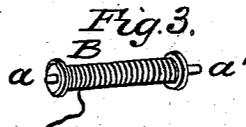
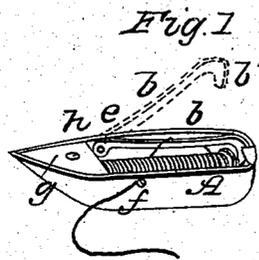


J. A. DAVIS.
Sewing Machine Shuttle.

No. 82.499.

Patented Sept. 29, 1868.



Witnesses
John H. Napier

Inventor.
J. A. Davis

UNITED STATES PATENT OFFICE.

JOB A. DAVIS, OF WATERTOWN, NEW YORK.

IMPROVEMENT IN SHUTTLES FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. 82,499, dated September 29, 1868.

To all whom it may concern:

Be it known that I, JOB A. DAVIS, of Watertown, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Shuttles for Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, and of its mode or manner of operation, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and making a part of this specification.

In the working of sewing-machines using a shuttle it has ever been a desideratum to secure or obtain, in the arrangement or construction of the shuttle, at all times, substantially the same tension upon the thread as it is delivered from the bobbin, or when the bobbin is full, and continuously until the thread is wholly used from it. Such result has, however, never as yet been satisfactorily attained.

My invention has special reference to such a construction of shuttle, whereby such uniform pressure can be secured, and also whereby the pressure can be varied as desired.

Figure 1 represents a shuttle with the bobbin in position, and showing the bobbin-holder and thread-distributor in two positions. Fig. 2 is a vertical section of Fig. 1, without the arm *b*. Fig. 3 is a detached view of the bobbin. Fig. 4 is a detached view of the pressure-spring.

The shuttle *A* is in shape substantially like those heretofore constructed. The bobbin *B* carries its thread as in ordinary shuttles, but the axis *a a'* of such bobbin, instead of having its ends pointed or sharpened, as generally heretofore, is of uniform size, as shown more plainly in Fig. 3, and such ends or journals rest on plain bearings, as seen in Fig. 2.

The bobbin is placed in the shuttle by raising the arm *b*, as shown in Fig. 1, inserting the end *a* in its bearing *c*, and then merely dropping the other end, *a'*, upon its bearing *d*. Such connection or arrangement of the bobbin in the shuttle does not, of itself, provide any means for holding the bobbin in its seat, and preventing it rising as the thread is wound off. This end I secure by the arrangement and use of the small arm *b*, which is attached by one end, *e*, to the shuttle, so that it

can have motion on its connection, and the other end of which has a projecting lip or part, so that when such arm is shut down into the shuttle, as shown by the heavy lines in Fig. 1, its end *b'* will rest over the end of the axis of the bobbin, and hold the latter in the shuttle.

Such arm *b* also serves as a thread-distributor, the thread being passed behind and over such arm before it is passed through the orifice *f* in the side of the shuttle.

In order to secure the requisite pressure upon the bobbin, so as to secure a uniform delivery or tension of the thread, I place in the bottom of the shuttle *A*, underneath the bobbin *B*, a spring, *C*, in shape substantially as shown in Fig. 4, the outer end of which is expanded somewhat, as shown in that figure, and made a little concave, so as to better receive and act upon the bobbin. The raised and covered end of such spring passes, as seen in Fig. 2, under and behind the metallic piece, *g*, of the shuttle, which supports one end of the bobbin, and which is brazed or firmly fixed in the point of the shuttle; and the extreme end of such spring, which is bent horizontally, passes under the point of an adjustable screw, *h*. The position of the screw *h*, and the consequent position of the spring *C*, are generally such that the free or expanded end of such spring will touch and gently press against the bobbin when there is the least thread upon it.

By such arrangement and application of spring, the pressure or force of the spring against the bobbin to prevent the too free delivery of the thread is the greatest at the time the greatest pressure is desired—that is, when the bobbin is full—and the thread, in passing off, acts at the greatest leverage or purchase, and such pressure is constantly diminishing as the thread is delivered from the bobbin, and is the least when there is the least quantity of thread upon the bobbin. Though the pressure of the spring is thus actually variable, its action upon the bobbin or thread is such, in connection with the different size of the bobbin, that the thread is delivered from the shuttle with substantially the same tension.

The degree of pressure upon the bobbin may also be increased or diminished by setting down or withdrawing the adjustable

screw *h*. By setting down such screw, the upper end of the spring will be depressed and the other end forced against the bobbin, while by withdrawing such screw *h* the pressure of the spring C upon the bobbin will be diminished. The degree of pressure can thus be regulated and varied at will.

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

The combination, with the shuttle and its bobbin, of the spring C, constructed as described, fitted loosely in the shuttle-case, and adjustable by a screw, for the purpose set forth.

J. A. DAVIS.

Witnesses:

L. H. AINSWORTH,
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