(Model.)

J. F. WHITE & C. W. TAYLOR.

SEWING MACHINE SHUTTLE.

No. 308,720. Patented Dec. 2, 1884.

Fig. 1.

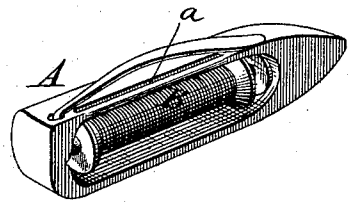


Fig. 2.

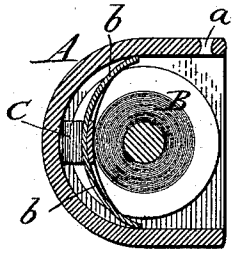


Fig. 3.

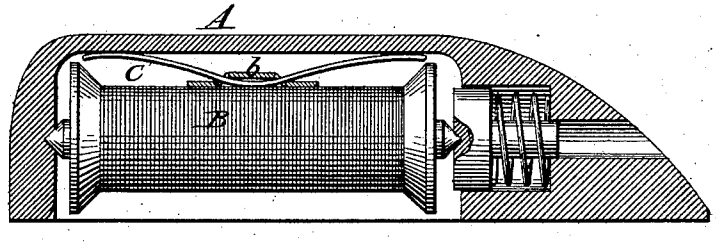
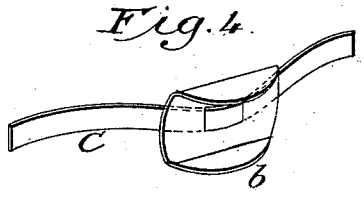


Fig. 4.



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JOHN F. WHITE AND CHARLES W. TAYLOR, OF GALLATIN, TENNESSEE; SAID WHITE ASSIGNOR TO SAID TAYLOR.

SEWING-MACHINE SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 308,720, dated December 2, 1884.

Application filed October 16, 1883. (Model.)

To all whom it may concern:

Be it known that we, JOHN F. WHITE and CHARLES W. TAYLOR, of Gallatin, in the county of Sumner and State of Tennessee, have invented certain Improvements in Sewing-Machine Shuttles, of which the following is a specification.

The object of this invention is to secure a uniform tension of the thread, and to permit the same to play freely in a longitudinal direction through the side of the shuttle as the latter is moved to and fro.

To this end the invention relates, first, to a tension-spring applied within the shuttle-body, and acting upon the surface of the thread on the bobbin, as hereinafter explained; and, secondly, to an open slot extended lengthwise in the side of the shuttle-body, the parts being constructed in such manner that the thread in leaving the shuttle is free to play to and fro in the slot or opening.

Referring to the accompanying drawings, Figure 1 represents a perspective view of a shuttle containing my improvement; Fig. 2, a transverse vertical section of the same; Fig. 3, a longitudinal central section of the same; Fig. 4, a perspective view of the tension-spring detached.

A represents the body of the shuttle, which may be constructed of any ordinary form, with one flat side recessed to permit the insertion and removal of the bobbin, as usual. In the upper side of the shuttle-body we form a horizontal open slot, *a*, through which the thread emerges, and from which it passes directly to the needle, the formation of this slot being such as to permit the thread when in action to play therein from end to end. The slot is located, it will be observed, in close proximity to the inner edge of the shuttle—that is to say, the edge which lies next to the needle when in action—so that the thread may pass directly upward to the needle without exerting a lateral strain thereon. The interior of the shuttle is provided with the usual supports or bearings for the ends of the bobbin B, which will be made of ordinary form, my invention having no relation to these features.

Within the shuttle-body we place an arched or semi-elliptical spring, C, the ends of which are seated against the rear wall of the cavity in which the shuttle is mounted, and the center of which is provided with a saddle or friction-plate, *b*, suitably shaped to bear against the surface of the thread upon the bobbin. The spring is preferably made free and detachable, as represented in Fig. 4, so that it may be dropped into position in the shuttle without change in the latter, previous to the insertion of the bobbin, the latter acting, when inserted, against the saddle *b*, and serving to retain the spring in place. The saddle urged outward by the spring against the surface of the thread offers a resistance to the rotation of the bobbin sufficient to produce the required tension of the thread. The tension may be readily increased or diminished by bending the ends of the spring forward or backward in order to vary the pressure with which it forces the saddle against the thread.

It will be observed as a peculiarity of our device that as the thread is unwound from the bobbin, so as to draw from points nearer the center, the saddle or friction-spring moves inward in a corresponding manner, thus offering a decreasing resistance and maintaining a practically uniform tension of the thread.

It will be understood that if the friction-spring were to act at a fixed distance from the center of the bobbin while the thread is drawn from a point constantly advancing toward the center there would be a gradually-increasing tension applied to the thread. By having the friction devices arranged to follow the thread inward toward the center the difficulty in this regard is entirely avoided.

We are aware that shuttles have been provided with longitudinal slots through which the thread was delivered; but so far as we are aware the construction of the tension devices and other features of the shuttle have been such as to prevent the thread from playing lengthwise of said slot as the shuttle is carried to and fro. It is with this end in view that our internal friction device, acting directly upon the bobbin or the thread thereon, is of importance, inasmuch as they permit us to dispense with the external tension devices and guides, so that the thread may be left free to play back and forth as it emerges from the side of the shuttle-body.

The form of the saddle *b* may be modified,

as desired, and it may be attached to the spring, of which it is in effect a part, in any suitable manner. In the drawings we have represented the spring, which is of flat steel, as being passed through slots in the plate, this connection being exceedingly simple and secure.

The employment of the concave saddle on the spring is advantageous in that the saddle, held in place against lateral displacement by its engagement around the bobbin and by its bearing at its edges against the inner wall of the shuttle, serves as a means of retaining the spring in position and preventing the same from being displaced or from turning over on one side. Consequently I am enabled to make use of a spring and saddle which are not permanently attached to the shuttle, and which may be, therefore, placed in the market as an article of merchandise, and applied to existing shuttles without change therein. It also admits of the same spring being used with different shuttles, thus avoiding the expense of providing each shuttle with a special spring.

Having thus described our invention, what we claim is—

1. In combination with the shuttle-body recessed on one side, and a longitudinal bobbin therein, the internal arched spring bearing at its ends loosely within the shuttle, and provided at the center with the saddle adapted to straddle the bobbin, as described, whereby the bobbin is caused to retain the spring in position.

2. A shuttle-body having a longitudinal thread-delivery slot in its upper side adjacent to the inner edge, and extending substantially from one end of the bobbin to the other, and internal friction devices located on the inner or rear side of said bobbin, whereby the thread is permitted to pass from the bobbin directly through the slot, and to play lengthwise of the latter without restriction.

J. F. WHITE.
C. W. TAYLOR.

Witnesses:
W. S. MUNDAY,
L. T. WHITE.