

N. A. WILLIAMS.
Loom-Shuttles.

No. 150,806.

Patented May 12, 1874.

Fig. 1.

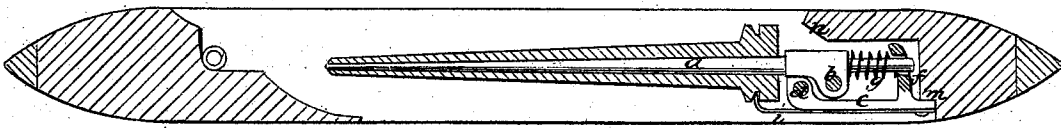
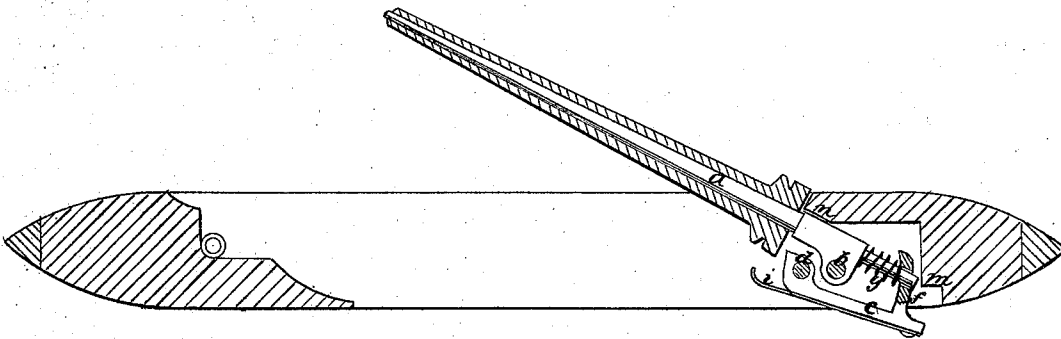


Fig. 2.



WITNESSES:

E. Wolff.
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NORMAN A. WILLIAMS, OF UTICA, NEW YORK.

IMPROVEMENT IN LOOM-SHUTTLES.

Specification forming part of Letters Patent No. 150,806, dated May 12, 1874; application filed March 7, 1874.

To all whom it may concern:

Be it known that I, NORMAN A. WILLIAMS, of Utica, in the county of Oneida and State of New York, have invented a new and Improved Loom-Shuttle, of which the following is a specification:

My invention relates to improvements in shuttles for looms, and is designed to provide an improved spring mechanism for holding the spindle either in the elevated position for receiving the bobbin or cop, or in the position for delivering the yarn in weaving, and at the same time allowing of moving the spindle readily from one position to the other.

The accompanying drawings represent two horizontal longitudinal sections of a shuttle having my improvements, Figure 1 being that in which the spindle is down within the shuttle, and Fig. 2 that in which it is elevated and in position to receive the bobbin.

Similar letters of reference indicate corresponding parts.

a represents the spindle, with a joint-pin, *b*, on which it turns. *c* is an elbow-arm, pivoted at *d* forward of the pivot on which the spindle turns, and made to move with the spindle by the extension of the spindle passing through the projection *f* on the elbow-arm. *g* is a spiral spring, which surrounds the extension of the spindle, one end of which bears against the head of the spindle, and the other end against the upper end of the projection *f* of the elbow-arm. *i* is a spring bobbin-catch, riveted to the elbow-arm at *e*, the hook of which is so adjusted as to strike into the notch in the head of the bobbin. The elbow-arm has a stop against the shuttle at *m* when the spindle is down in position for delivering the yarn, and at *n* when it is elevated in the position for receiving the bobbin.

The action of the parts is: When the spindle is down in its place within the shuttle, the line of pressure of the spring *g*, drawn through the end at *f* and the pivot *b*, falls below the center *d* of the elbow-arm, and the spindle is held firmly down to its place in the shuttle. When the spindle is elevated this line of pressure falls above the center *d*, as in Fig. 2, and the spindle is thereby held firmly up and in position to receive the bobbin. The spindle and elbow-arm moving on the two

centers *b* and *d* when elevated—the former moving in a circle of larger radius than the latter—necessarily causes the bobbin to recede from the catch, and thus disengages it.

This construction renders it unnecessary to introduce a pin under the bobbin-catch to raise it from the bobbin-head, as in other shuttles, but the catch is self-lifting when the spindle rises, and is, therefore, not liable to break off near the rivet-head in consequence of a strain on it, as it is when the aforesaid pin is used. This breakage and damage to the shuttle, which constitutes an item of importance to the manufacturer, is entirely removed in my shuttle.

In all shuttles with which I am familiar there is a great amount of wear, caused by the sliding of the parts composing and actuating the spindles. In my shuttle this wear from sliding friction is reduced to a minimum by causing the parts to move on two fixed centers simultaneously. There being a metallic bearing for spring *g* at each end, the parts are not liable to get out of order.

The spindle *a* may be made of wrought-iron, malleable cast-iron, or steel, and the elbow-bar *c* of malleable cast-iron of sufficient thickness to prevent bending by the action of the spring *g*. This spring is made of coiled steel wire properly tempered.

In cop-shuttles the bobbin-catch may be omitted, but the action of the parts by this omission is in no way changed.

I claim as new and desire to secure by Letters Patent—

1. The combination of the spindle *a*, spring *g*, and the elbow-arm *c*, the latter having a pivot forward of the pivot on which the spindle turns, and moving with the spindle, substantially as described.

2. The combination of the bobbin-catch *i* with the elbow-arm *c*, the spindle *a*, and spring *g*, the centers *b* and *d* being placed in relation to each other, as set forth, the elbow-arm and spring-catch *i* being actuated by spring *g*, substantially as described.

NORMAN A. WILLIAMS.

Witnesses:

GEORGE J. BUCHANAN,
MARTIN F. WARNER.