

J. KNOX.
Shuttles for Sewing-Machines.

No. 144,395.

Patented Nov. 11, 1873.

FIG. 1.

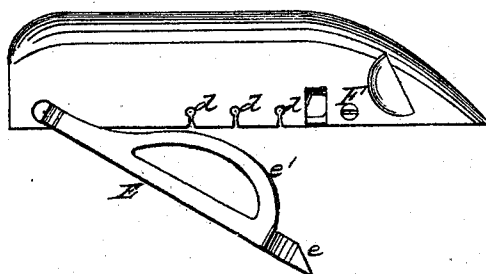


FIG. 2.

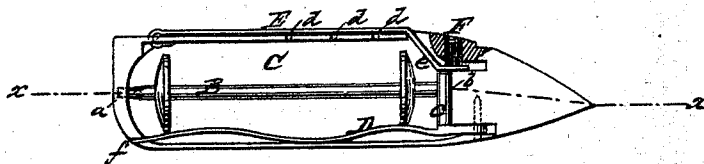
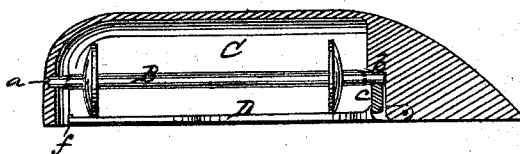


FIG. 3.



WITNESSES:

Geo L. Ewin
Walter Allen

INVENTOR:

John Knox
 By *Knights* Attorneys.

UNITED STATES PATENT OFFICE.

JOHN KNOX, OF THREE RIVERS, MICHIGAN.

IMPROVEMENT IN SHUTTLES FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **144,895**, dated November 11, 1873; application filed July 21, 1873.

To all whom it may concern:

Be it known that I, JOHN KNOX, of Three Rivers, in the county of St. Joseph, Michigan, have invented an Improved Shuttle for Sewing-Machines, of which the following is a specification:

This invention relates to reciprocating shuttles having loose long bobbins. The invention consists in a peculiar combined thread-guide and bobbin-fastening. The bobbin-spindle has a closed bearing at one end. At its other end it rests in an open bearing, and is secured by a cap attached to a hinged thread-guide. The bearing-cap is arranged at the hinge end of the thread-guide, the other end of the arm, constituting the guide, being held in a retaining-notch.

The general objects of the invention are superior simplicity and better facilities for taking out and replacing the bobbin with ease and dispatch.

The bearing-cap, as arranged at the hinge end of the thread-guide, is held by a very slight degree of retaining force at the extremity of the arm, the latter acting as a lever. The cap is also more readily lifted by the arm, and the latter may be as light as desired, owing to the small degree of strain thereon.

Figure 1 is a plan view of a sewing-machine shuttle illustrating this invention, the tension-spring being represented as opened. Fig. 2 is a face view of the same, partly in section. Fig. 3 is a longitudinal section of the same on the line *x x*, Fig. 2.

The improved shuttle, in its mechanical details, may be of any approved make, and of different patterns to suit the various machines using this class of shuttles. A long bobbin, B, is employed, having a solid spindle with projecting journals, and a cavity, C, of proper size and shape, is formed in the face of the shuttle for the reception of this. A close bearing, *a*, is provided at one end of the shuttle for one journal of the bobbin, and an open bearing, *b*, at the other end. For securing the bobbin in place, a cap-block, *c*, is attached to a hinged arm, D, which constitutes, also, the thread-guide of the shuttle, being properly ar-

ranged at the bottom of the shuttle for this purpose. A tension-spring, E, is arranged externally and pivoted at the rear end of the shuttle. This operates in connection with a series of notches or perforations, *d*, as in other shuttles. The free end *e* of the tension-spring is bent inwardly, and a regulating-screw, F, to act on this, is arranged in the top of the shuttle. The latter is consequently easily accessible without removing the shuttle from its race, while all the advantages of an external tension-spring are secured therewith. The point of the screw F is split, as represented in Fig. 2, so that it may be spread to tighten the screw in the event of its becoming loose by wear. A reliable adjustment of the spring is thus insured. A convex thread-tightening bar or edge, *e'*, may be formed on the tension-spring, as illustrated in Fig. 1, if preferred, or this may be dispensed with. The cap-block *c* of the combined thread-guide and latch is arranged at the hinge end of the same, in connection with a retaining-notch, *f*, for the reception of the free end of the arm.

The thread-guide may be either curved, as illustrated in Figs. 2 and 3, or straight.

To change the bobbin the combined thread-guide and latch is lifted, the empty or old bobbin removed, and a new or full bobbin introduced. The new thread is then passed around the thread-guide, and the thread-guide and latch is then closed. To adjust the thread in the tension device the spring is opened, as illustrated in Fig. 1, without disturbing the regulating-screw. This may be adjusted to regulate the tension without removing the shuttle from the shuttle-race, and its perfect operation may be perpetuated by spreading its split end.

The following is claimed as new:

The combined thread-guide and latch, when the cap-block *c* is arranged adjoining the hinge, in combination with a retaining-notch, *f*, to receive the extremity of the arm, as set forth.

JOHN KNOX.

Witnesses:

JAS. H. LYON,
E. J. ENSIGN.