(No Model.)

G. W. BAKER.

SHUTTLE FOR SEWING MACHINES.

No. 500,093. Patented June 20, 1893.

Fig. 1.

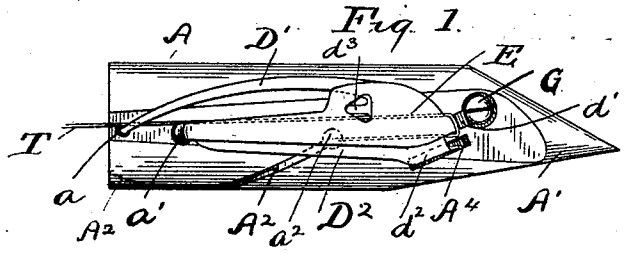


Fig. 2.

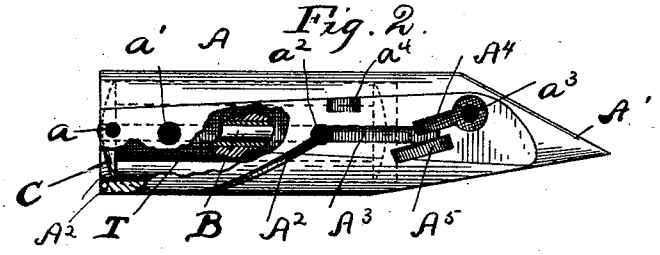


Fig. 3.

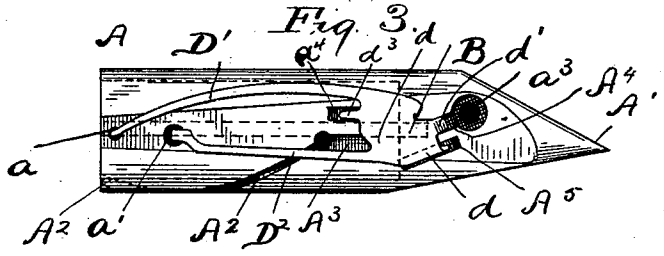


Fig. 4.

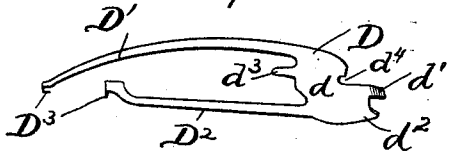
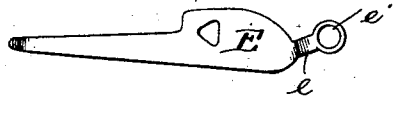


Fig. 5.



Witnesses.
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UNITED STATES PATENT OFFICE.

GEORGE W. BAKER, OF CLEVELAND, OHIO, ASSIGNOR TO THE WHITE SEWING MACHINE COMPANY, OF SAME PLACE.

SHUTTLE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 500,093, dated June 20, 1893.

Application filed March 16, 1893. Serial No. 466,243. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. BAKER, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Sewing-Machine Shuttles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in sewing-machine shuttles, and more especially to an improvement of the shuttle for which I obtained Letters Patent of the United States, No. 393,738, of date December 4, 1888. In the shuttle disclosed in the Letters Patent referred to, a single spring was employed to press the thread against the body of the shuttle and thereby give the desired tension; the spring was secured to the solid or forward portion of the body of the shuttle by means of a screw, and the tension was increased and diminished by tightening and loosening said screw, respectively. A single spring employed as shown and described in said Letters Patent was found, however, not to give entire satisfaction in that the tension upon the thread was not uniform; that is, the portion of the spring that was to give the tension, would not bear upon the thread evenly; tightening the securing and tension-regulating screw to increase the tension, would rather lift the portion of the spring next the heel-end of the shuttle and thereby remove the desired pressure upon the thread at that end of the shuttle, and loosening, or turning the screw to lessen the tension given to the thread, would rather depress the spring toward the heel-end of the shuttle and thereby place the thread under tension at that point.

In view of the objectionable features of the old construction of shuttles hereinbefore indicated, I have devised the improvement hereinafter described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan of my improved shuttle. Fig. 2 is a plan, with the tension-springs removed, showing the construction of the body of the shuttle, portions of the latter and the bobbin within the shuttle being broken away and in section. Fig. 3 is a top plan of the shuttle with spring E removed. Figs. 4 and 5 are plans of the two springs employed in giving the thread the tension desired. The drawings exhibit the shuttle considerably enlarged.

Referring to the drawings, A represents the body of the shuttle, consisting, in the main, of a hollow cylinder open-ended at the rear or heel-end and having a solid-pointed forward end, A′, in which latter is set the spindle B. The spindle extends back through the center of the cylinder, and has mounted thereon the bobbin or thread spool C. The body of the shuttle, at the heel-end, and centrally of the top, has two holes a a', located a suitable distance apart in the same longitudinal vertical plane. About centrally both lengthwise and transversely of the shuttle, and at the top, the shell of the shuttle has a hole a^2 for the passage of the thread. A thread-slot, A^2, commences at the heel or open end of the shuttle about midway up the side that lies against the shuttle-race, the trend of said slot being diagonally forward and upward to hole a^2. A shallow grove, A^3, in the shell of the shuttle extends straight forwardly from hole a^2 into the solid portion of the body of the shuttle, and the solid portion of the body of the shuttle, at the forward end of groove A^3, has a deeper groove or recess, A^4, that, as shown, is arranged somewhat out of parallelism with groove A^3 and at its forward end communicates with a countersunk hole a^3. The body of the shuttle is also provided with another groove or elongated recess A^5 located a little to the left of and shown as parallel with groove A^4.

A spring, D, that is adapted to bear upon the thread, as hereinafter described is suitably secured to the top of the body of the shuttle. Said spring comprises a body portion d and two slender arms or members D′ D^2 extending rearwardly from opposite sides of the body portion of the spring, respectively. Body portion d is offset or bent downwardly, as at d' d^2 into grooves A^4 A^5, respectively, and thereby held in position. Arms or members D′ D^2 of the spring, at their rear end, terminate preferably in hook-ends, D^3,

for engaging holes a a' and thereby conveniently securing them in place upon the body of the shuttle, the hook-end of member D′ engaging hole a and the hook-end of member D^2 engaging hole a'. Arm or member D^2 is straight or approximately so and the arrangement of parts is such that said member, when the spring is in position on the shuttle, does not cover hole a^2 and groove A^3, but of course crosses the forward end of thread-slot A^2. Arm or member D′ is bowed outwardly as shown. Between arms D′ and D^2, and nearest the former, the body portion of spring D has a rearwardly-projecting finger, d^3, bent downwardly into a pocket or recess, a^4, in the top of the shell of the shuttle, and about directly opposite finger d^3, the body portion of the spring has preferably a notch, d^4.

A spring E lies over the body portion and forward end of arm D′ of spring D. Spring E is arranged lengthwise of the shuttle; is is suitably secured at its rear end in hole a' in the shell of the shuttle and, at its forward end, terminates in a shank, e, that is bent or offset downwardly into groove A^4 in the solid portion of the body of the shuttle and terminates in an eye, e', that fits in the counterbore of hole a^3 where it is secured by a screw G. The rear portion of spring E is preferably of such width as to occupy about one-half of the space between arms D′ and D^2 of spring D and extends next adjacent arm D′, the edge of spring E next adjacent arm D′ being preferably coincident or approximately so with the inner edge of said arm of spring D. Spring E therefore covers hole a^2 and grove A^3 in the body of the shuttle.

In threading the shuttle, the bobbin having been placed on the spindle and the operator retaining the end of the thread T, in hand, the thread is entered in slot A^2 and drawn forward under arm D^2 and the body portion of spring D into hole a^2 and groove A^3; thence passed around the outer side of shank e of spring E; thence passed under body portion and arm D′ of spring D and finger d^3, so as to lead from the shank of spring E, to notch d^4, thence under the body portion of spring D where it receives tension, and thence along the inner or left hand edge of finger d^3, notch and finger d^4 d^3 serving as guides for the thread. The shank of spring E, it will be observed, forms the main guide for the thread in its passage forward and rearward under the body portion of spring D. From finger d^3 the thread is passed straight rearwardly to and under the rear portion of the bow-shaped arm D′ of spring D where it again receives tension, and thence the thread passes to the work. The tension given to the thread is regulated by means of screw G, by tightening and loosening which the pressure exerted by spring E is increased and diminished, respectively, thereby causing spring D to give more or less tension to the thread as desired. It will, however, be observed that spring D that directly gives the tension to the thread, is entirely independent of the tension-regulating screw, and hence a uniform tension is obtained and the rear end of arm D′ and body portion of spring D increase and reduce their pressure upon the thread in harmony with each other.

What I claim is—

1. In a sewing machine shuttle, the combination with the body of the shuttle, the same being perforated for the passage of the thread, of a tension-spring adapted to evenly bear upon the thread and suitably mounted upon the shuttle, another spring lying over and adapted to bear upon the aforesaid tension-spring and suitably secured to the shuttle the upper spring being independent of the lower spring, a guide for the thread to compel the latter to pass in under the lower spring and suitable means for regulating the pressure of the upper spring, substantially as set forth.

2. In a cylindrical sewing-machine shuttle, the combination with the shuttle-body provided with a thread-slot commencing at the rear or open end of the shuttle, centrally of the face side thereof, and thence running diagonally forwardly and upwardly, of a tension-spring suitably mounted upon the shuttle, said spring having a body portion located forward of the thread-slot and having two rearwardly-extending arms or members, the one whereof crosses the forward or upper end of the thread-slot and the other arm or member being adapted to give tension to the thread at the heel-end of the shuttle, another spring lying over and adapted to bear upon the aforesaid tension-spring, said upper spring being suitably secured to the shuttle-body, a guide for the thread to compel the latter to pass in under the body portion of the lower-spring and suitable means for regulating the pressure on the upper spring, substantially as set forth.

3. In a cylindrical sewing-machine shuttle, in combination with the shuttle-body provided with a thread-slot commencing at the rear or open end of the shuttle, centrally of the face side thereof, and thence running diagonally forwardly and upwardly, a tension-spring D suitably mounted upon the shuttle body and having a body portion, d, located forward of the thread-slot and two rearwardly-extending arms or members, D′ D^2, the one whereof crosses the forward or upper end of the thread-slot and the other arm being adapted to give tension to the thread at the heel of the shuttle and a spring E lying over and adapted to bear upon spring D, spring E being suitably held, at its rear end to the shuttle-body and, being offset or bent downwardly at its forward end as at e, the shuttle being bored for receiving said downwardly-offset portion of the upper spring, and a tension-regulating screw passing through the forward end of the upper spring into the shuttle-body,

the arrangement of parts being such that said downwardly offset portion of the upper spring serves as a guide to compel the thread to pass under that portion of the lower spring adapted to give tension to the thread, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 22d day of February, 1893.

GEORGE W. BAKER.

Witnesses:
JOHN D. WARE,
CHAS. D. GREAR, Jr.