D. W. BROWN.

SEWING-MACHINE SHUTTLE.

No. 186,536. Patented Jan. 23, 1877.

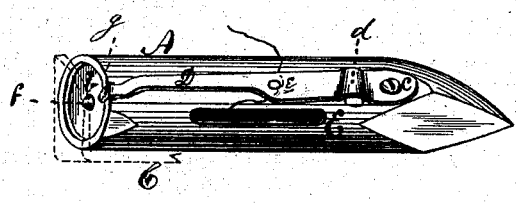

FIG. 1.

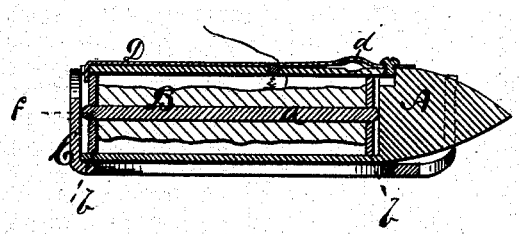

FIG. 2.

WITNESSES,

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DANIEL W. BROWN, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO THE PROVIDENCE TOOL COMPANY, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINE SHUTTLES.

Specification forming part of Letters Patent No. **186,536**, dated January 23, 1877; application filed July 26, 1875.

To all whom it may concern:

Be it known that I, DANIEL W. BROWN, of the city and county of Providence, in the State of Rhode Island, have invented certain new and useful Improvements in Shuttles for Sewing-Machines; and I do hereby declare that the following specification, taken in connection with the drawings making a part of the same, is a full, clear, and exact description thereof.

Figure 1 is a view in perspective. Fig. 2 is a section through the longitudinal axis of the shuttle.

My improvement is intended to provide a means for more easily setting the bobbin in the shuttle, and for facilitating the threading of the shuttle, and giving the thread the proper tension as it is delivered by the shuttle.

In the drawings, A represents the body of a shuttle, which is open at the rear end for the insertion of the bobbin B. (Shown at Fig. 2.) This bobbin is composed of a shaft or spindle, *a*, furnished with heads *b b* at the ends. The spindle *a* is made of steel, and projects, as shown, beyond the heads, forming a boss, *f;* and these projecting ends should be hardened, so as to sustain the wear to which it will in use be exposed.

The rear end of the shuttle is intended to be left open, so as to allow of the easy insertion of the bobbin, and the heel of the shuttle-carrier C is intended to take a bearing against the hardened projecting end of the bobbin-spindle *a*, instead of against a supplemental base-plate covering the head of the bobbin and set in the end of the shuttle, as has been usual.

The bobbin is confined within the shuttle by means of the spring-bar D, the end of which is turned downward, at shown at *g*. This bar is of peculiar construction, and is attached, by the screw or other fastening *c*, to the body of the shuttle, so that its rear end is free to be sprung upward to release the bobbin. The bar is also bent into a curve, as shown at *d*, and in combination with the bar is a friction-pin, *e*, projecting from the under side thereof into the shell of the shuttle. This space at *d* is located in front of the pin *e*, so that when the thread has been passed through the space it can be drawn backward against the front or friction side of the pin.

E is the usual slot cut through the shell of the shuttle for the thread from the bobbin to pass through. After the bobbin has been supplied with thread, it can be inserted in the shuttle by simply raising the rear end of the spring-bar D. The loose end of the thread is then to be passed through the slot E, thence through the curved bend *d*, and finally drawn under the spring-bar until it rubs against the pin *e*. The friction upon the thread by the pressure of the spring-bar, and the friction against the pin, gives the requisite amount of tension upon the thread.

The above-described construction greatly increases the convenience with which the bobbin may be adjusted in the shuttle and the shuttle threaded. It dispenses with a separate base-plate in the rear end of the shuttle, for the carrier to act against. It preserves the spring-bar in common use; but it attaches the bar to the shuttle as a fixture, instead of having it an independent appendage; and by making the bar with a curved bend, *d*, and employing the friction-pin *e*, the inconvenience of inserting the thread through holes in the bar to get the necessary tension is avoided.

I am aware that a cross-bar occupying the rear end of a shuttle, and having a journal-bearing for a bobbin, has heretofore been employed in connection with a tension-spring. In such a shuttle the cross-bar is, in fact, a supplemental base-plate, and the spring is relied upon for affording tension, and also for retaining the end plate in position. I am also aware that a tension-spring and cross-bar provided with a bobbin-journal has been made in one piece. In this latter case the spring, at its front end, enters an aperture in the shuttle, and is held in place by the engagement of the cross-bar with the rear end of the shuttle. By dispensing with an end plate or cross-bar and arranging the rear end of the bobbin-axis to engage with the heel of the carrier, and by retaining the bobbin within the shuttle by means of the curved end of the tension-spring, in accordance with my invention, it is much easier to apply and remove the bobbins than with shuttles which

have either closed ends, end plates, or cross-bars of any description.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A sewing-machine shuttle having an open rear end, and a bobbin fitted at the front end, to bear against the interior of the head of the shuttle, and fitted at the rear end for taking bearing against the heel of the shuttle-carrier, in combination with a spring-bar, which serves as a tension device and a bobbin-retainer, substantially as described.

2. The combination, with the body of a sewing-machine shuttle, of a spring tension-bar provided with a friction-pin, and a space, *d*, which is located in front of said pin, substantially as described, whereby a free passage is afforded for the thread in adjusting it with relation to the spring and the pin, as set forth.

3. The combination, with a shuttle-carrier, of a shuttle having a rear open end, and a bobbin abuts at its rear end with the heel of the shuttle-carrier, substantially as described.

DANIEL W. BROWN.

Witnesses:

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