

(No Model.)

M. F. FIELD.

LOOM SHUTTLE.

No. 343,577.

Patented June 15, 1886.

Fig. 1.

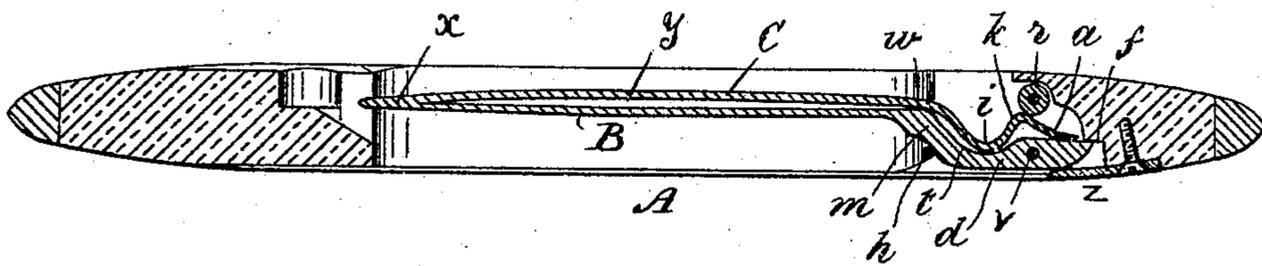


Fig. 2.

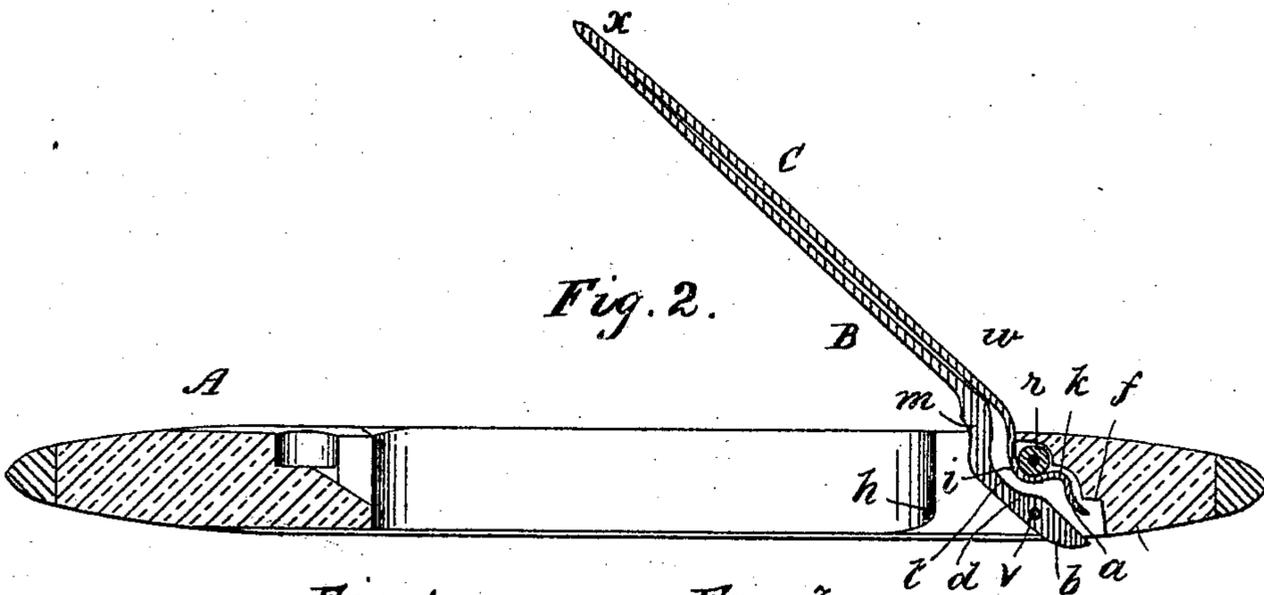


Fig. 4.

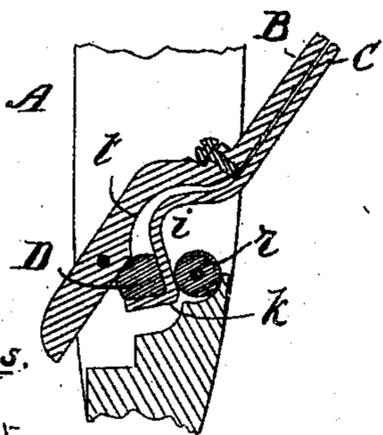
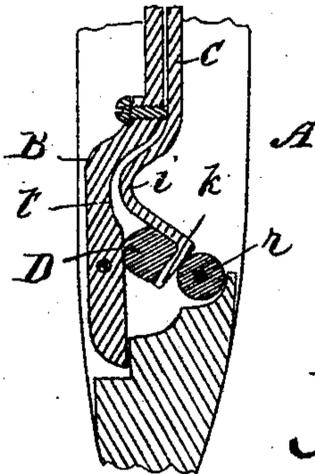


Fig. 3.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 343,577, dated June 15, 1886.

Application filed May 20, 1885. Serial No. 166,135. (No model.)

*To all whom it may concern:*

Be it known that I, MILLARD F. FIELD, of Chelsea, in the county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Loom-Shuttles, of which the following is a description, sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical longitudinal section of my improved shuttle, the spindle being represented as closed, expanded, and locked; Fig. 2, a like view, the spindle being represented as elevated, collapsed, and unlocked; Fig. 3, an enlarged vertical longitudinal section showing a portion of a shuttle provided with a locking-spindle constructed in accordance with Letters Patent No. 143,976, the spindle being represented as closed; and Fig. 4, a like view showing the spindle open.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My present invention is designed as an improvement on the loom-shuttle secured to me by Letters Patent of the United States bearing date October 28, A. D. 1873, and numbered 143,976; and it consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, the object being to produce a more durable and effective article of this character than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A represents the body, and B the spindle, of the shuttle. The body is of the ordinary form and construction, except as hereinafter set forth. The spindle is split or provided with a spring, C, on its upper side, the spring and body of the spindle being integral or welded together at their outer ends to form the point *x*. The body of the spindle is provided with an offset, as shown at *m*, by which it is elevated above the plane of its

shank *d*, which is pivoted in the body of the shuttle at *v*, and elongated, as shown at *b*. The shank of the spindle is provided on its upper side, between the offset *m* and pivot *v*, with a depression, *t*. The free or rear end of the spring C is irregular in form, being bent or curved downwardly to form the elbow *i*, upwardly to form the elbow *k*, and elongated and inclined downwardly to form the auxiliary spring *a*. A projection for engaging the elbows of the spring is arranged in the body, and consists, preferably, of a small anti-friction roller, *r*, which is journaled horizontally in said body at a point nearly above the pivot *v*, and passing through said body beneath the offset *m* there is a pin or stop, *h*, on which the spindle rests when closed. This stop may, however, be omitted, and the elongated portion *b* of the shank *d* permitted to strike a shoulder, *f*, formed in the body of the shuttle to stop the spindle, if preferred.

In the use of my improvement, when the spindle is open, as shown in Fig. 2, for the purpose of doffing the shuttle or putting on a filled cop or bobbin, the roller *r* falls into the bend of the elbow *i* on the spring C, and thereby locks or holds the spindle in an elevated position, the expansive action of said spring keeping it in forcible contact with said roller. After the bobbin or cop has been placed on the spindle the spindle is depressed, causing the roller *r* to ride upwardly over the elbow *k* and force the spring C down onto the body of the spindle, at *w*, and the auxiliary spring *a* down onto the tail or projecting portion *b* of the shank *d*, thereby expanding the spindle to secure the cop or bobbin and locking it closed, in a manner which will be readily obvious without a more explicit description. The distance between the lower side of the roller *r* and upper side of the shank *d* is less than the height of the elbow *k*, and as the spindle is depressed and the spring C drawn forward said spring will be brought to bear on the bend in the spindle at *w*, and the auxiliary spring *a* forced down onto shank *d*, and as said elbow passes under the roller the auxiliary spring *a* will be compressed and the spring C tilted, the bend *w* serving as a fulcrum, thereby expanding the body of said spring within

the cop or bobbin and securing the same on the spindle. The elbow *k* is also so arranged or disposed on the spring C that when the spindle is closed, as shown in Fig. 1, the apex or extreme upper portion of said elbow will stand forward of the axial line of the roller *r*, the auxiliary spring *a* yielding to permit the elbow to pass the roller and acting expansively to force it upwardly after it has passed, and thereby lock the spindle when closed.

In the shuttle shown in Figs. 3 and 4 the spindle B is pivoted in the body A and provided with a spring, C, in substantially the same manner as shown in Figs. 1 and 2; but the spring is not elongated to form an auxiliary spring, the elbow *k* being kept in contact with the roller by a rubber cushion, D, interposed between the elbow and shank of the spindle; but the cushion D is liable to become detached and lost, also to soften and lose its elasticity when brought into contact with oil, and is more expensive than the auxiliary spring *a*.

It will be understood that the ordinary spindle-spring may be used with my improved shuttle, if desired, being attached to the body A

at *z*, and arranged to press on the bottom of the shank *d* in the usual manner, as shown in Fig. 1.

The cavity or depression *t* is designed to prevent the elbow *i* from coming into contact with the shank *d*, and may be omitted by lengthening the offset *m*.

Having thus explained my invention, what I claim is—

1. The body A, provided with the roller *r*, and the pivoted spindle B, having the spring C, provided with the elbows *i k*, and auxiliary spring *a*, constructed, combined, and arranged to operate substantially as described.

2. The spring C, elongated to form the auxiliary spring *a*, and provided with the oppositely-bent elbows *i k*, in combination with the pivoted spindle B, body A, and means for compressing the spring *a*, locking the spindle when opened and closed, and expanding the spring C, to secure the cop or bobbin on the spindle, substantially as set forth.

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