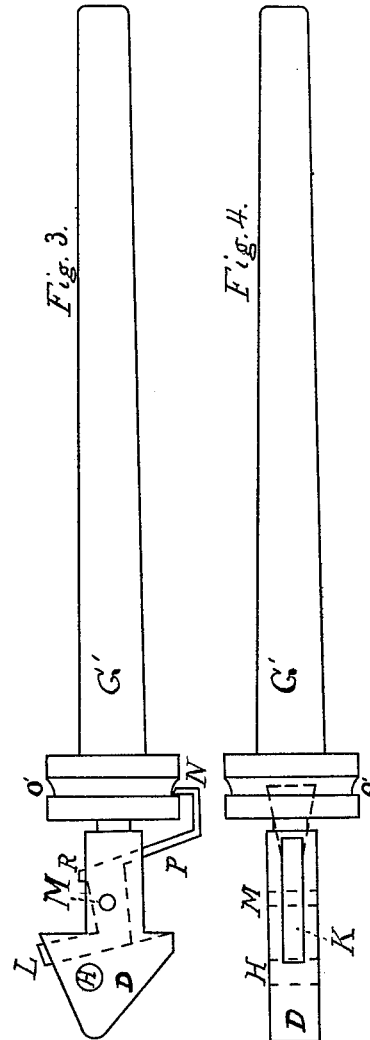
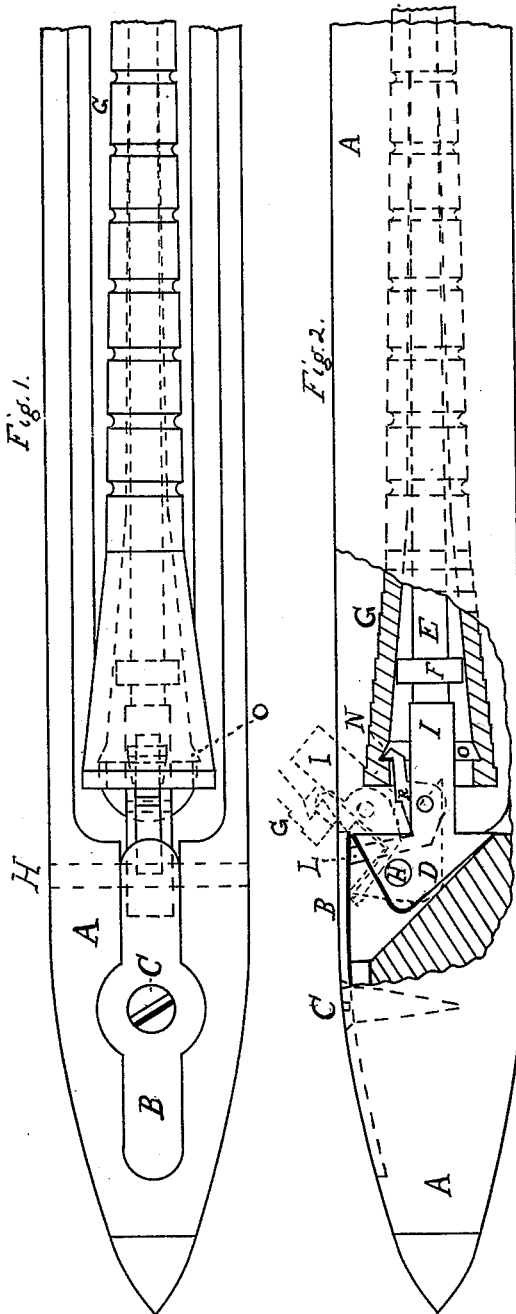


H. J. MILLER.
Loom-Shuttle.

No. 221,415.

Patented Nov. 11, 1879.



Witnesses.
Irving S. Porter.
George W. Searls

Inventor.
Henry J. Miller.
By Albert M. Moore.
His Attorney.

UNITED STATES PATENT OFFICE.

HENRY J. MILLER, OF LOWELL, MASSACHUSETTS, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO CHARLES T. GODDARD, OF SAME PLACE.

IMPROVEMENT IN LOOM-SHUTTLES.

Specification forming part of Letters Patent No. **221,415**, dated November 11, 1879; application filed May 5, 1879.

To all whom it may concern:

Be it known that I, HENRY J. MILLER, of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented new and useful Improvements in Loom-Shuttles, of which the following is a specification.

My invention consists in a catch-lever pivoted to the head of the spindle, and adapted to be released from and engaged with a groove in the bobbin-head by the inner and outer arms respectively of said lever striking the top spring, in combination with the shuttle-body, the spindle, and said spring, as hereinafter described.

In the accompanying drawings, Figure 1 is a plan of a part of a loom-shuttle provided with my invention, with a bobbin. Fig. 2 is an elevation of the same, a part of the shuttle-body being broken away to show the head of the spindle and the catch and the bobbin-head, the latter being in section. Figs. 3 and 4 respectively represent an elevation and a plan of my invention applied to the head of a shuttle-spindle to retain a bobbin having an externally-grooved head.

A is the shuttle-body; B, the flat top spring, which (secured to the shuttle-body by the screw C) presses on the head D of the spindle E, and keeps the latter from rising when the shuttle is thrown in the loom.

The spindle is solid, and may be provided with a flange, F, to steady a chambered bobbin, G, Figs. 1 and 2, on the spindle, and is pivoted at H to the shuttle-body.

The parts above named have the usual operation, and, except as hereinafter specified, the usual construction.

The part I of the spindle-head between the head proper, D, and the spindle E is slotted in the center vertically at K, and receives a bent catch-lever, L, pivoted at M. The slot K extends back into the head proper, D, and the outer upper end of the catch-lever L reaches up through the head D and bears against the bottom of the top spring, B, just back of the upper corner of said head, upon which upper corner the spring also bears. The inner end of the lever L extends to the right, and is pro-

vided with a vertical catch, N, which enters a groove, O O', in the head of the bobbin G G' when the spindle is down.

The annular groove may be on the inside of the bobbin-head O, in Figs. 1 and 2, in which case the inner end of the catch-lever L is above the part I; or the groove may be on the outside of the bobbin-head O', in Figs. 3 and 4, in which case the inner end of said lever L is offset at P through the slot K, so as to be below the part I; but in either of said cases the catch N is thrown up by the pressure of the top spring, B, on the outer or left end of the catch-lever into an annular groove formed in the head of the bobbin. This is the position of the catch when the spindle is down.

When the free end of the spindle is raised to remove the bobbin from the spindle the inner end of the spring strikes the catch-lever on the inner or right side of the pivot M and pushes the catch down out of the groove in the bobbin-head, so that the bobbin may be drawn off the spindle in the usual manner.

A slight projection, R, may be placed on the top of the lever L for the end of the spring B to strike against; but this will not be necessary if the pivot M be placed near enough to the pivot H to allow the spring to strike said lever L between said pivot M and catch N when the spindle is raised.

It will be seen that the catch-lever is operated wholly by the top spring, both in engaging with and in releasing the bobbin; that its action is nevertheless positive, because, if the spring be strong enough for its ordinary use, it will be much stronger than is necessary to move the lever, and so far as the operation of the lever is concerned is inflexible; that this device allows the use of the top spring commonly used in loom-shuttles, and does not require any additional cutting away of the wood of the shuttle.

I claim as my invention—

1. A bobbin catch-lever, L N, pivoted to the head of the spindle E, and adapted to be released from and engaged with a groove, O O', in the head of the bobbin G G' by the inner and outer arm, respectively, of said lever L N

striking the top spring, B, in combination with the shuttle-body A, the spindle E, and said spring, as and for the purpose specified.

2. A bobbin catch-lever, L N, pivoted to the head of the spindle E, and adapted to be released from a groove, O O', in the head of the bobbin G G' by the inner arm of said lever striking the top spring, B, in combination with the shuttle-body A, the spindle E, and said spring B, as and for the purpose specified.

3. A bobbin catch-lever, L N, pivoted to the

head of the spindle E, and adapted to be engaged with a groove, O O', in the head of the bobbin G G' by the outer arm of said lever striking the top spring, B, in combination with the shuttle-body A, the spindle E, and said spring B, as and for the purpose specified.

HENRY J. MILLER.

Witnesses:

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