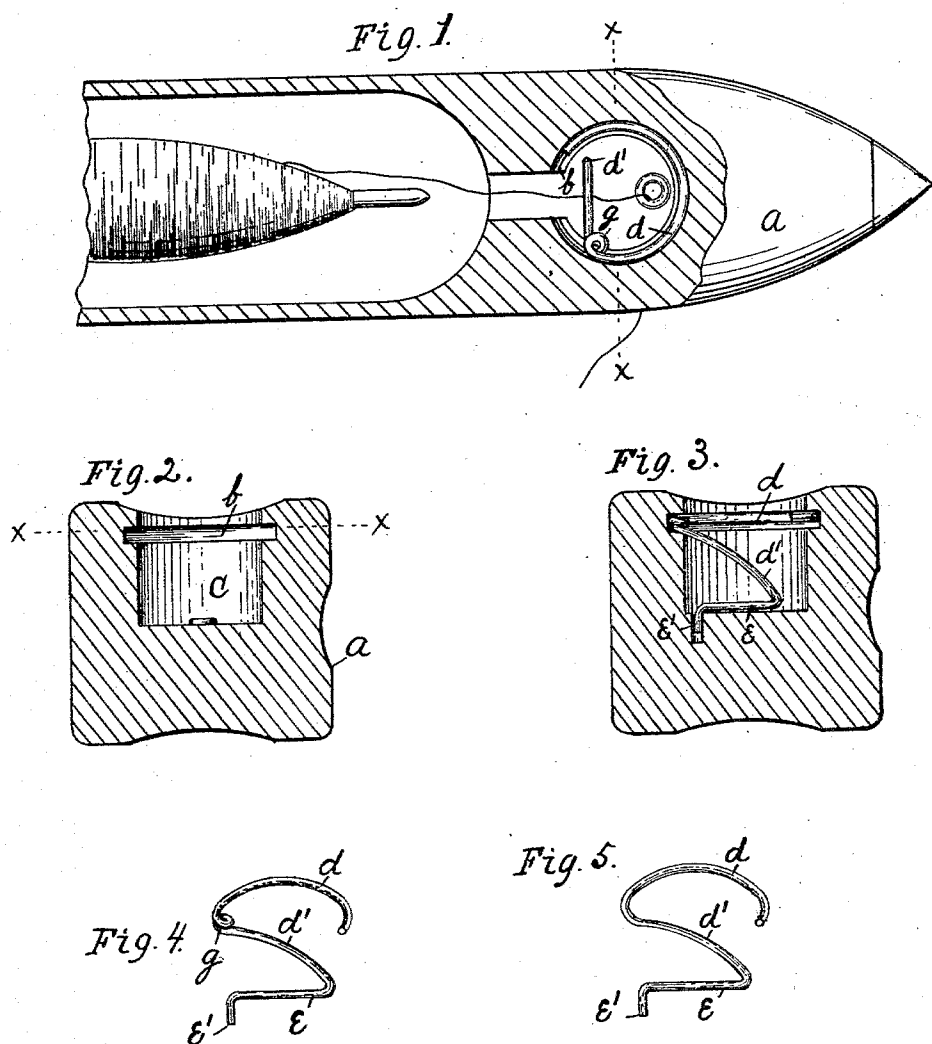


(No Model.)

S. M. HAMBLIN & E. S. DAMON.
TENSION DEVICE FOR LOOM SHUTTLES.

No. 556,970

Patented Mar. 24, 1896.



Witnesses
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UNITED STATES PATENT OFFICE.

STEPHEN M. HAMBLIN, OF TAUNTON, AND EDWIN S. DAMON, OF PLYMOUTH,
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TENSION DEVICE FOR LOOM-SHUTTLES.

SPECIFICATION forming part of Letters Patent No. 556,970, dated March 24, 1896.

Application filed June 29, 1895. Serial No. 554,408. (No model.)

To all whom it may concern:

Be it known that we, STEPHEN M. HAMBLIN, residing at Taunton, in the county of Bristol, and EDWIN S. DAMON, residing at Plymouth, in the county of Plymouth, State of Massachusetts, citizens of the United States, have invented certain new and useful Improvements in Tension Devices for Loom-Shuttles, of which the following is a specification.

Our invention relates to devices designed to produce a tension on the thread as it passes from the shuttle, and its object is to provide a device which will produce such required tension, retain its position when adjusted, and present no part on which the thread can catch and break.

To this end our invention consists preferably of a piece of spring-wire having one end formed into nearly a circle, adapted to hold itself by expansion in the threading-cavity of a shuttle, then carried downward in a curve to a lower plane, where it is provided with a straight portion adapted to bear against the floor of the threading-cavity and produce tension on the thread as it is drawn under it.

The accompanying drawings illustrate our invention, in which—

Figure 1 is a view of the head of a shuttle in horizontal section through the line *xx* of Fig. 2 and showing our tension device adjusted in place. Fig. 2 is a view in cross-section of a shuttle-head through the line *xx* of Fig. 1 with the tension device removed. Fig. 3 is a view of the same, showing the tension device in place. Fig. 4 is front view in perspective of our improved tension device constructed with a close coil between the portions of the device which produce the tension and the portion which operates to retain the device in the shuttle. Fig. 5 is a view in perspective of our tension device constructed without the said coil.

Similar letters refer to similar parts in the several views.

The letter *a* represents the head end of a shuttle constructed in the usual manner, with the exception that the threading-cavity *c* is provided with the shallow groove *b* near the top of its walls.

Our tension device is preferably constructed

of spring-wire, one end of which is bent into nearly a full circle *d*. It then is carried downward in a curve *d'* to a lower plane, and is then bent backward in a straight line, as at *e*, to a point nearly coincident with the sweep of the circle *d*, where it is carried downward at a right angle with the plane of the portion *e*, as at *e'*, as shown in Fig. 5.

In order to give the device greater rigidity it may be provided with the close coil *g* between the portions *d* and *d'*. The portion of a circle *d* is made larger in diameter than the cavity *c* in order that when it is sprung into the groove *b* it will expand into said groove and be held securely in place. The perpendicular portion *e'* is made to enter loosely a hole in the floor of the cavity *c*.

The device being arranged in the shuttle, as shown in Figs. 1 and 3, does not obstruct the operation of threading the shuttle, and when threaded the thread draws down over the curved portion *d'* and under the portion *e*, where it receives the necessary tension by being pressed between the portion *e* and the floor of the cavity *c*.

As will be seen, the device cannot of itself become displaced, nor is there any part of it, when adjusted in the shuttle, on which the thread can catch and break. The tension on the thread may be regulated by slightly bending the wire between the portions *d'* and *e*.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

In combination with a shuttle-body, having its threading-cavity provided with a groove *b*; a tension device, consisting of a piece of spring-wire, having one end formed into nearly a circle, adapted to retain itself by expansion in said groove; and the other end extending downward in a curve, to a lower plane, where it is provided with a straight portion adapted to bear against the floor of the cavity *c*, as shown and described.

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