E. M. STEVENS.

Loom-Shuttle.

No. 164,493. Patented June 15, 1875.

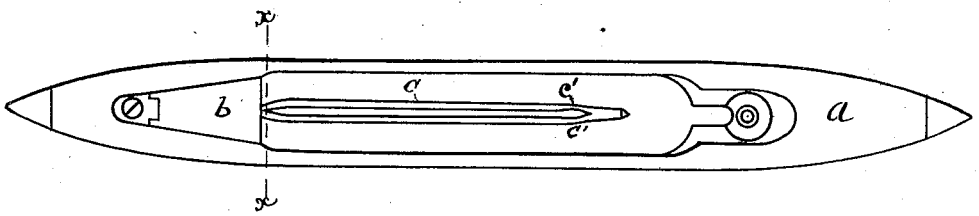

Fig 1.

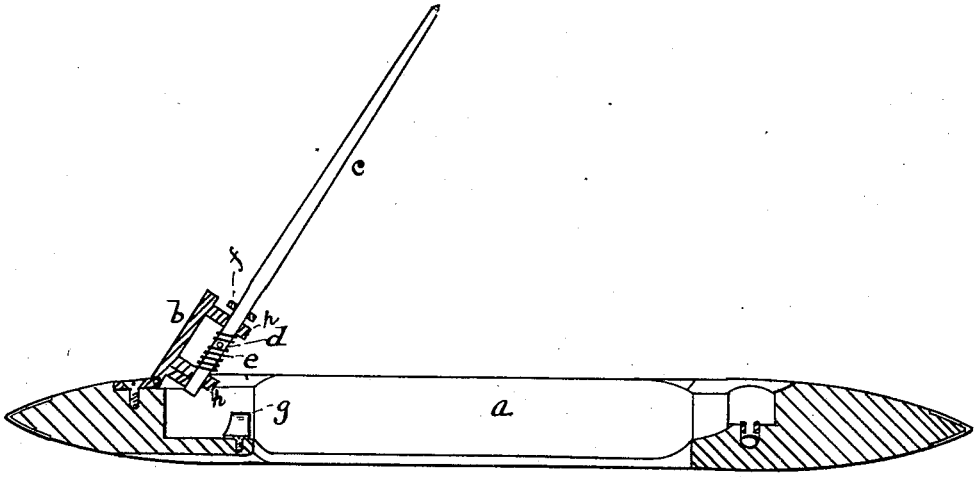

Fig. 2.

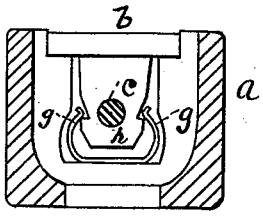

Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

EDGAR M. STEVENS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN LOOM-SHUTTLES.

Specification forming part of Letters Patent No. **164,493**, dated June 15, 1875; application filed March 13, 1875.

To all whom it may concern:

Be it known that I, EDGAR M. STEVENS, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Shuttles, of which the following is a specification:

My invention relates to an improvement in the construction of the shuttle-spindle and the mode of attaching and securing the spindle to the shuttle, whereby a great saving is effected in the thread of which the bobbin is composed. My invention consists of a heel-plate, hinged at one end of the shuttle, and provided with a spring, so connected with the spindle as to allow the latter to yield in each direction of its length as the shuttle reaches its limit of throw in either direction, for the purpose of obviating the ill effect of the concussion of the shuttle in its action on the bobbin. The invention also consists of certain other improvements, all of which will be fully hereinafter described, and pointed out in the claims.

Referring to the drawings, Figure 1 represents a plan view of a shuttle, showing the construction of the spindle. Fig. 2 is a longitudinal vertical section, showing the heel-plate open and the method of securing the spindle in the same. Fig. 3 is an enlarged view of a section on the line *x x* of Fig. 1.

a represents a shuttle of the usual construction. Near one end of the shuttle is attached a swinging bed-plate, *b*. On the under side of the bed-plate *b* are two projecting lugs, *h h*, provided with holes, in which is loosely fitted the heel end of the spindle *c*. On the portion of the spindle between the lugs *h* is fitted a spiral spring, *e*, as shown in Fig. 2. A pin on the spindle projects about midway of the spring *e*, so as to allow the spindle to move a short distance in either direction of its length. A shoulder, *f*, limits the movement of the spindle in a backward direction. The heel-plate *b* is held in a closed position by means of spring-catches *g g*, engaging in notches in one of the lugs *h*, as shown in Fig. 3. These catches hold the heel-plate securely when closed, but admit of its being readily opened for the reception of a bobbin. The spindle is constructed with a slot extending nearly its entire length, as shown in Fig. 1. The sides of the spindle near the forward end, at the point *c'*, are made considerably thinner than the other portion, in order to increase the elasticity of sides. This is an important feature, as it serves to hold the bobbin securely in its whole length upon the spindle, and renders it very easy of application. The hinged heel-piece may be provided with a single wide lug for holding the spindle, and the springs arranged on each side of the same, so as to produce the same effect as above described.

I do not limit myself to any special form of spring. Any of the usual forms of spindles may be adapted to the heel-plate.

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

1. The swinging heel-plate *b*, provided with the projecting lugs *h h*, constructed to receive the yielding spindle, as described, in combination with the spring-catches *g g*, attached to the shuttle, for engaging with one of the lugs on the heel-plate, as and for the purpose specified.

2. In combination with a swinging heel-plate, a spring or springs arranged to allow the spindle to yield in both directions of its length, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDGAR M. STEVENS.

Witnesses:

J. MELLEDGE FLAGG,

JOS. H. ADAMS.