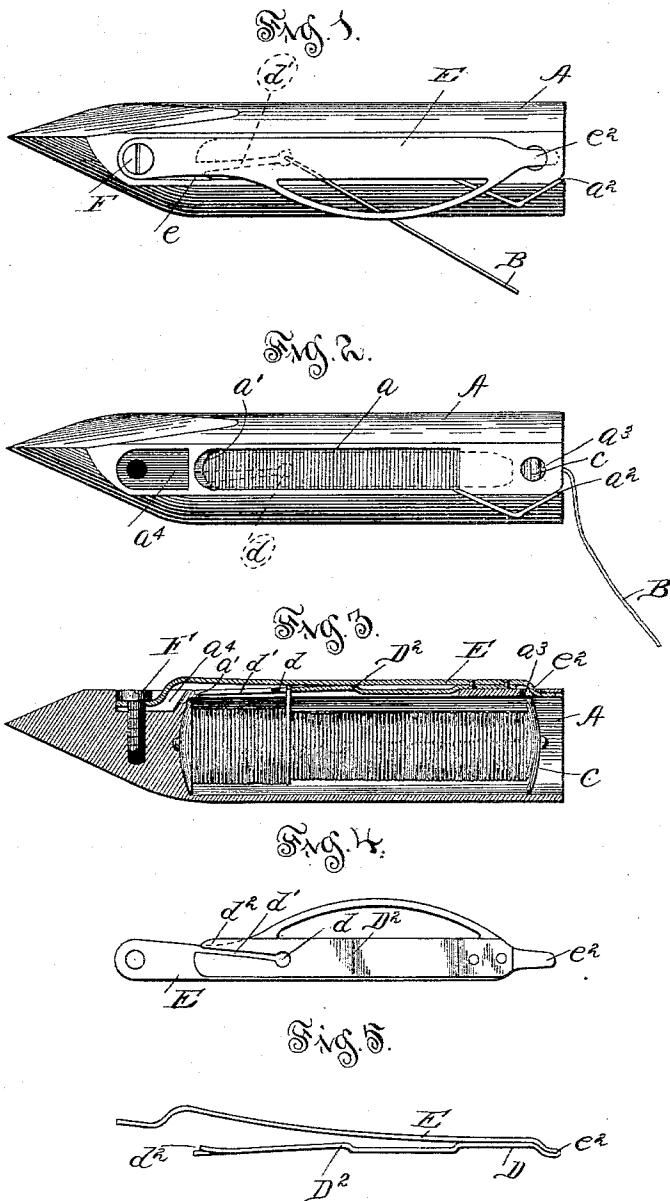


(No Model.)

W. S. BROWN.
SHUTTLE FOR SEWING MACHINES.

No. 531,771.

Patented Jan. 1, 1895.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIS S. BROWN, OF BELVIDERE, ILLINOIS, ASSIGNOR TO THE NATIONAL SEWING MACHINE COMPANY, OF SAME PLACE.

SHUTTLE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 531,771, dated January 1, 1895.

Application filed October 19, 1892. Serial No. 449,313. (No model.)

To all whom it may concern:

Be it known that I, WILLIS S. BROWN, a citizen of the United States, residing at Belvidere, in the county of Boone and State of Illinois, have invented certain new and useful Improvements in Sewing-Machine Shuttles, of which the following is a full, clear, and exact specification.

My invention relates to sewing machine shuttles, and the improvements have more especial reference to the tension and threading mechanism thereof. It is very desirable that the threading mechanism should be free from projecting points or angles, as the same are liable to catch and snag the thread. In the use of ordinary sewing thread this liability of engagement with the thread is so remote as to be inconsiderable, but when coarse yarns and worsteds and embroidery silks are employed, the liability of damage thereto from this cause is much more imminent, and has induced attempts to avoid it. It is also desirable that the thread, whatever it be, should not be subjected to strain or tension at any sharp turn or angle of the shuttle tension mechanism, as it is impossible to produce an even and uniform tension when such is the case. Especially is this so when coarse thread, yarns and embroidery strands are employed. In short, the tension should be produced by pinching the thread between only broad, smooth surfaces, free from angularity or abruptness of contour.

The object of my invention therefore, is to provide a simple and inexpensive shuttle threading and tension mechanism, for effectively overcoming the objections and accomplishing the desired results above referred to.

With these ends in view, my invention consists in certain features of novelty in the construction, combination and arrangements of parts, by which the said objects and certain other objects hereinafter described are attained, as fully explained with reference to the accompanying drawings, and more particularly pointed out in the claims.

In the said drawings, Figure 1 is an elevation of a threaded shuttle embodying my improvements. Fig. 2 is a similar view with the tension and threading mechanism removed. Fig. 3 is a longitudinal section thereof. Fig.

4 is a detail bottom plan of the tension and threading mechanism. Fig. 5 is a side or edge view thereof.

Like signs of reference indicate like parts throughout the several views.

In carrying out my invention I employ a spring plate or strip which has a free end supported upon the shuttle shell over the usual opening therein, and which is provided in such end with a thread passage, and a second spring plate or bar arranged over the first for holding it in place, and being provided with means for attachment to the shuttle shell whereby, the thread as it rises from the bobbin may be pinched between the flat surfaces of the two plates for creating the requisite tension at a point between the outer extremity of the thread and the said thread passage in the inner one of the plates.

In the drawings, A, is the shuttle shell which may be of any usual or suitable construction, but which should be provided with a longitudinal aperture *a*, through which the thread B, passes as it unwinds from the usual bobbin C. D is the inner spring tension plate, and E, the outer one which is arranged over and against the inner one, and is attached at its ends to the shuttle shell.

As shown more clearly in Fig. 3, the aperture *a*, in the shuttle shell is bridged from end to end by the inner plate D, whose free end rests upon the flange or shoulder *a'* formed on the shell at one extremity of the aperture. The free end of the spring D, is thus supported against downward or inward movement, thereby adding rigidity to it, and at the same time preventing the thread from accidentally slipping out of the eye *d* via the slot or passage *d'*, which extends between such eye and the free extremity of the spring D.

The shell A, is provided at its rear or blunt end with the usual threading slot *a*², which extends inward to the aperture *a*, preferably to one corner thereof, as shown in Fig. 2. The thread is thus admitted to the aperture *a*, and may be pulled therealong toward the pointed end of the shuttle, between the edge of the aperture *a*, and the inner plate D, until it reaches the spring tongue *d*², formed by the slot *d'*, at the free extremity of the spring D, whereupon continued movement in the

same direction will cause such spring tongue d^2 , to rise from its seat or flange a' , and permit the thread to enter the slot d' , and thence, the eye d , as will be understood. To this end, the spring D, is made of less width than the aperture a , as shown in dotted lines in Fig. 2, whereby a slight crevice or passage will be left between the edge of such spring and the edge of the aperture a , for the free passage of the thread from the inner extremity of the slot a^2 , to the extremity of the spring tongue d^2 .

The outer plate E, is curved inward as shown at e , Fig. 1, so as to uncover or expose the extremity of the spring tongue d^2 , in order that the latter may be readily engaged by the thread, the free extremity of the spring tongue d^2 being rounded and slightly up-turned, as shown more clearly in Figs. 4 and 5, to permit the thread to readily pass under it, but this deflection of the spring tongue is so slight as to simply relieve it of excessive pressure without causing it to leave its seat upon the flange a' , the greater portion of the pressure being borne by the other side of the spring.

The spring D, in the vicinity of the thread passage or eye d , is provided with an up-set portion D^2 , which has a flat surface and upon which the thread is clamped or pinched as it passes from the eye d , by the outer spring E; and in order that the outer spring E may come squarely in contact with this upset portion D^2 , the spring E, is curved downwardly or inwardly, as more clearly shown in Fig. 5.

The spring E, may be secured to one extremity of the spring D, as shown in Figs. 3 and 4, or it may be formed integrally therewith, as shown in Fig. 5.

The springs are secured together at one end or otherwise made in the form of a single device, instead of forming them separately, because when so made, they are less liable to get out of place, or to become lost, and the device is more simple and less bewildering when taken apart.

One end of the spring E, may be provided with an in-turned finger or hook e^2 , adapted to engage in an aperture a^3 formed in the shuttle shell in the ordinary manner, while the other end of such spring may be held in place by a tension screw F, threaded in the shuttle shell and embedded in a recess a^4 therein, thus providing for necessary variation in the degree of tension with which the outer spring impinges the upset portion D^2 of the inner spring.

With a device thus constructed, it will be

seen that the tension is regulated by the movement of the outer spring E. The spring D, being supported at both ends, forms an elastic but uniform bearing upon which to clamp the thread.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In a sewing machine shuttle, the combination with the shell having a longitudinal aperture therein, the threading slot a^2 , leading into one end of said aperture, and a depressed or counter-sunk flange or shoulder arranged at the other end of said aperture, of a spring plate resting at one end upon said flange or shoulder and having a thread passage therein closed at one end by said flange or shoulder, and a second spring plate secured to the shell and bearing upon said first plate, the edge of said first plate and the edge of said aperture forming a slot or passage for the thread, substantially as set forth.

2. In a sewing machine shuttle, the combination with the shell having an aperture therein, of a spring plate arranged over said aperture and having a spring tongue having a rounded end bearing upon said shell, and a second plate secured to the shell and bearing upon said first plate, and being provided directly over the end of said tongue with the inwardly curved portion e , for permitting the thread to engage over the end of said tongue, substantially as set forth.

3. In a sewing machine shuttle, the combination with the shell having an aperture therein provided with a rounded end, of a spring plate arranged over said aperture and having one end rounded and provided with a thread passage over-lapping and being closed by the shell at the said rounded end of said aperture, and a second spring plate bearing upon said first plate, substantially as set forth.

4. In a sewing machine shuttle, the combination with the shell having an aperture therein, and a threading slot leading into one end of said aperture, a spring plate arranged over said aperture and having a thread passage formed therein at the opposite end of said aperture, the edge of said plate and aperture forming a slot or passage for the thread, and a second plate bearing upon said first plate, substantially as set forth.

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Witnesses:

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