

J. KNOX.

Shuttles for Sewing-Machines.

No. 148,072.

Patented March 3, 1874.

Fig. 1

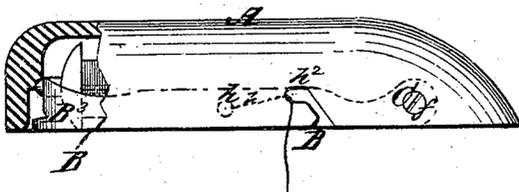


Fig. 2

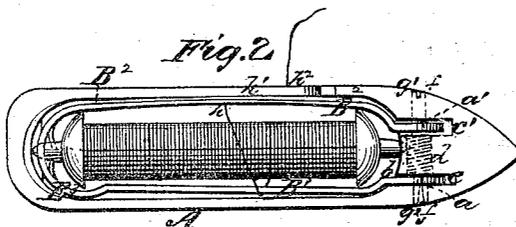


Fig. 6



Fig. 3

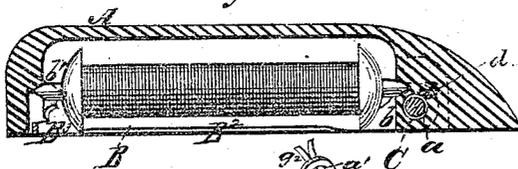


Fig. 4

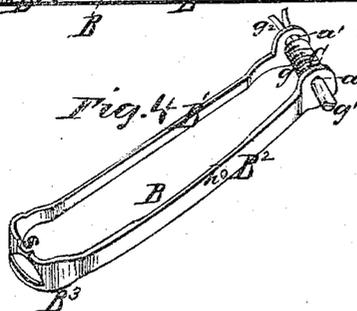


Fig. 5



Witnesses:
James Martin Jr.
J. N. Campbell

Inventor:
John Fenwick
by
Mum. Fenwick & Co.

UNITED STATES PATENT OFFICE.

JOHN KNOX, OF THREE RIVERS, MICHIGAN.

IMPROVEMENT IN SHUTTLES FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. 148,072, dated March 3, 1874; application filed January 29, 1874.

To all whom it may concern:

Be it known that I, JOHN KNOX, of Three Rivers, in the county of St. Joseph and State of Michigan, have invented an Improvement in Sewing-Machine Shuttles; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a top view, partially in section, of my improved shuttle. Fig. 2 is a front view of the same. Fig. 3 is a horizontal central section. Fig. 4 is a perspective view of the tension-yoke pivoted on the regulating-screw, separate from the shuttle and bobbin, and turned so as to show its rear side. Fig. 5 is an end view of the heel end of the yoke. Fig. 6 is an enlarged view of the tension and pivot-screw.

The nature of my invention consists, first, in the combination of a thread-guiding tension-bow and a shuttle, which is constructed with a central hinging tongue and with slots, one of which is wider than the other, between the walls of the shuttle and said tongue, whereby the bow can be hinged between said tongue and said walls of the shuttle, and one of its arms adjusted laterally toward and from the thread on which tension is to be produced; second, in a shuttle with a hinge-pin made with two diameters, the larger diameter being between plain cylindrical pivot ends and screw-threaded, in combination with an intermediate or central screw-tapped block or tongue, and plain side eye-bearings of the front end of the shuttle, and with a tension and thread-guiding bow, hinged by its forward ends on the plain cylindrical ends of the hinge-pin in open slots between the tongue and the inner sides of the shuttle, and all in such manner that by turning the screw-threaded hinge-pin to the right or left the tension of the shuttle-thread can be regulated as effectually and accurately as that of the upper or needle thread.

The main body of the shuttle, A, may be of any approved make, and of different patterns, to suit the various machines using this character of bobbin-holder. The bow B is formed by bending a strip of plate-steel nearly in form of an elongated U, and shaping it to fit around the heads of the bobbin. That arm of the bow which is to form the thread-guide B¹ is reduced

in width and deflected inward from the inner side of the bobbin, so as to leave space for the thread to traverse in back and forth along the length of the bobbin, as shown in the drawing, Fig. 2. The other arm, B², which forms the tension device, and presses the thread against the inner side of the shuttle, is deflected outward against the inner side of the shuttle, so as to be in bulging form, and thus partake of the character of a spring itself, independently of the circular bend at its heel or bowed end B³. The termini of the arms of the bow are enlarged into round ends, and these ends are perforated centrally with round bearing-holes a a', one in line with the other. At the back of the part B³ of the bow a semicircular notch, s, is formed to fit over the heel end of the bobbin, as shown in Fig. 5. The shuttle A, in order to receive this bow and to have it hinged to it, is constructed with a central tongue or point block, b, in the rear of which is a conical, or a suitable socket-bearing, for the end of the bobbin. A heel-centering half-bearing, b¹, is also formed in the step of the heel-block. Below and above the block b are slots c c', which are open at the front, and one is wider than the other. The tongue b is bored through and screw-tapped, as at d, from side to side, and in line with this screw threaded passage the walls of the shuttle are bored through, as at f f, but the passages f f formed are of a little larger diameter than the screw-threaded passage d. To hinge the bow to the shuttle and have it within the same, and at the same time have it under control of a regulating-screw from the outside, a screw and pivotal hinge-pin, C, is employed. This pin is made with two diameters, g g¹ g². The central or larger diameter g is cylindrical and screw-threaded, while the ends g¹ g² are plain-surfaced and cylindrical. This pin is inserted through the passages d f f of the shuttle, and through the holes in the arms of the bow after the perforated arms are set into the slots c c'. To introduce the screw through the holes in the arms of the bow it is necessary to run the screw a little beyond its shoulders back and forth, and to have only one arm in a slot at the first back-and-forth movement of the screw.

When the bow is hinged to the shuttle its arms are on the cylindrical parts of the screw-

pin, and the thread-guiding arm is against a shoulder of the screw-pin and a wall of the shuttle, while the perforated portion of the tension-arm is against a shoulder of the said pin, and in relief from the wall of the shuttle. This is effected by making the slot *c'* wider than the slot *c*.

It will be understood that the middle part of the tension-arm, by its bulging form, is bearing against the wall of the shuttle and upon the thread between, even though the perforated part is in relief from the shuttle.

By having the slot *c'* wide, room for setting up or slacking the tension of the tension-arm is secured.

One end of the screw-pin is nicked like a screw, while the other end is split, so that a wedge may be inserted into this split end of the screw, if the screw works too loose at any time, from wear or any cause.

The manner of applying and confining the bobbin, and of passing the thread from the

bobbin over the thread-guide through the eye *h* of the tension-arm, and between the said arm and wall of the shuttle, as at *h'*, and out through the eye *h''* of the shuttle, will be clearly understood from the drawing.

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

1. The shuttle, constructed with the central tongue and the narrow and wide slots, in combination with the thread-guiding tension-bow, as and for the purpose described.

2. The shouldered hinge-pin with screw-threaded intermediate portion and pivot ends, in combination with the shuttle and with a thread-tension and thread-guiding device, substantially in the manner and for the purpose described.

JOHN KNOX.

Witnesses:

WM. F. ARNOLD,
A. MELVIN KNOX.