

No. 829,259.

PATENTED AUG. 21, 1906.

J. V. CUNNIFF & J. LACROIX.

LOOM SHUTTLE.

APPLICATION FILED OCT. 30, 1905.

Fig. 1.

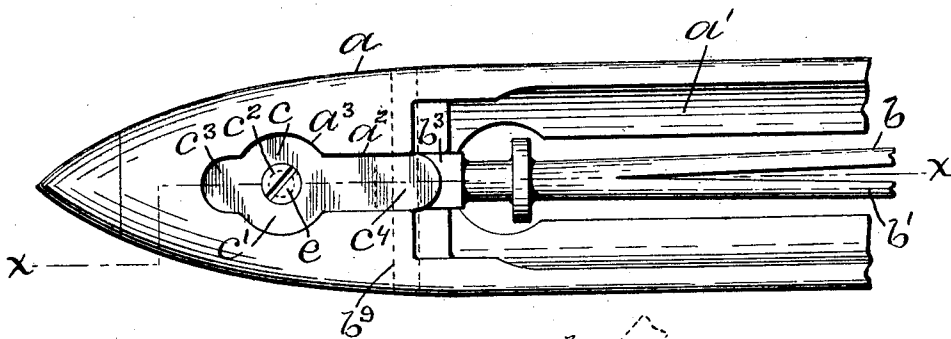


Fig. 2.

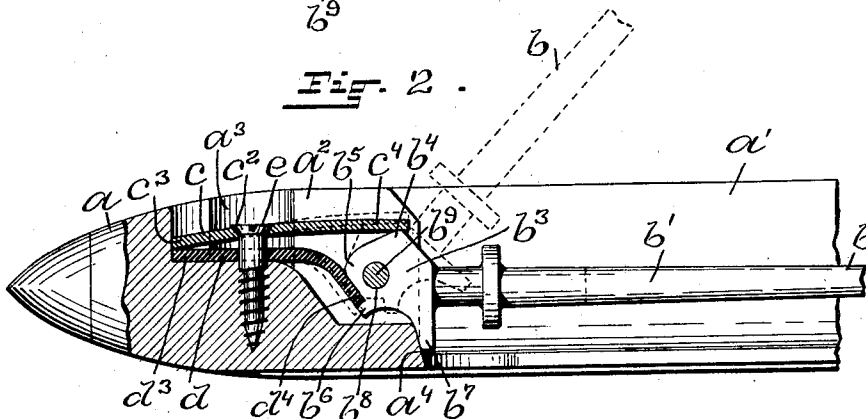


Fig. 3.

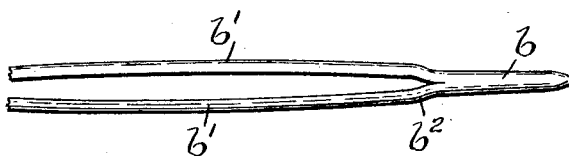
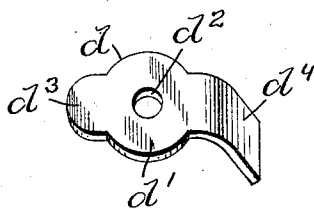


Fig. 4.



WITNESSES:

Ada E. Hager
Chas. W. Luther

INVENTORS.

John V. Cuniff &
Joseph Lacroix
Joseph A. Miller
ATTORNEY.

UNITED STATES PATENT OFFICE.

JOHN V. CUNNIFF AND JOSEPH LACROIX, OF FALL RIVER, MASSACHUSETTS.

LOOM-SHUTTLE.

No. 829,259.

Specification of Letters Patent.

Patented Aug. 21, 1906.

Application filed October 30, 1905. Serial No. 235,080.

To all whom it may concern:

Be it known that we, JOHN V. CUNNIFF and JOSEPH LACROIX, citizens of the United States, residing at Fall River, in the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Loom-Shuttles, of which the following is a specification.

This invention has reference to an improvement in loom-shuttles, and more particularly to an improvement in the construction of spindle-spring mechanism of loom-shuttles.

In loom-shuttles as heretofore constructed a single flat spring is usually used for holding the spindle in the shuttle under spring tension. In practice we find that if this spring is made sufficiently heavy for the purpose it is liable to break and if a light spring is used the spindle is inclined to jump out of the bobbin-cavity when in use and smash the warp-threads of the loom.

The object of our invention is to improve the construction of a loom-shuttle whereby a cop or bobbin is more firmly secured to the spindle and the spindle held more securely under spring tension in the shuttle than has heretofore been done.

Our invention consists in the peculiar and novel construction of a loom-shuttle having a split spindle the spring sides of which are bent to form a bulge adjacent the free end of the spindle, a flat spring bearing on the top of the spindle-heel, a bent spring bearing on the end of the spindle-heel, means for securing the springs in their operative position in the shuttle, and details of construction, as will be more fully set forth hereinafter.

Figure 1 is a top plan view of the spindle-spring end of a loom-shuttle, showing the spindle in the closed position in the shuttle. Fig. 2 is a sectional view taken lengthwise on line X X through Fig. 1, showing the spindle in the closed position in full lines and in the raised position in broken lines. Fig. 3 is a detail view of the free end of the spindle, showing the sides bent to form a bulge adjacent the end; and Fig. 4 is a perspective view of the bent spindle-spring removed from the shuttle.

In the drawings, *a* indicates the shuttle-body; *b*, the split spindle; *c*, the flat spindle-spring; *d*, the bent spindle-spring, and *e* the

fastening-screw of our improved loom-shuttle.

The shuttle-body *a* is constructed to have the bobbin-cavity *a'*, the recess *a²* in the top intersecting the circular cavity *a³* and extending into the bobbin-cavity *a'*, as shown in Figs. 1 and 2. The recess *a²* is shaped to receive the heel of the spindle *b* and to form the stop *a⁴*; otherwise the shuttle-body may have the construction of any of the well-known forms of loom-shuttles.

The spindle *b* is split lengthwise to form the spring sides *b' b'*, and these sides are bent out where they merge into the solid end of the spindle to form the bulge *b²*, as shown in Fig. 3. The heel *b³* of the spindle is constructed to have the upwardly-extending off-center top portion *b⁴*, the cam end *b⁵*, merging downwardly into the outwardly-extending lip *b⁶*, forming a stop, the downwardly-extending tongue *b⁷*, adapted to engage with the stop *a⁴* on the shuttle-body *a*, and the transverse hole *b⁸*, by which the heel of the spindle is pivotally secured in the recess *a²* by the pin *b⁹*, as shown in broken lines in Fig. 1 and in section in Fig. 2.

The flat spindle-spring *c* is shaped to have a circular body portion *c'*, in which is the central hole *c²* for the fastening-screw *e*, the short arm *c³*, and the long arm *c⁴*, which is adapted to bear on the off-center top portion *b⁴* of the spindle-heel *b³*, as shown in Fig. 2.

The bent spindle-spring *d* is shaped to have the circular body portion *d'*, in which is the central hole *d²* for the fastening-screw *e*, the short arm *d³*, and the long downwardly-bent arm *d⁴*, which is adapted to bear against the spindle-heel under the cam end *b⁵* and against the lip *b⁶* when the spindle is closed, as shown in full lines in Fig. 2.

The spindle-springs *c* and *d* are both shaped to fit in the recess *a²* and the circular cavity *a³* and are secured in their operative position with the short arm *d³* of the bent spring *d* bearing on the adjacent bottom of the recess and the short arm *c³* of the flat spring *c* bearing on the short arm *d³* of the spring *d*, as shown in Fig. 2. By turning the fastening-screw *e* the tension of the springs *c* and *d* is adjusted on the heel of the spindle. The spindle is raised out of the bobbin-cavity by the operator against the tension of the springs *c* and *d* into the position as shown in

broken lines in Fig. 2. If by accident or other causes one of the springs should break, the other spring would still hold the spindle in the bobbin-cavity, thereby reducing the chances of the spindle jumping out of the bobbin when in use to a minimum.

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

10 1. In a loom-shuttle, the combination with the shuttle-body having a bobbin-spindle formed with a heel having an off-center top portion and a cam end, of a flat spring adapted to bear on the off-center top portion of the
15 spindle-heel, a bent spring adapted to bear on the cam end of the spindle-heel, and means for securing the spindle and springs in operative position.

2. In a loom-shuttle, the combination in a
20 shuttle-body a of the bobbin-cavity a' , the circular cavity a^3 , the recess a^2 in the top intersecting the circular cavity a^3 , and extending into the bobbin-cavity a' , a spindle b having the heel b^3 constructed to have the off-center top portion b^4 , the cam end b^5 , the
25 lip b^6 forming a stop and the transverse hole b^8 , a pin b^9 by which the heel of the spindle is pivotally secured in the shuttle-body, a flat spring c having the circular body portion c'
30 in which is a central hole c^2 , the short arm c^3 and the long arm c^4 adapted to bear on the top portion b^4 of the spindle-heel, a bent spring d having the circular body portion d' in which is the central hole d^2 , the short arm
35 d^3 and the long bent arm d^4 adapted to bear on the spindle-heel under the cam end b^5 and against the lip b^6 on the spindle-heel, and means for adjustably securing the springs c

and d in their operative positions in the recess a^2 in the shuttle, as described. 40

3. In a loom-shuttle, the combination in a shuttle-body a of the bobbin-cavity a' , the circular cavity a^3 , the recess a^2 in the top intersecting the circular cavity a^3 extending into the bobbin-cavity a' and forming the
45 stop a^4 , a spindle b split lengthwise to form the spring sides b' b' which are bent out where they merge with the solid end to form the bulge b^2 and having a heel b^3 constructed to have the off-center top portion b^4 , the cam
50 end b^5 , the lip b^6 forming a stop, the downwardly-extending tongues b^7 and the transverse hole b^8 , a pin b^9 by which the spindle is pivotally secured in the shuttle-body, a flat
55 spring c having the circular body portion c' in which is a central hole c^2 , the short arm c^3 and the long arm c^4 adapted to bear on the top portion b^4 of the spindle-heel, a bent spring d having the circular body portion d' in which is the central hole d^2 , the short arm
60 d^3 and the long bent arm d^4 adapted to bear on the spindle-heel under the cam end b^5 and against the lip b^6 on the spindle-heel, and means for adjustably securing the openings c and d in their operative positions in the recess a^2 in the shuttle consisting of a fastening-
65 screw e , as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN V. CUNNIFF.
JOSEPH LACROIX.

Witnesses:

ADA E. HAGERTY,
J. A. MILLER.