2 Sheets—Sheet 1.

N. D. STOOPS.

Sewing-Machine Shuttle.

No. 202,602. Patented April 16, 1878.

Fig. 1.

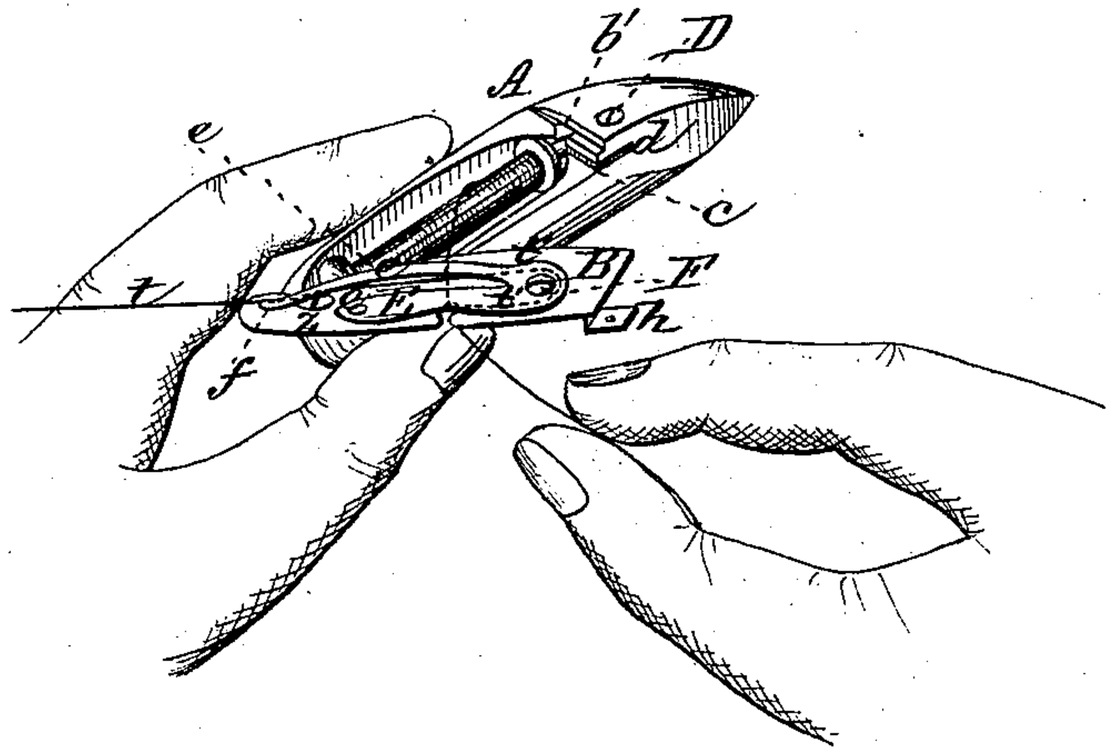


Fig. 2.

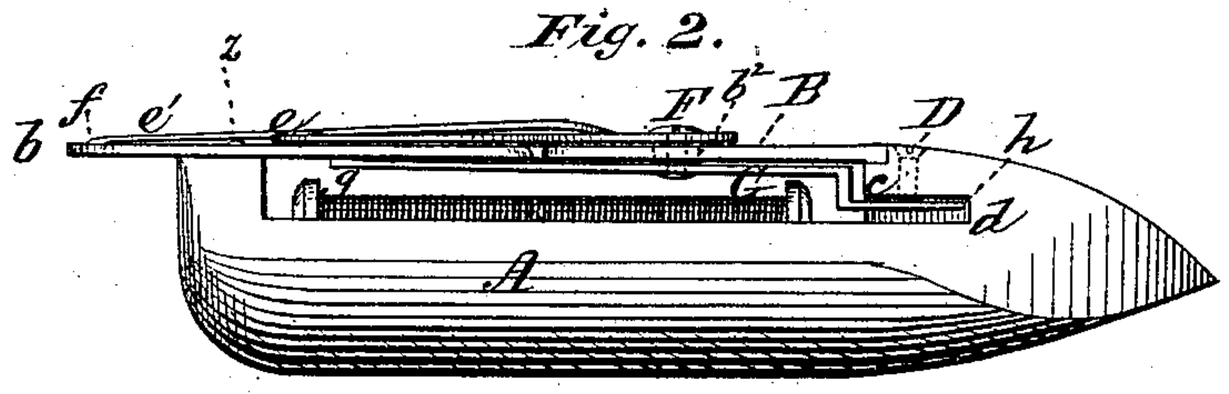
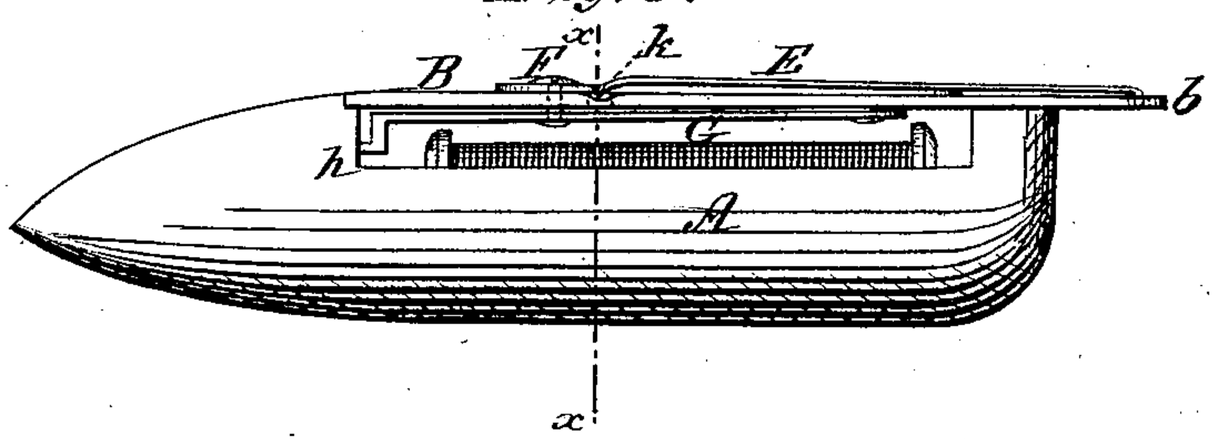


Fig. 3.



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Attorney.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

2 Sheets—Sheet 2.

N. D. STOOPS.

Sewing-Machine Shuttle.

No. 202,602. **Patented April 16, 1878.**

Fig. 4.

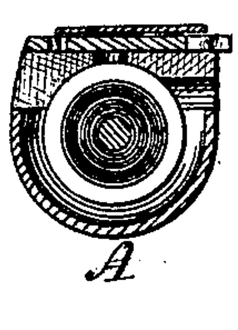


Fig. 5.

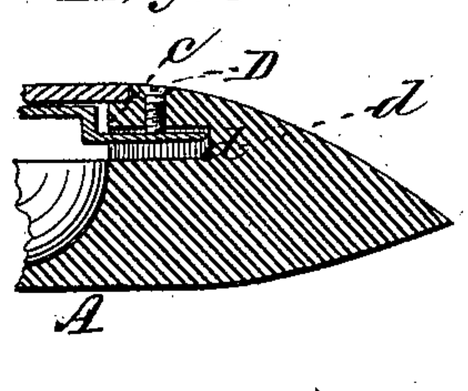


Fig. 6.

Fig. 7.

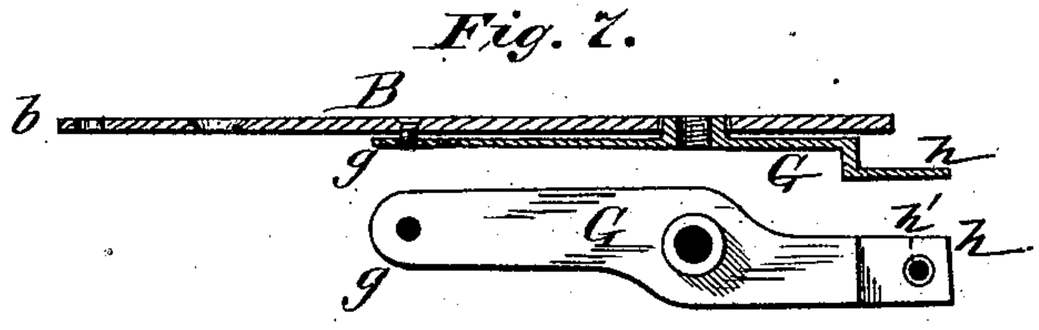
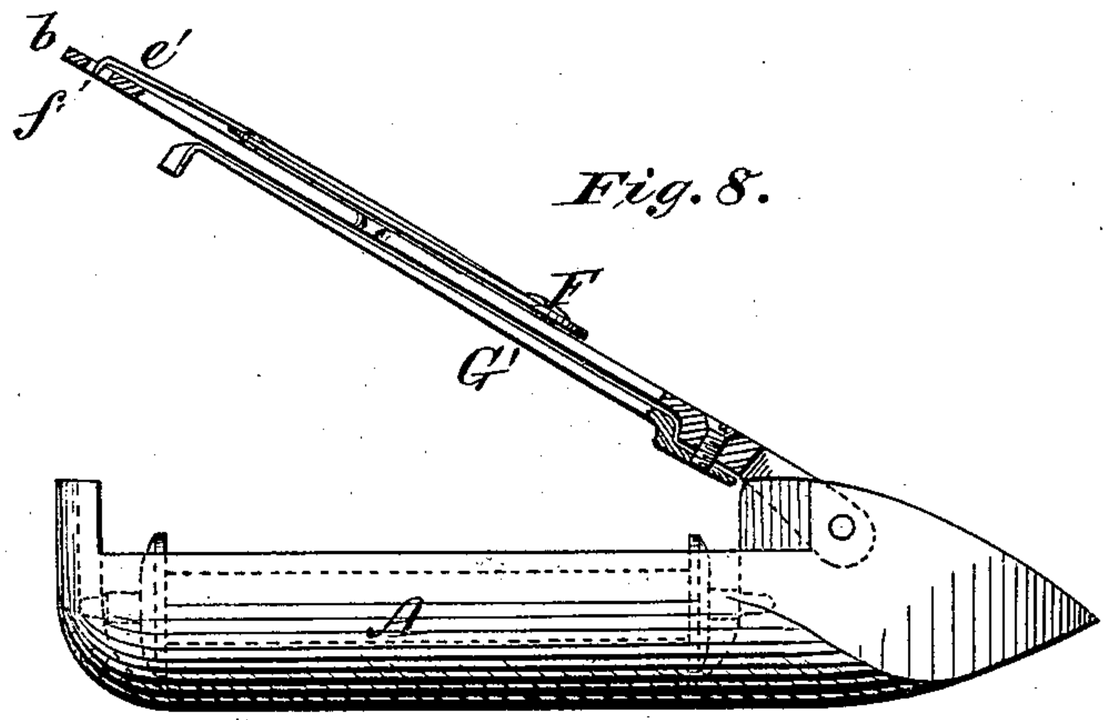


Fig. 8.



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UNITED STATES PATENT OFFICE.

NESBITT D. STOOPS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN SEWING-MACHINE SHUTTLES.

Specification forming part of Letters Patent No. **202,602,** dated April 16, 1878; application filed January 31, 1878.

To all whom it may concern:

Be it known that I, NESBITT D. STOOPS, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Sewing-Machine Shuttles, of which the following is a specification:

The object of this invention is, first, to produce a practically-round shuttle, or one having all of its friction-surfaces formed on curved lines, and adapted to have its bobbin inserted from the top instead of through the end, as has been the case heretofore in this class of shuttles; second, to provide such a shuttle with a reliable, simple, and ready means for regulating the tension of its thread; and, third, to facilitate the threading of the shuttle.

In accomplishing these purposes my invention consists, first, in providing the pivoted lid of the shuttle with a flat tension-spring located on its upper surface, and a combined shuttle-tension spring and latch connected therewith on its lower surface, and adapted to be moved by an adjusting-screw extending through the shell of the shuttle, whereby the shuttle-lid may be held in place and the tension adjusted by the same screw; second, in a sewing-machine shuttle having a pivoted or hinged top or lid, forming a part of the bobbin-case, and provided with tapering extension projecting beyond the heel of the shuttle, for the purpose of supporting a slack-thread guard-spring, which also extends beyond the heel of said shuttle, whereby the shuttle-thread is carried back beyond the heel of the shuttle and held down upon the lid during its forward movement, and the needle-loop extended while being drawn up until nearly within the fabric, and thus prevented from twisting, while, during the backward throw, its thread is carried out of the path of the needle, and bad stitches resulting from the knotting of the needle and shuttle-threads thereby prevented.

In the accompanying drawings, Figure 1 is a perspective view of a shuttle constructed according to my invention. Fig. 2 is a view, in elevation, of the needle-side of the shuttle closed, and Fig. 3 is a view of the opposite side. Fig. 4 is a cross-section taken on line *x x*, Fig. 3. Fig. 5 is a longitudinal section through the point of the shuttle. Fig. 6 is a top view of lid or cap of shuttle. Fig. 7 is a longitudinal section of lid and detached view of latch and tension-spring, and Fig. 8 shows a modification of my invention.

The shell A has a substantially-cylindrical outer configuration, except that the greater portion of its top surface is flat, and consists of a cap, B, pivoted at *z* at the heel of the shuttle, so as to swing away from over the bobbin-chamber, and having a rear extension, *b*, beyond the heel of the shuttle. The end walls of the bobbin-chamber are provided with suitable bearings for the journals of the bobbin, and from the front bearing a groove, b^1, extends upward and through a shelf or shoulder, *c*, upon which the lid B rests; and *d* indicates a recess or slot cut under this shelf and open outward. D is an adjusting-screw extending through the shell of the shuttle and across this recess or slot.

Upon the top of the lid B is arranged a double-armed spring, E, which has the end *e* of its shorter arm firmly attached, the longer arm *e'* having a bent end, *f*, which extends through a hole in the projecting end of said lid. Through the wide portion of the spring, at the junction of the two arms, is a hole, through which passes a screw, F, having a head which rests upon said wide portion, while its other end engages in a screw-threaded hub, b^2, projecting through said hole from a tension-spring and latch, G, the end *g* of which is firmly secured to the under surface of the lid, while its other end is bent to form a tongue, *h*, which projects into the recess or slot *d* when the shuttle is closed, and is provided with a depression, *h'*, which catches under the rounded tip of the adjoining screw D; and when this screw is advanced it depresses the arm G and screw F, the head of which presses the wide portion of the spring E against the shuttle-lid. The hub b^1, which is attached to the spring-arm G, projects above the top surface of the lid and entirely incloses the portion of screw F which extends below the spring E, thus forming a smooth curved surface, around which the shuttle-thread passes, as will be hereinafter explained.

In preparing my shuttle for use, I place one of the bobbin-journals in the bearing in the heel of the shuttle and drop the other journal

through the groove b^1 to the front bearing. I then draw the thread from the bobbin under the lid and through a notch, *i*, and then pass it around the hub b^2, under the wide portion of the spring E, and rearward under the arm e' of the said spring. The threading is then finished, and when the lid is closed over the bobbin it is latched and held in place by the tip of the screw D catching in the depression in the tongue-piece *h* of the tension-spring and latch G. The tension of the thread is varied by turning the screw D in or out. To increase the tension, turn the screw so that it will advance and depress the spring-arm G, which will draw the head of screw F down and clamp the spring E upon the thread, which is shown by the line *t* and the dotted lines t' in Fig. 1.

In order to prevent the thread from being pulled out from between the tension-surfaces during the backward movement of the shuttle, the broad portion of spring E is provided with a small tooth, *k*, at its edge, which extends through a hole, k', in the lid. The outer surface of this little tooth is curved or beveled, so that the thread easily slips over it when threading the shuttle; but its inner surface is slightly concave or hooked, so that the slipping laterally of the thread from between the tension-surfaces is effectually prevented.

By constructing my round shuttle so that it may be loaded from the top, I avoid the square large end necessary for the insertion of the bobbin into that class of shuttles which load at the heel, and by providing my shuttle-lid with the extension b^1 I afford a support for the rearwardly-extending slack-thread guard-spring, and provide for keeping the loop of the needle-thread extended while being drawn up, so that the twisting of this loop is prevented.

By my invention I secure all the advantages attending the cylindrical shape of a shuttle, and avoid the difficulties in the way of perfect tension which have heretofore existed in shuttles loading at the end, as have all cylindrical shuttles within my knowledge heretofore.

My improved tension devices do away with the tedious process of inserting the end of the shuttle-thread through holes or eyes in the shuttle, and obviate the removal of the shuttle from its race for the purpose of adjusting its tension.

Though in Figs. 1, 2, and 3 I have shown the lid of the shuttle pivoted to swing laterally or edgewise, this lid may be hinged to swing upwardly with respect to the shell, as shown in Fig. 5, the general operation of the parts when the shuttle is in use being substantially as hereinbefore set forth.

In this modification, however, it will be seen that the tension-adjusting screw does not engage a latch.

Having now fully described my invention, I claim—

1. The combination, with a shuttle-shell, substantially as herein described, of a pivoted lid having a flat spring arranged upon and attached by one end to its upper surface, and a tension-spring and latch connected with said spring and attached to the lower surface of the said lid, and adapted to be moved by an adjusting-screw extending through the shell of the shuttle, substantially as and for the purpose set forth.

2. The combination, with a sewing-machine shuttle, of a pivoted or hinged lid, forming a part of the bobbin-case, and provided with a tapering extension projecting beyond the heel of the shuttle, and a slack-thread guard-spring, also extending beyond the shuttle-heel and along a portion of the lid, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of the subscribing witnesses.

NESBITT D. STOOPS.

Witnesses:
GEO. F. PHILLIPS,
JAMES W. WRIGHT.