

(No Model.)

J. HOEFLER.
SEWING MACHINE SHUTTLE.

No. 296,006.

Patented Apr. 1, 1884.

Fig. 1.

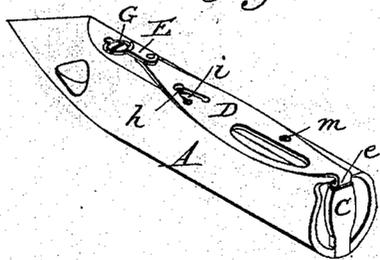


Fig. 2.

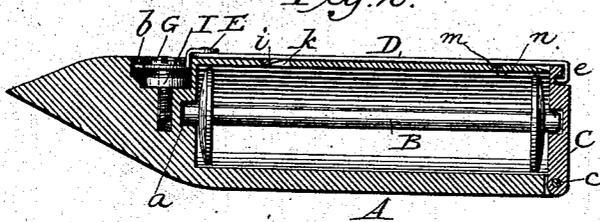


Fig. 4.

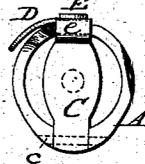


Fig. 3.

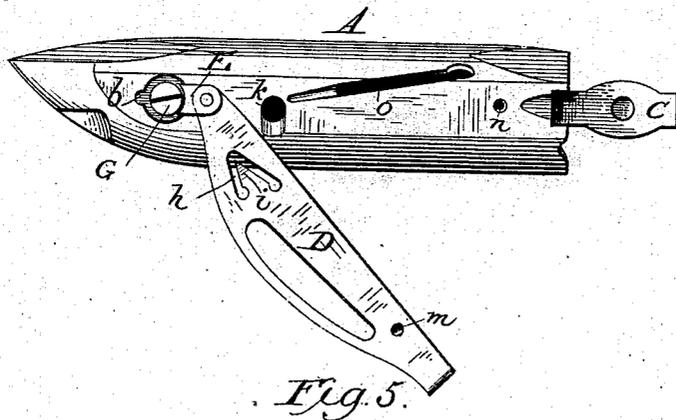


Fig. 5.

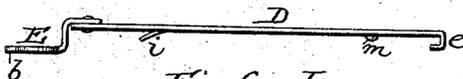


Fig. 6.



Attest

Jedney P. Hollingsworth
Harry Stripley

Inventor

John Hoefler
By his attorney
Philip T. Dodge.

UNITED STATES PATENT OFFICE.

JOHN HOEFLER, OF ILION, NEW YORK.

SEWING-MACHINE SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 296,006, dated April 1, 1884.

Application filed July 24, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN HOEFLER, of Ilion, in the county of Herkimer and State of New York, have invented certain Improvements in Sewing-Machine Shuttles, of which the following is a specification.

My invention relates more particularly to that class of cylindrical shuttles which have the bobbin inserted lengthwise therein through the rear end, and has particular reference to the details of construction for securing the bobbin in place, and for applying the proper tension to the thread, the shuttle being designed more particularly as an improvement upon the one for which Letters Patent of the United States were granted to me April 25, 1882, No. 256,896.

Referring to the accompanying drawings, Figure 1 represents a perspective view of my improved shuttle in an operative condition; Fig. 2, a longitudinal central section of the same; Fig. 3, a top plan view of the same with the parts in position to admit the insertion or removal of the bobbin. Fig. 4 is a rear end view. Fig. 5 is an edge view of the tension-spring and the adjustable plate to which it is attached. Fig. 6 is a view of the spring employed in connection with the plate to which the tension-spring is fitted.

Referring to the drawings, A represents the body of the shuttle, made of a tubular cylindrical form, and pointed at one end, in the usual or substantially the usual manner. The internal cavity of the shuttle is of cylindrical form, of suitable size to admit the bobbin B, and is extended inward from the heel or rear end, in order to permit the insertion of the bobbin, which passes freely therein. The bobbin B, constructed in the ordinary manner, with projecting journals at its two ends, has one journal seated in a step, *a*, formed for the purpose in the forward end of the shuttle, while the journal at the rear end is seated in a similar step formed in a hinged plate or latch, C. This plate or latch lies transversely across the rear end of the shuttle, having one end seated in a cavity therein and secured by a transverse pivot, *c*, as shown in the several figures, this connection permitting the plate to swing backward or outward, in order that the bobbin may be removed. For the double purpose of retaining the plate C in its closed

position to hold the shuttle, and of applying the requisite tension to the thread, I employ a flat spring or latch, D, applied longitudinally to the upper side of the body, which is suitably flanged to admit of the spring lying closely against the same. This spring is curved slightly upward toward its end, so that by suitably depressing its ends its central portion may be caused to bear with an elastic pressure upon the thread passing outward from the bobbin. The spring D is pivoted at one end to a plate, E, which is seated in a cavity in the top of the shuttle-body, and prevented from turning therein by means of a lip or ear, *b*, formed upon its edge and seated in a corresponding recess in the body. The plate E is held in position by means of a screw, G, passed vertically through the same into the body of the shuttle. By turning this screw the plate may be depressed and caused to depress the end of the spring D, thereby increasing the tension of the spring, and causing the same to bear with increased pressure upon the thread. When the swinging spring D is pivoted to the non-rotating plate, it has no tendency to turn or affect the adjustment of the screw G, as would be the case if mounted directly thereon. In order to hold the plate E upward against the under side of the head of the screw G, and to prevent the parts from working loose, I locate around the screw G, beneath the plate E, a spring, I. (Shown in Figs. 2 and 6.) This spring may be made of a helical form, as shown, or otherwise suitably shaped, or it may consist of rubber or other elastic material, the only requirement being that it shall exert an upward pressure beneath the end of the plate E. The pivotal connection of the spring D to the plate E admits of the former being swung laterally to and from its operative position, in order to admit of the thread being properly applied and adjusted. At its free end the spring is bent downward in a hooked form, as shown at *e*, this hooked end being adapted to enter a transverse groove or recess formed in the hinged plate C, in the manner represented in Fig. 2, the engagement of the hooked end of the spring with the plate serving the twofold purpose of holding the spring down in position to act upon the thread and of retaining the hinged plate in its closed position to prevent the escape of the bobbin.

The swinging motion of the spring serves to release the thread at the same time that it releases the plate C. For the purpose of preventing an accidental movement of the spring, it is provided with a projection or protuberance, *m*, adapted to ride over the surface of the shuttle and drop into a hole or recess, *n*, formed in the side of the shuttle-body, as shown in Figs. 2 and 3. For the purpose of properly guiding the thread and securing an increased tension thereon, the spring has a V-shaped incision, *h*, formed therein, so as to produce a finger, *i*, the point of which is bent downward below the under surface of the spring. The shuttle-body is provided with a hole or recess, *k*, in its upper surface, to receive the point of the finger *i*, and with a groove leading laterally from said hole to the edge of the body, in order to admit of the point of the finger riding readily to its place. The shuttle is provided, as usual, with a longitudinal slit or opening, *o*, through which the thread is extended upward from the bobbin.

In operating a shuttle constructed as above described, the spring D is swung to one side, in order to release the end plate, C, and the latter turned downward, as shown in Fig. 3. The end of the bobbin-thread is then projected outward through the slit *o*, the bobbin inserted into the body, the end plate closed to retain the bobbin, and the spring D closed to its place to secure the end plate. The thread confined between the spring D and the body of the shuttle, in rear of the point *i*, is first drawn forward past the point and then drawn backward, so as to override the same in the manner common in shuttles of this class.

The present invention is restricted to those matters and things which are hereinafter claimed, and as to all matters which may be described or shown, but which are not claimed, the right is reserved to make the same the subject of a separate application.

I am aware that a hinged heel-plate has been confined in a closed position by means of a tension-spring pivoted to the body, and provided at its free end with an elastic arm extending

at right angles thereto and arranged to engage in a hole in the heel-plate. My construction is advantageous, in that it permits the elastic arm or extension of the spring to be omitted, the open-ended groove in my heel-plate permitting the hook on the spring to slide endwise through the groove.

Having thus described my invention, what I claim is—

1. In combination with the tubular shuttle, the non-rotating plate E, the adjusting-screw G, and the external tension-spring, D, pivoted to said plate and arranged to swing in a plane parallel with the side of the body.

2. In combination with the tubular shuttle-body, the spring I, the plate E, seated in a recess in the body and fixed against rotation, the adjusting-screw G, and the external tension-spring, D, pivoted to the plate and arranged to swing in the direction described and shown.

3. In combination with the tubular shuttle-body, the heel-plate C, hinged at one end to the said body and having its free end provided with the transverse open-ended groove, and the external tension-spring, D, pivotally connected at one end with said body to swing in a plane parallel to its side, and provided at the opposite end with a hook, *e*, adapted to be slid longitudinally into the groove of the heel-plate by the swinging movement of the spring, as described, whereby the spring is caused to retain the heel-plate in a closed position and the heel-plate caused to maintain the spring under tension.

4. In combination with a shuttle-body having the hole or depression *k*, and the groove extending laterally therefrom, and having also the depression or cavity *n*, the hinged grooved heel-plate, and the external spring pivoted at one end, adapted to engage at the opposite end with the heel-plate, and provided at an intermediate point in its length with a stud or projection.

JOHN HOEFLER.

Witnesses:

JNO. L. HOEFLER,
W. H. HOEFLER.