J. BUTCHER.

SEWING-MACHINE SHUTTLE.

No. 180,541. Patented Aug. 1, 1876.

Fig. 1.

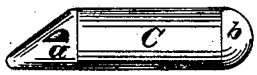


Fig. 2.

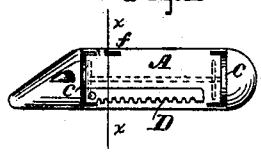


Fig. 3.

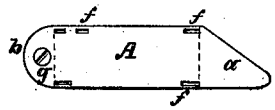


Fig. 4.

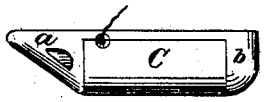


Fig. 5.

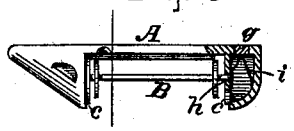


Fig. 6.

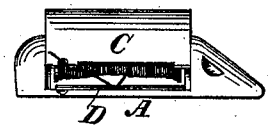


Fig. 7.

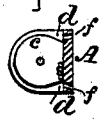


Fig. 8.

Fig. 9.

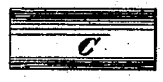
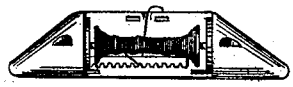


Fig. 10.



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UNITED STATES PATENT OFFICE.

JOSEPH BUTCHER, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND GEORGE BUTCHER, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINE SHUTTLES.

Specification forming part of Letters Patent No. **180,541**, dated August 1, 1876; application filed April 22, 1876.

To all whom it may concern:

Be it known that I, JOSEPH BUTCHER, of the city, county, and State of New York, have invented certain Improvements in Sewing-Machine Shuttles, of which the following is a specification:

My invention consists in certain improvements in the construction of a closed sewing-machine shuttle, with reference particularly to the covering of the bobbin-cavity, and the method of inserting and removing the bobbin. It also consists in an improved tension for the thread, as will be hereinafter described.

In the drawings, Figure 1 is a front view of my improved shuttle. Fig. 2 is a similar view with the cover removed. Fig. 3 is a back view. Fig. 4 is a plan or top view. Fig. 5 is a plan, partially in section. Fig. 6 is a plan, showing the cover partially removed. Fig. 7 is a transverse section in the plane of the line *x x*, Fig. 2. Figs. 8 and 9 are, respectively, end and rear elevations of the cover for the bobbin-cavity. Fig. 10 is an elevation, showing the adaptation of my improvements to a double-nosed shuttle.

My improved shuttle is constructed, preferably, of solid metal, of the form shown in the drawings, *a* being the nose, *b* the butt, and A representing a thin vertical wall at the back connecting the two. The space between the nose and butt forms the cavity of the shuttle, to receive the bobbin B, which may be of the usual kind. This cavity is shown open in Figs. 2, 5, and 10; but when the shuttle is in use this cavity is closed, and the bobbin protected by a cover, C, as shown in Figs. 1 and 4, and in detail in Figs. 8 and 9. This cover is preferably formed of thin spring metal, bent into a half-cylindrical or semi-tubular form, as seen in Fig. 8, and provided with small projecting spurs, hooks, or points *e e*, hooked or inclined outwardly. When the cover is applied these spurs engage or take into corresponding apertures *f f* in the wall A, which are also inclined or beveled to fit the hooks.

The cover being elastic, when it is put on it is pinched between the thumb and finger, which forces its free edges nearer together until the spurs *e e* coincide with the apertures *f f*, when they are slipped into the same. Being released by the operator, the cover springs outward again, and its elastic force serves to retain the spurs in the holes and keep the cover in place.

If preferred, the lower spurs may be first engaged, and then the upper inserted by pressure on the top of the cover. The cover may be readily removed by reversing the operation.

By this construction I provide a shuttle wholly inclosed with a broad and continuous surface, to present to the part of the machine against which it plays, and a cover for the bobbin-cavity that is readily removed and attached.

The parts *a* and *b* of the shuttle are cut away to form a rabbet, *c*, at the margin of the bobbin-cavity, which rabbet forms a shoulder for the cover C to rest upon at the ends. The form of this shoulder is best represented in Fig. 7, where it will be seen that it is cut away deeper at the points *d d* than elsewhere. This allows the cover to be pinched together at the edges when being put on, as above described. One end of the shuttle—either the nose or butt—is hollowed, as shown in Fig. 5, and arranged to receive a suitable leaf-spring, *i*. This spring is inserted at a hole, *g*, which may be closed by a screw-plug, or permanently, as desired. One branch of the spring forms an elastic covering for a hole, *h*, to receive the bobbin pivot or journal, and the other presses against the opposite wall of the cavity. When the bobbin is inserted the pivot end presses back the branch of the spring *i*, and permits the other pivot to enter its socket. When resting in its bearings the bobbin is free to turn without interference from the spring, as the pivots of the bobbin are short enough to prevent the said spring from pressing endwise on them after the bobbin is in place. To the vertical wall A is secured a strip of spring metal, D, preferably of steel, which constitutes the tension device for the shuttle-thread. This strip or spring is arranged to press against the wall of the shuttle with elastic force, and is provided with notches or serrations on its lower edge, as shown. The thread coming from the back of the bobbin passes down around the tension-strip, up between it and the shuttle-wall, and thence out at a hole, *k*,

which is preferably cut half in the wall A and half in the cover C, as shown. The thread may be made to engage any one of the notches in the strip D at pleasure, and the tension be regulated thereby, a notch near the free end of the strip producing less tension than one near the other end. The notches hold the thread in place and preserve an even tension, but one which may be changed in an instant by the operator.

Before inserting the bobbin it is best to hook the bight of the thread around the free end of the tension-strip, and then, after the bobbin is in place, adjust it to any notch desired.

I claim—

1. A sewing-machine shuttle having a fixed nose and butt, or two noses, and cut away between them to form a bobbin-cavity, leaving only a vertical wall, A, next the needle, and a removable semi-tubular cover for the said cavity, so that the bobbin is entirely inclosed, as shown and specified.

2. The elastic semi-tubular cover C, provided with spurs or hooks *e e* on its edges, in combination with the wall A of the shuttle-body, provided with suitable corresponding apertures *f f*, to form a spring-catch for retaining the cover in place on the shuttle, substantially as set forth.

3. The tension device consisting of a strip of spring metal, D, notched at the lower edge, and secured by one end to the back wall of the shuttle, arranged substantially as described, whereby the degree of tension may be regulated by causing the thread to engage any desired notch, as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOSEPH BUTCHER.

Witnesses:
HENRY CONNETT,
GEORGE BUTCHER.