E. W. MARBLE.

Improvement in Shuttles for Looms.

No. 114,167. Patented April 25, 1871.

Fig. 1.

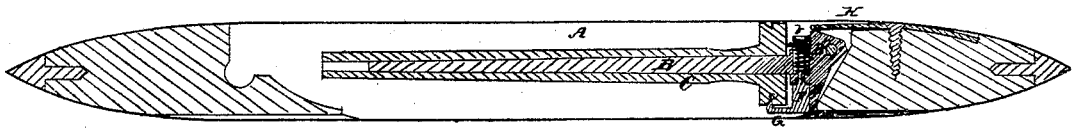


Fig. 2.

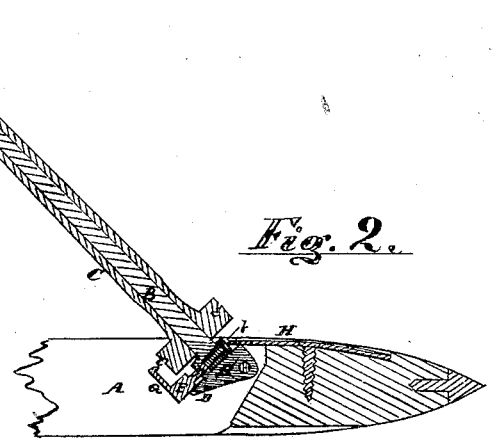
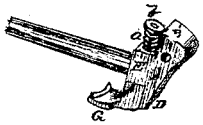


Fig. 3.



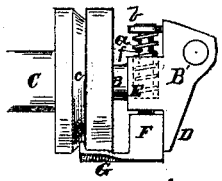


fig. 4

Witnesses:

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United States Patent Office.

EZRA W. MARBLE, OF SUTTON, MASSACHUSETTS.

Letters Patent No. 114,167, dated April 25, 1871.

IMPROVEMENT IN SHUTTLES FOR LOOMS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, EZRA W. MARBLE, of Sutton, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Shuttles; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing which forms a part of this specification, in which—

Figure 1 represents a central longitudinal section of my improved shuttle.

Figure 2 represents the same with the spindle raised.

Figure 3 represents a perspective view of the spindle-head.

Figure 4 represents a side view of the spindle and bobbin-heads drawn to a large scale.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

In the drawing—

The part marked A is the body of the shuttle;

B, the spindle; and

C, the bobbin.

The head B′ of the spindle B is made of the form shown in the drawing, and is provided at its lower side with a broad flange, D, and at its front side with a square lug, E, the latter being drilled through in a direction perpendicular to the axis of the spindle to receive the stem *f* of the bobbin-holder F.

The upper part of the opening in the lug E is countersunk or enlarged for about two-thirds of the distance through the lug, so as to allow sufficient space for the coiled-wire spring *a* which surrounds the stem of the bobbin-holder F, and by means of which the latter is operated.

The spring *a* is retained upon the stem *f* by a head-piece, *b*, riveted to the upper end of said stem.

The lower end of the bobbin-holder F is provided with a flange, G, the outer edge of which turns upward and catches into the groove *c* in the bobbin-head when the spindle is in working position, and thereby holds the bobbin C in place.

The back part of the bobbin-holder F rests squarely against the flange D on the lower part of the spindle-head B′, and is thereby retained in proper position and prevented from swinging around to the right or left, as is the case when made in accordance with the former method of construction in which the flange D is omitted.

The spindle B is attached to the body of the shuttle A in the usual manner, by a pivot-pin passing through from side to side, and it is held in position by the ordinary-shaped flat spring H, the end of which presses upon the top of the spindle-head B′, as shown in the drawing.

When the spindle B is raised as shown in fig. 2, the head *b* on the upper end of the stem *f* strikes against the end of spring H, and the bobbin-holder is thereby depressed so as to throw the flange G out of the groove *c* and thus release the bobbin-head, the coiled spring *a* being compressed into the opening in the lug E, and when the spindle is pressed down into the interior of the shuttle, the spring *a*, being relieved, raises the bobbin-holder F and causes the flange G to embrace the groove *c* in the bobbin-head and hold the bobbin in a very secure and perfect manner.

By countersinking the opening in the lug E, and letting in the spring *a* in the manner herein illustrated, a sufficient length can be given to said spring to render it flexible, quick, and easy of operation, and it will retain its elasticity until the shuttle is worn out; whereas with the form or method of resting the spring upon the top of the bar the distance was so short that the spring was soon rendered comparatively useless, as it had but little elasticity when new, and even that was lost after a very little use. And again, the difficulty heretofore experienced of the bobbin-holder swinging around out of place is also obviated in my improved shuttle by the use of the flange D at the lower part of the spindle-head.

Having described my improvement in shuttles,

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

1. The spindle-head B′ having the flange D, in combination with the bobbin-holder F, all constructed and arranged substantially as and for the purposes herein set forth.

2. The combination, with the spring H and spindle-head B′ D, of the bobbin-holder F *f b* and spring *a*, arranged substantially as and for the purposes herein set forth.

EZRA W. MARBLE.

Witnesses:

CHAS. H. BURLEIGH,

A. E. PEIRCE.