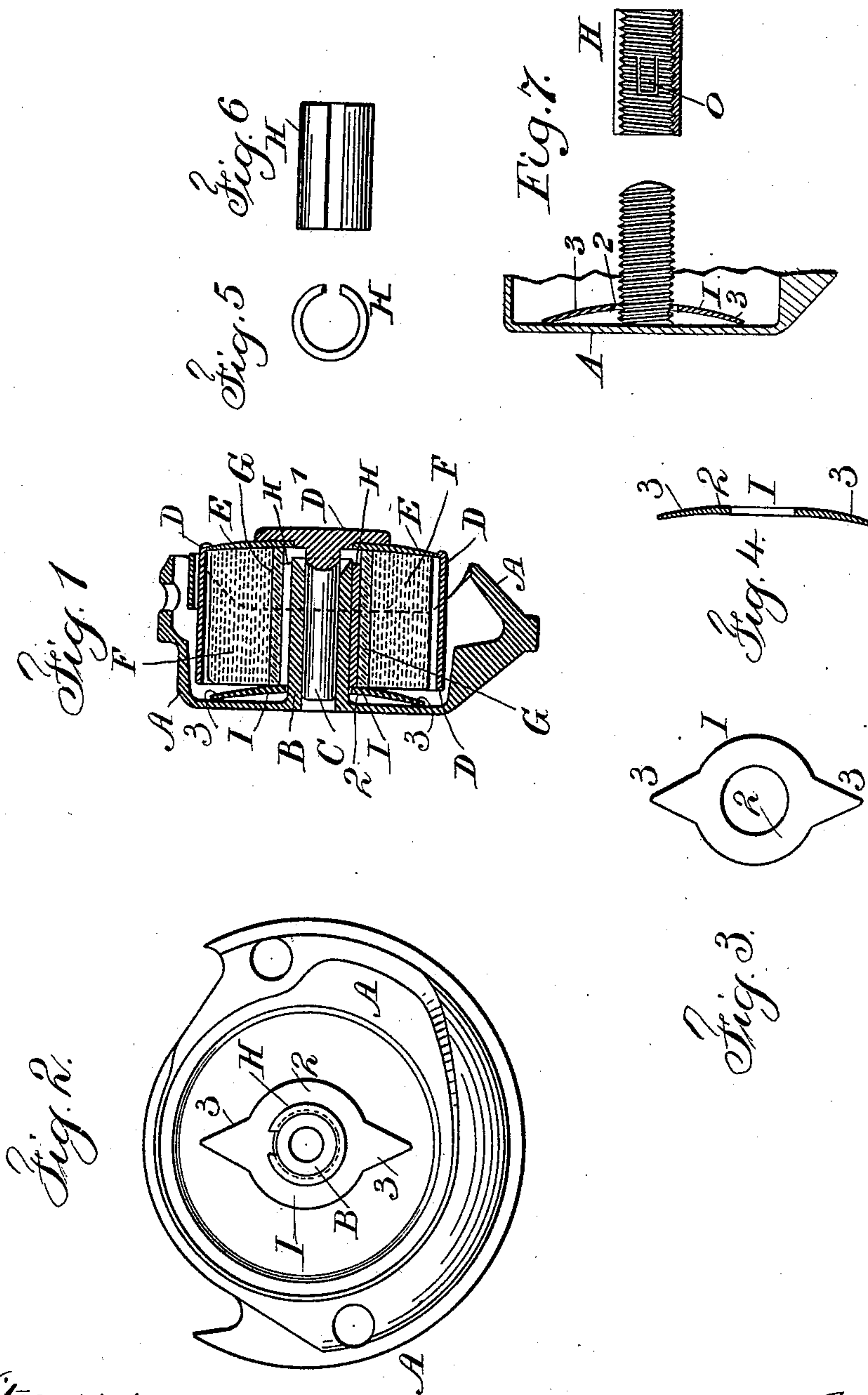


(No Model.)

H. A. BATES.  
SHUTTLE FOR SEWING MACHINES.

No. 522,002.

Patented June 26, 1894.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## SHUTTLE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 522,002, dated June 26, 1894.

Application filed December 1, 1893. Serial No. 492,437. (No model.)

*To all whom it may concern:*

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

There are several sewing machines upon the market in which the shuttle has a central pin within the cavity that is adapted to receive a bobbin of metal upon which the thread is wound. Among the machines making use of such a shuttle may be mentioned the Standard sewing machine, the Singer center bobbin, the Wheeler & Wilson, Nos. 11 and 12, and the Tracy sewing machine.

My present improvement is illustrated with reference to the sewing machine shuttle adapted to the Standard sewing machine, but it is not limited in this particular.

In sewing machines of the character before mentioned, the metal bobbin is rotated as the thread is drawn off and in this rotation the metal is worn, the bobbin becomes loose and frequently turns too far under the action of the thread as pulled off, so that the thread becomes loose within the shuttle. In addition to this, the metal bobbin occupies an unnecessary amount of space and prevents the introduction of a greater length of thread in the shuttle.

Efforts have heretofore been made for the introduction of bobbins of thread wound upon paper tubes for allowing an increased length of thread to be introduced into the shuttle and to lessen the wear upon the shuttle itself, but difficulty has been experienced in applying to the thread bobbin the proper friction to produce the desired tension upon the shuttle thread.

My present invention is especially adapted to thread bobbins in which the thread is wound upon a paper tube, but is not necessarily limited in this particular. I make use of a spring having an eye that surrounds the central pin of the shuttle, and around this central pin is a springsleeve adapted to grasp the pin with the proper friction so as to hold in any position to which the sleeve may be placed, and the end of this sleeve acts against the eye of the spring so as to regulate the position of that eye and consequently the amount

of pressure with which the spring bears against the end of the thread bobbin tube, hence the detaining friction upon the thread bobbin and consequently the tension upon the shuttle thread can be regulated with accuracy; and it will be observed that this improvement is adapted to the shuttles already on the market and hence can be used with the same by simply substituting a thread bobbin on a paper tube for the metal bobbins heretofore provided and upon which the thread had to be wound separately, and by this improvement I am enabled to save the time consumed in winding the thread upon the metal bobbin and also to regulate with accuracy the tension upon the shuttle thread and thereby produce much better sewing than can be done in machines where the shuttle thread has not a definite friction applied to the bobbin.

In the drawings, Figure 1 is a cross section of a shuttle fitted with the present improvements. Fig. 2 is a side view of the shuttle without the bobbin and bobbin holder. Fig. 3 is an elevation, and Fig. 4 a section of the spring preferably made use of by me. Fig. 5 is an end view, and Fig. 6 a side view of the spring sleeve and Fig. 7 is a section illustrating a modification in the pin and showing the sleeve detached.

The shuttle case A is of any desired size or shape and it has within it a cavity for the reception of the thread bobbin and a central pin B. In the shuttle shown in the drawings this pin B is tubular and receives the solid pin C of the bobbin holder D, which bobbin holder is cylindrical and provided with a cross-bar D' at one end to which the pin C is attached. In this character of shuttle the bobbin holder D is usually open at the sides of the cross-bar D'. I find it advantageous to close this open side by a disk E which is made with a central opening through which passes the pin C, and the edges of this disk are made sufficiently thin and slightly larger than the interior diameter of the bobbin holder D, in order that this disk E may be pressed into place and will hold by the spring of the edges of the disk, the object of this disk being to furnish a smooth surface for one end of the thread bobbin F to rub against, and such disk E prevents the thread becoming soiled. The thread of the bobbin F is



wound upon a tube G, preferably of paper and of the proper size to slip upon the center pin B outside of the sleeve H. The spring I is preferably made of thin sheet metal and adapted to be placed within the recess of the shuttle and preferably at the inner end of the pin B, and with this object in view the spring I is represented as having a central eye 2 and two bearing points 3, and this central eye 2 fits loosely around the pin B, and the sleeve H is made of comparatively thin sheet metal and adapted to slide over the tubular pin B and remain thereon in any position where it may be placed by the friction of the sleeve upon the central pin.

I have represented the sleeve H as a tube open or slotted at one side so as to form a spring clip around the pin B, but this sleeve may be provided with any frictional device, such for instance as a tongue o, Fig. 7 cut in the sheet metal for holding the same upon the pin B. This sleeve may be of any desired length. It will now be understood that by adjusting the sleeve H the spring I may be pressed more or less closely against the side of the shuttle and at the bottom of the cavity for the bobbin, and hence when the thread bobbin F is inserted, its tube G will be pressed more or less closely against the spring I and such spring will apply more or less pressure to the tube of the thread bobbin according to the position in which the sleeve H may be placed. If the friction is too great, the sleeve H is to be pressed inwardly and thereby force the spring I nearer to the side of the shuttle; if the friction upon the thread bobbin is too little, the sleeve H is to be drawn outwardly to allow the spring I to expand and press with greater force against the tube of the thread bobbin; and it will be observed that where the bobbin of thread is within a cylindrical bobbin holder having an end closed by the disk E, the thread at one end of the bobbin is pressed against the inner surface of the disk and a certain amount of detaining friction is the result to prevent the

thread bobbin rotating too freely as the thread is drawn off the same. In some kinds of shuttles the disk E will not be required. It will be apparent that if the surface of the central pin B were screw-threaded as seen in Fig. 7, the sleeve H might be screwed upon the same and the adjustment of the spring effected by the partial rotation of the sleeve H.

It is difficult to wind the thread bobbin with absolute accuracy and the bobbins wound by one manufacturer vary from those of another maker, hence it is of importance to be able to vary the action of the spring friction so as to adapt the same to the slight variations in the bobbins, and this is effected by the adjustment of the sleeve, as aforesaid.

The spring employed by me may be of any suitable shape or material.

I claim as my invention—

1. The combination with a sewing machine shuttle having a cavity and a fixed central pin and a thread bobbin, of a spring adapted to apply pressure to the thread bobbin, and a removable sleeve fitting closely by friction around the central pin and within the bobbin and adjustable endwise of the pin to compress the spring to a greater or less extent against the interior surface of the shuttle cavity, substantially as set forth.

2. The combination with a shuttle having a cavity for the thread bobbin and a central tubular pin, of a spring within the cavity, a sleeve closely surrounding the tubular pin and held by friction and adjustable lengthwise for compressing the spring to a greater or less extent, a bobbin holder having a pin entering the tubular central pin, and a removable disk surrounding the pin and coming into contact with the bobbin at the opposite side to the spring, substantially as set forth.

Signed by me this 29th day of November, 1893.

HENRY A. BATES.

Witnesses:

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