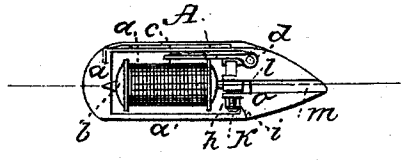
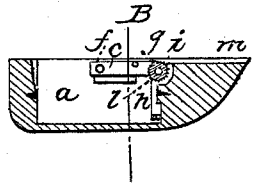
T. K. REED.

Sewing Machine Shuttle.

No. 62,288. Patented Feb. 19, 1867.





Witnesses,
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Inventor;
T. K. Reed
by
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United States Patent Office.

T. K. REED, OF EAST BRIDGEWATER, MASSACHUSETTS.

Letters Patent No. 62,288, *dated February* 19, 1867.

IMPROVEMENT IN TENSION MECHANISM FOR SEWING-MACHINE SHUTTLES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, T. K. REED, of East Bridgewater, in the county of Plymouth, and State of Massachusetts, have invented certain new and useful Improvements in Sewing-Machine Shuttles; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practise it.

The invention relates to the construction of the common sewing-machine shuttle, or more particularly to the arrangement of the tension mechanism thereof; and consists in the application of a hinged pad or plate to the inner surface of the shuttle or bobbin case, in connection with an adjustable spring, through which pressure is produced upon the pad, and thence upon the thread passing lengthwise between the pad and the shuttle surface, the tension upon the thread being regulated by varying the stress of the spring upon the pad. It also consists in the application of a spur or toothed wheel to the screw-shaft, by which the stress of the spring is regulated in such manner that the shaft may be worked by application of the finger to the wheel, or may be worked by any other device striking the teeth of the wheel in or near the plane of the face of the shuttle, and in the direction of the length thereof.

The drawing represents the invention as embodied upon the ordinary Singer shuttle, A showing an open-face view thereof; B a central section, the bobbin being removed; C a cross-section, taken on one side of the tension spring. *a* denotes the bobbin-containing case; *b* the bobbin, mounted therein in the ordinary manner. At one end of the case a pad or swing plate, *c*, is hinged, as seen at *d*, the free end of the pad extending along the inner surface of the side wall *e*, as seen at A. At or near the point this pad has an eye, *f*, and at a considerable distance from said eye is a corresponding eye, *g*, through the shuttle wall; and the thread passes from the bobbin through the first eye, thence between the adjacent surfaces of the pad and shuttle through the other eye, *g*. Into a hole in the pad, near the hinge, the end of a C-spring, *h*, hooks, the other end of said spring being supported on and keyed to a screw-shaft, *i*, and against a head, *k*, thereof. This shaft turns and slides freely in bearings, *o*, and a spur or toothed wheel or nut, *l*, is placed upon the shaft between these bearings, as seen at A and C. This wheel or nut has a screw-thread working on the thread of the screw, so that by turning the wheel, as the nut is kept from lateral movement by the bearings, the shaft is moved lengthwise, such movement of the shaft compressing or expanding the spring, and correspondingly compressing or releasing the pad *c*, and thereby increasing or diminishing the pressure of the pad upon the thread passing between it and the shuttle wall. The wheel on the screw-shaft is so disposed that the outer surface of the wheel projects into the plane of the shuttle-face, or into the plane of the bottom of a groove, *m*, cut down into the face, so that the wheel may be readily turned in either direction by application of the finger thereto, when the shuttle is removed from the machine, or may be operated by a device in the machine itself, as described in my specification of improvements devised by me relating to adjusting the tension of sewing-machine shuttles, (patented December 4, 1866, No. 60,241.)

In relation to the application of the tension pad or plate *c*, I am aware that a tension plate, *per se*, independent of the manner of applying it, and of the means for adjusting its pressure upon the thread, is not new, but where the pad is itself a spring, without means of adjusting its stress, or where an adjusting screw works directly through or against the pad, the tension cannot be so evenly fixed as by applying the pad to swing, as shown, and regulating its pressure upon the thread by adjusting the stress of a spring against the pad. The device is also greatly superior to the method of increasing or diminishing the friction of the thread by running it through a greater or less number of holes, as such manipulation requires not only the removal of the shuttle, and breakage of the thread each time the tension is to be changed, but a considerable handling of the thread, which is obviated in my construction where the stress of the pad is adjusted through the rotation of the wheel *l*.

I claim combining with the screw-shaft the spur or toothed wheel or nut, or its equivalent, through rotation of which the movement of the shaft is effected, to regulate the stress of the tension spring, substantially as set forth.

I also claim the combination of the hinged pad or plate *c*, and the adjusting spring *h*, when constructed and arranged to operate substantially as set forth.

T. K. REED.

Witnesses:

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