

J. S. COPELAND.
SEWING-MACHINE SHUTTLE.

No. 172,612.

Patented Jan. 25, 1876.

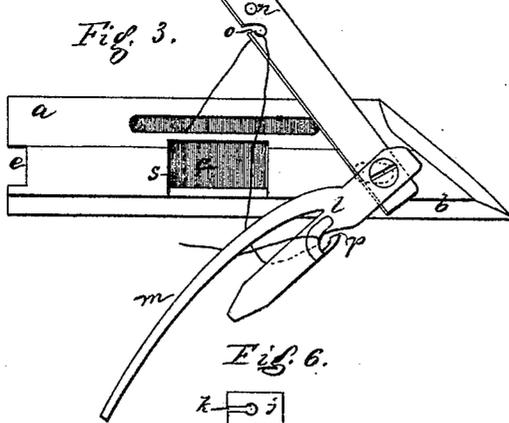
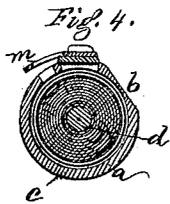
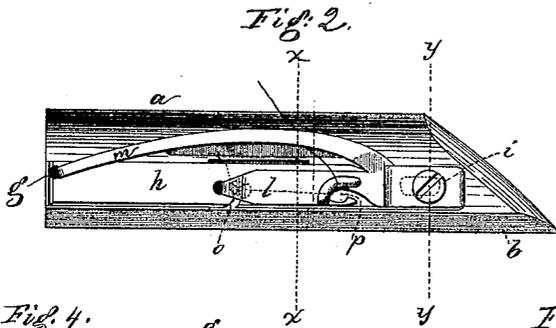
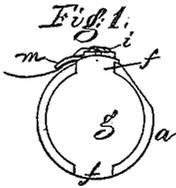


Fig. 6.



Witnesses.
L. H. Latimer.
W. G. Pratt.

Inventor.
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per *Lowry & Gregory*
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UNITED STATES PATENT OFFICE.

JAMES S. COPELAND, OF HARTFORD, CONNECTICUT, ASSIGNOR TO WEED SEWING MACHINE COMPANY, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINE SHUTTLES.

Specification forming part of Letters Patent No. **172,612**, dated January 25, 1876; application filed December 6, 1875.

To all whom it may concern:

Be it known that I, JAMES S. COPELAND, of Hartford, in the county of Hartford and State of Connecticut, have invented an Improved Shuttle for Sewing-Machines, of which the following is a specification:

This invention relates to shuttles for sewing-machines; and consists in the combination of the shuttle-shell with a pivoted latch, having connected with it, at one end, a bearing for the bobbin-journal, or a cap to close the opening at the heel of the shuttle, the bearing or cap being arranged to be moved longitudinally with relation to the longitudinal axis of the shuttle, and to swing in the arc of a circle to uncover the open end of the shuttle, substantially as hereafter described.

This latch has connected with it an adjustable tension-producing and slack-thread-controlling spring, the screw confining it in operative position on the shuttle entering a threaded hole in a split or bifurcated latch-carriage, and the tension of the thread is varied preferably by this same screw. The eyes, through which pass the thread leading from the bobbin to the work, are slotted as usual to facilitate threading.

Figure 1 is an end view, showing the heel of the shuttle. Fig. 2 is a top view; Fig. 3, a top view, with latch and spring separated to show their construction, but in use they are not so opened; Fig. 4 is a section on line *x x*, Fig. 1; Fig. 5, a section on line *y y*, Fig. 1; and Fig. 6, a view of the latch-carriage removed.

This shuttle, in the present instance, is adapted for use in the Weed sewing-machine, where the race-face is arranged in a straight line transverse to the cloth-support; but it may be applied to any well-known straight or curved race-machine by changing the shape of the outer shell.

The shell *a*, substantially cylindrical, is of steel or hardened iron properly polished. It is preferably provided with a flat wearing face, *b*, to fit the shuttle-race face. It has a point, and at its heel is an opening extending well forward into the shell for the reception of the thread *c*, wound on a bobbin, *d*, or as a cop to deliver from the inside of the cop through

the mass of thread, as cops have heretofore been made. At the heel of the shell are one or more notches, *e*, to receive the portions *f* of the bearing or heel-closing cap *g*, connected with or forming part of the latch *h* pivoted at its end next the point of the shuttle by a screw, *i*, to a carriage, *j*, shown as a cylindrical bolt, (see Fig. 6,) split or bifurcated at *k* to receive the screw *i*, and adapted to move longitudinally in a bearing or cavity made for its reception in the shuttle-shell. This screw *i* is preferably made tapering, the degree of the taper being very slight, so as, in a measure to expand the carriage to press against the wall of the cavity in which it is fitted, so that the carriage will not move in such cavity during the time the shuttle is being used, but will permit the carriage to be moved longitudinally, and with it the latch, when it is desired to uncover or cover the open end of the case, the end of the latch, near the point of the shuttle being pushed by the thumb or finger, or the other end of the latch, near the bearing or cap *g*, may be provided with a notch by which the latch may be drawn longitudinally. To this latch, and by means of screw *i*, is connected a tension-spring, *l*, and in this instance the usual spring *m*, common to shuttles to control the slack shuttle-thread, is connected with and forms part of the tension-regulating spring *m*; but *l* may be attached to the latch *h*, or to the shell, or be soldered to *m*. The forward end of spring *l* is provided with a small downwardly-projecting lip, adapted to bear on the upper side of the latch *h*, at or near its extreme forward end, and between the screw *i* and shuttle-point, the opposite end of spring *l*, or the end nearest the heel of the shuttle, has a hook adapted to enter a hole, *n*, in the latch *h*, to prevent lateral motion of the spring *l* independently of the latch.

By this construction of the spring *l*, it touching the latch *h* only at opposite ends, the screw *i*, when turned up or down, will lessen or increase at will the pressure of spring *l* on the shuttle-thread, it being led from the interior of the shell out through an opening therein, then into the slotted eye *o*, between the spring *l* and latch *h*, through slotted eye *p*,

and under spring-finger *m*, the course of the thread being shown in Fig. 2 in full and dotted lines. The free end of the spring *m* is provided with a hook, as usual, to enter a hole, *q*, in this instance made in the latch *h*. About the eye *p*, the substance of the spring *l* is increased in thickness to prevent giving the thread too short a bend, or drawing it over a thin portion, and therefore a wearing edge having a greater tendency to abrade and break the thread. The usual metallic or wood journals of the bobbin find bearings, one end at *r*, (see Fig. 5,) in the point of the shuttle, and the other in a depression made on the inside of the bearing block or cap *g*.

The opening *s*, in the shuttle-shell, is made sufficiently wide, so that the latch in its movements about the screw *i* will not press the thread between it and the shuttle-shell, which might cut and break the thread.

A pivoted latch, with an attached bearing-plate, is not new, and such a latch not adapted to move longitudinally to cover and uncover the open heel of the shuttle is not claimed.

The shape of the tension-spring might be somewhat varied without departing from my invention, and the thread-guiding eyes need not be slotted. The screw is held from turning by the carriage, except when moved positively. Instead of notches *e* small projections on *a* or *g* might enter opposed openings in *g* or *a*.

I claim—

1. The combination, with the shell of the shuttle, of a pivoted and sliding latch and connected bearing and cap, substantially as described.

2. The combination, with the shell of the shuttle, of a pivoted and sliding latch, and bearing, and latch-carriage, and a screw to pivot the latch and enter the carriage, to operate as and for the purpose described.

3. In a shuttle, a pivoted and sliding latch, and latch-carriage, in combination with a tension-spring and a screw to attach the spring and latch together, and to adjust the tension on the thread, substantially as described.

4. The latch *h*, provided with a slotted eye and an opening, *n*, in combination with a tension-spring, provided with a slotted eye, a hook to enter opening *n*, and with a screw to press the spring against the thread between it and the latch, substantially as described.

5. The pivoted and sliding latch, in combination with the tension-spring and shuttle-thread-slack-controlling spring, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES S. COPELAND.

Witnesses:

FREDERICK EBERTS,
LOUIS FRITZ.