(Model.)

R. LEAVITT.

SEWING MACHINE SHUTTLE.

No. 285,418. Patented Sept. 25, 1883.

FIG. I

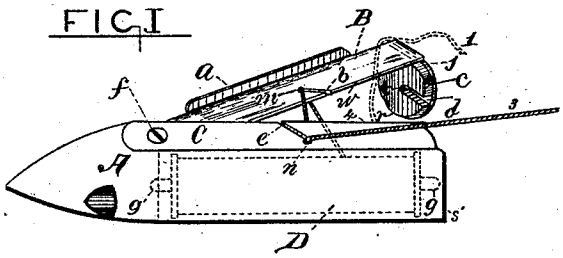


FIG. II

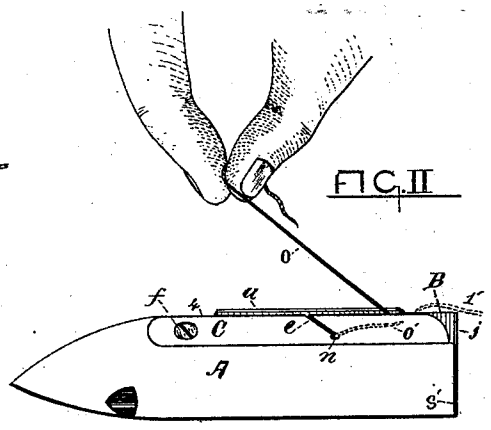


FIG. IV

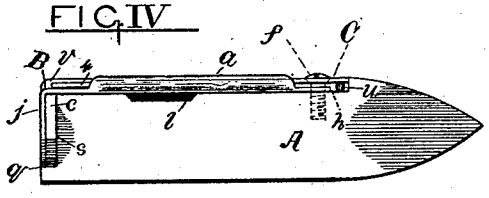


FIG. III

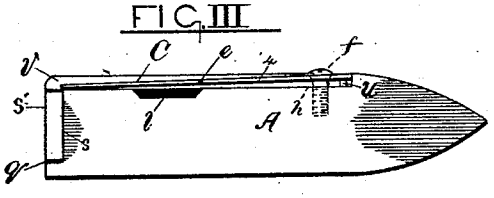


FIG. V

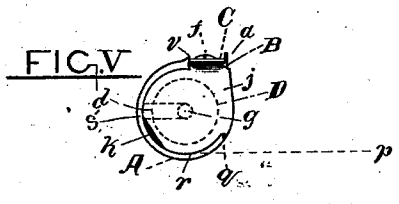


FIG. VI

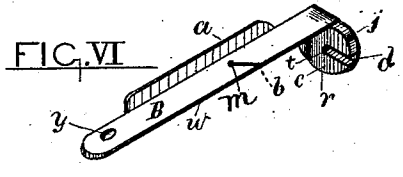


FIG. VII

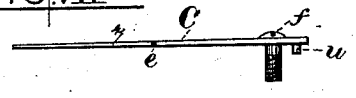
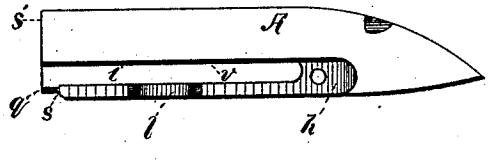


FIG. VIII



Witnesses.

Edward Hoether,

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UNITED STATES PATENT OFFICE.

RUFUS LEAVITT, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE HOWE MACHINE COMPANY, OF SAME PLACE.

SEWING-MACHINE SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 285,418, dated September 25, 1883.

Application filed August 30, 1882. (Model.)

To all whom it may concern:

Be it known that I, RUFUS LEAVITT, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in Sewing-Machine Shuttles; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to shuttles for sewing-machines self-threading in character; and it consists in the combination of the shuttle-shell with a plate and spring, said plate and spring having thread-slots in such relative position with each other that the thread is brought directly from the bobbin without bending or changing the direction of the thread, looping or threading through holes or apertures directly into the thread-slots of the tension-spring and plate or latch.

It further consists of a pivoted latch arranged to swing in the arc of a circle and cover and uncover the open end of the shuttle, said latch having a bearing for the bobbin-journal, and an open slot leading to the said bearing, by means of which the latch is swung from its pivoted end, connected and disconnected with the bobbin-journal without a longitudinal or sliding movement.

To more clearly understand my invention, reference is had to the drawings accompanying this specification and forming part thereof.

Figure 1 represents a view of the shuttle with the latch open. Fig. 2 is a top view of the shuttle, showing the latch closed. Fig. 3 is a front view of the shell with tension-spring attached. Fig. 4 is a front view of the shuttle complete; Fig. 5, an end view; Fig. 6, a perspective view of the latch; Fig. 7, a view of the tension-spring and screw. Fig. 8 is a top view of the shuttle-shell.

Its construction and operation are as follows:

A is the shuttle-shell; B, the pivoted swinging latch, having the upturned flange *a*, thread-slot *b*, heel-plate *c*, and the open slot *d*. C is the tension-spring, having thread-slot *e* and fulcrum *u*. *f* is the tension-screw; D, the bobbin; *g g'*, bobbin-journals.

The shell A is substantially cylindrical in form, and has cut on its upper side the recess *h*, (see Fig. 8,) to receive the latch and tension-spring. The cutting of this recess opens the communication *i* with the interior of the shell A, leaving also the perpendicular wall *v*. The latch B (see Fig. 1) rests directly on the shell A at the bottom of the recess *h*, the tension-spring C overlying and exerting a pressure or tension on the same, all controlled and operated by the tension-screw *f*.

The latch B is constructed sufficiently strong to withstand the pressure of the tension-spring C, and also the fatigue to which it will be subjected in the operation of opening and closing. The end *j* of the latch B is bent downward at right angles, to which is secured the heel-plate *c*, having the slot *d*, to receive the bobbin-journal.

To uncover the end of the shuttle and thread the same, it is only necessary to press against the thumb-cut *k* in the end of the latch, (see Fig. 5,) swinging it clear of the shell A and bobbin-journal *g*. The thread unwinds from the bobbin and drops into the groove *l*, (see Figs. 3 and 4,) from thence in the direction indicated by the dotted line 1, (see Fig. 1,) and will lie across the open latch B back of the thread-slot *b*. The latch will then be closed, assuming the position as seen at 1', Fig. 2. The respective thread-slots of the latch and spring must be in a position opposite each other—that is, the thread-slot in the spring must be in the edge 4, and the slot in the latch in the edge *w*. A slight pull will bring the thread in the position of *o*, between the flange *a* of the latch B and the edge 4 of the tension-spring C, and a continuous pull will carry it forward toward the point of the shuttle until it drops into the thread-slots *e* and *b* of the spring and latch, resting in the thread-holes *m* and *n* of the same, assuming the position as indicated by the thread 3, Fig. 1, which represents the shuttle threaded and ready for use, except that the latch is open to illustrate the position of the thread. Fig. 2, with the dotted line *o'*, represents the shuttle and thread ready to operate.

It is not necessary, when placing the bobbin into the rear end of the shuttle, to first place the thread in the groove *l* of the shell A. All that is required is to drop the bobbin into the shuttle and hold the unwinding thread in the hand. Closing the latch will place the thread between the latch and spring, which may occupy any position back of the thread-slot *b* of the latch, as this is the first slot the thread enters when it is being drawn into position. The groove *l* of the shell A is provided in case the thread breaks while sewing, and so close to the shuttle that it cannot be reached, or between the latch and spring. Then by opening the latch the end of the thread will drop into the groove *l*, the end projecting outside, where it may be easily taken up. The flange *a* of the latch B operates to prevent the thread escaping from the thread-slot *e* of the spring C while the shuttle is in operation. A shuttle thus constructed can be threaded simply by passing the thread direct from the bobbin to the outside of the shuttle, and by a slight pull in one direction the thread is carried to its respective position in the latch and spring without changing the direction of the thread by looping over plates or projections, threading through holes or apertures, which is a tedious and vexatious operation. The latch in opening and closing swings on a plane as indicated by the dotted line *p*, Fig. 5. The point *q* of the shell B being higher than this dotted line, the lower point, *r*, of the heel-plate will spring or ride over the point *q*, and drop into and rest against the bottom of the interior of the shell B, the circle of the heel-plate fitting the same.

s s', Fig. 3, represent the rear end of the back and front of the shuttle-shell A. The front, or side nearest the race, is shorter than the back, leaving a recess to receive the heel-plate *c*, which fills the shell flush with the end *s*, or longest point, as seen at Fig. 4.

The perpendicular wall *v* (seen more clearly at Fig. 5) supports the tension-spring C on one edge and the flange *a* of the latch B on the other. The edge *w* of the latch B abuts against the wall *v*, effectually preventing the shuttle from unthreading while in operation. When the heel-plate has dropped into the interior of the shell A, it cannot be accidentally removed therefrom while the shuttle is in active operation, as it will be held down in place by the tension-spring C, and would remain there without the assistance of the spring C, as the point *r* of the heel-plate (as before stated) is lower than the point *q* of the shell, over which it must be forced before the latch can be opened. The end *j* of the latch B could be provided with an open slot and bearing and the heel-plate *c* dispensed with; but this plan would be of no practical value, as the downward-projecting end *j* would be too frail to close over the end of the shuttle-shell without cramping and springing. The heel-plate *c* operates to prevent this, making the cover for the end of the shell firm and rigid, keeping the bearing always in line with the bobbin-journal.

The tension-spring C (see Fig. 7) is tapering, to give greater elasticity at the end required for the tension, and has in rear of the screw *f* the projection or stud *u*, which operates as a fulcrum. This fulcrum rests on the bottom of the recess *h*. The spring C does not come in contact with the latch B, except at that part required to exert a tension on the thread, which would be directly under the thread-slot *e* of the spring. The elasticity of the tension-spring from its point of contact with the latch to the end of said spring is due to the position of the fulcrum *u* and the taper. The combination thus described produces a delicate, sensitive, and uniform tension under all circumstances and varying sizes of threads. The tension on the thread will keep the bobbin-journal *g* against the end wall, *t*, of the bearing *d*, thus preventing the bobbin-heads from contact with the interior of the shuttle-shell and causing friction.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A sewing-machine shuttle-shell having its rear end open to receive the bobbin, and having projection *q*, to secure the latch and recess *h*, in combination with a pivoted and swinging latch having a thread-slot formed therein, and a heel-plate, *c*, rigidly attached to the downward-projecting flange to cover the open end of the shuttle, said heel-plate having a bearing for the bobbin-journal and an open slot leading thereto, substantially as set forth.

2. The combination, with a shuttle-shell having its rear end open to receive the bobbin, of the pivoted and swinging latch having thread-hole *m*, slot *b*, upturned flange *a* at its outer edge, the tension-spring C, having thread-hole *n*, slot *e*, and fulcrum-pin *u*, said spring overlying the latch and arranged to exert a tension on the same, as described and set forth.

3. The combination, with a sewing-machine shuttle-shell, of a plate or latch having a thread-hole and an opening leading from the same to the edge of the said plate, and a spring overlying and exerting a tension on the said plate, and having a corresponding thread hole and slot formed therein, the respective thread-slots of the latch and spring opening in opposite directions to each other, whereby the thread, when placed between the latch and spring, may be drawn into their respective thread-slots, and the shuttle threaded by a slight pull of the thread in one direction, without looping over catches or projections, threading through holes or apertures in the shuttle latch or spring, substantially as set forth.

4. In combination with the shell A, having recess *h*, wall *v*, groove *l*, and the pivoted and

swinging latch B, having hole *m*, slot *b*, screw-hole *y*, upturned flange *a*, downward-projecting flange *j*, having heel-plate *c*, bearing *d*, with the tension-spring C, having hole *n*, slot *e*, fulcrum *u*, and the tension-screw *f*, to connect the latch and spring to the shuttle.

In testimony that I claim the foregoing I have hereunto set my hand and affixed my seal, this 25th day of August, 1882, in the presence of two witnesses.

RUFUS LEAVITT. [L. S.]

Witnesses:

I. B. PRINDLE,

E. W. FAIRCHILD.