No. 615,567. Patented Dec. 6, 1898.

J. H. MORIN.

LOOM SHUTTLE.

(Application filed Oct. 7, 1897.)

(No Model.)

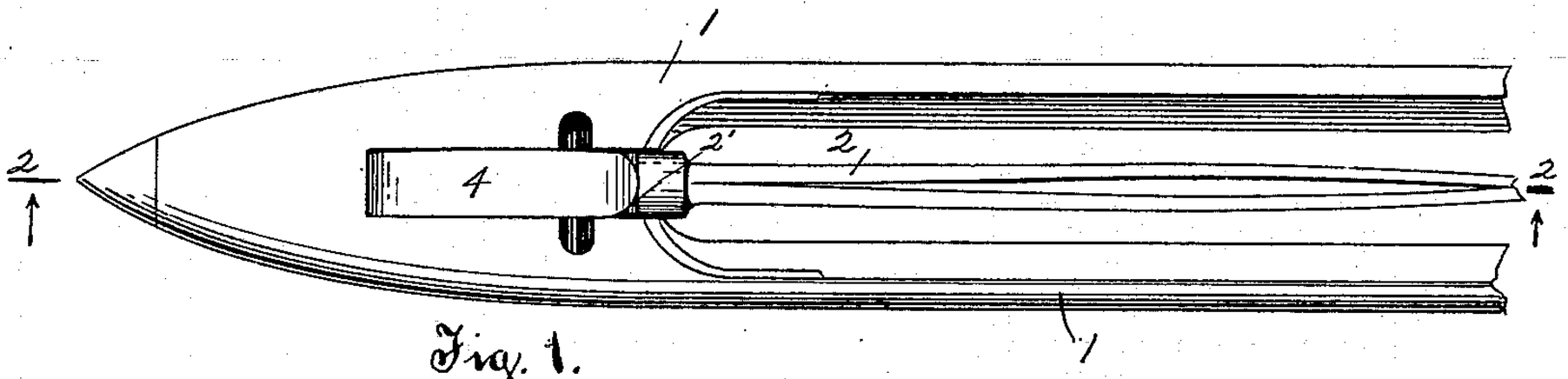

Fig. 1.

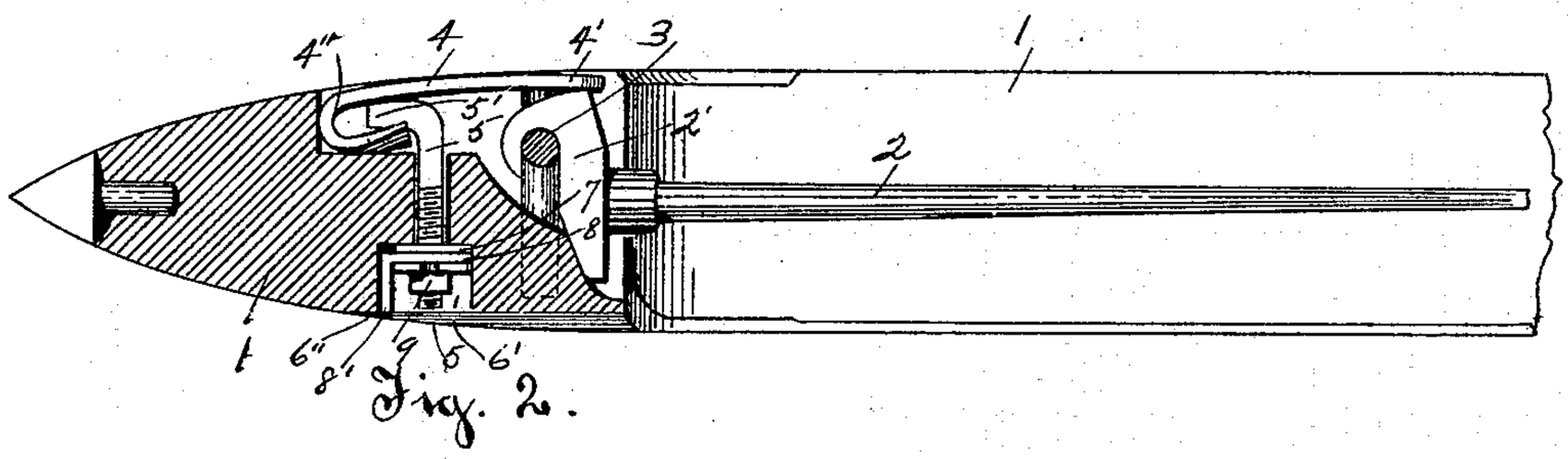

Fig. 2.

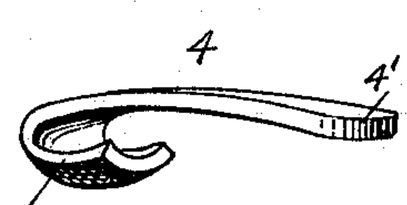

Fig. 3.

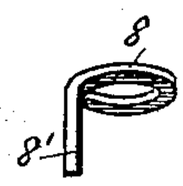

Fig. 4.

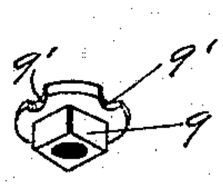

Fig 5.

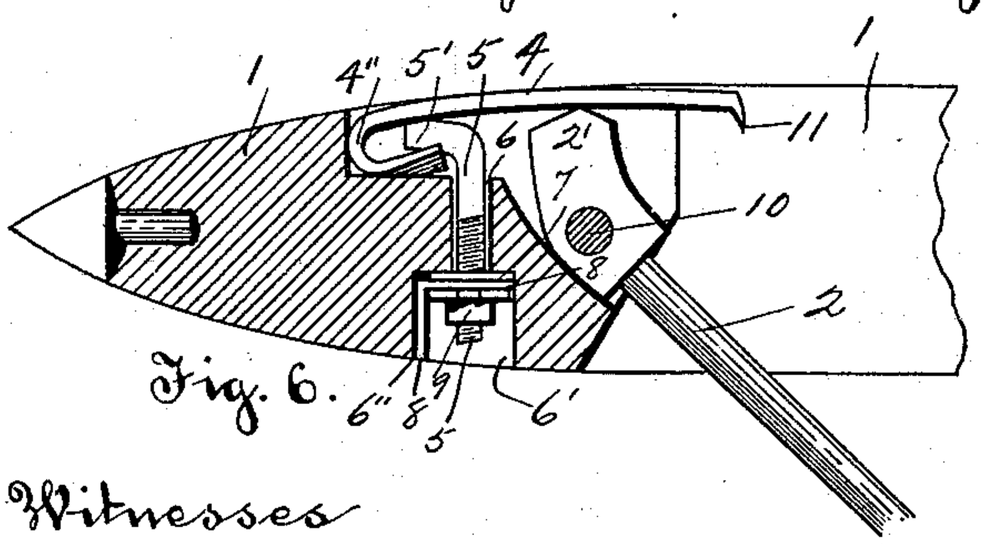

Fig. 6.

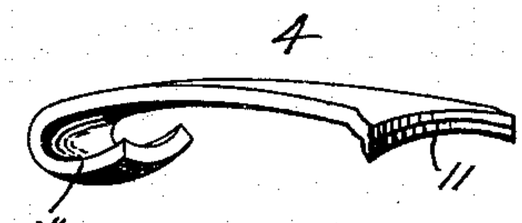

Fig 7.

Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH H. MORIN, OF WILKINSONVILLE, MASSACHUSETTS, ASSIGNOR TO THE D. T. DUDLEY & SON COMPANY, OF SAME PLACE.

LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 615,567, dated December 6, 1898.

Application filed October 7, 1897. Serial No. 654,319. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. MORIN, a citizen of the United States, residing at Wilkinsonville, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Loom-Shuttles, of which the following is a specification.

My invention relates to loom-shuttles, and more particularly to the spring which holds the spindle of the shuttle in position and the manner of securing the spring in the shuttle.

In the ordinary construction of the spring which is shown in my United States Letters Patent No. 525,814, of September 11, 1894, the spring is liable to break and often does break by reason of the strain thereon when the spindle is raised and the attaching-screw is liable to break or pull out.

The object of my invention is to improve upon the construction and the manner of attaching the spindle-spring of the ordinary construction above referred to; and my invention consists in certain novel features of construction of my spring and attaching means, as will be hereinafter fully described.

Referring to the drawings, Figure 1 is a top view of a portion of a loom-shuttle embodying my invention. Fig. 2 is a central longitudinal section on line 2 2, Fig. 1, looking in the direction of arrow *a*, same figure. Fig. 3 is a perspective view of the spring detached. Fig. 4 is a perspective view of the lock device. Fig. 5 is a perspective view of the lock-nut. Fig. 6 corresponds to Fig. 2, but shows a modified construction of the spring to be used in connection with what is termed a "Baldwin-head" spindle; and Fig. 7 is a perspective view of the spring shown in Fig. 6 detached.

In the accompanying drawings, 1 is the shuttle-body of the usual form.

2 is a spindle the head 2′ of which is pivotally attached in the body of the shuttle, in this instance by a staple 3, the transverse portion of which extends into an open-end slot in the spindle-head in the same manner as is shown and described in my said patent above referred to.

The spindle-spring 4 of my invention and which forms a part of my improvements is of peculiar shape and construction. It is not reversible and is much shorter than the ordinary shuttle-spring, and therefore the slot or recess for the spring in the shuttle-body is shorter and does not extend as far toward the end of the shuttle as in the ordinary shuttle.

The spring 4 has one end 4′ of the ordinary shape, and this end when the spring is secured in the shuttle-body bears on the spindle-head in the usual way to hold the spindle in its lowered or raised position. The other end 4″ of the spring 4 instead of being flat, as in the ordinary construction of spindle-springs, is bent back upon itself toward the other end to form an open-end eye or hook, as shown, and is preferably curved upwardly in cross-section to form a depression or recess to receive the head or bent end 5′ of the attaching-bolt 5, which extends at right angles to the plane of the spring through a transverse hole 6 in the shuttle-body, which is enlarged at its outer end 6′ to receive a washer 7 on the attaching-bolt 5, also a second washer or ring 8, having a lock-pin 8′, which extends into a groove or recess 6″, leading out from the enlarged end 6′ of the opening 6, and prevents the turning of said washer or ring 8, and a nut 9, which is screwed onto the threaded end of the attaching-bolt 5 and is provided with recesses or grooves 9′ in the circular part thereof to receive the pin 8′, which thus acts to lock the nut 9 on the bolt 5.

To regulate the tension of the spring 4 as desired, the nut 9 is turned on or off the bolt 5.

In Fig. 6 I have shown what is termed a "Baldwin-head" spindle, which is shown and described in United States Letters Patent No. 1,485, of January 31, 1840, and a modified construction of my spring combined therewith. In said Fig. 6 the head of the spindle is pivotally secured in the shuttle-body by a transverse pin 10 in the ordinary way, and my spring 4 is bent at its free end to form a hook or catch 11 to extend into the circumferential groove in the bobbin (not shown) mounted on the spindle.

The advantages of my improved spring and attaching device will be readily appreciated by those skilled in the art.

There is no liability of the spring breaking and no liability of the attaching-bolt drawing out or breaking. The tension of the spring

can be readily adjusted as desired, and by means of the washer with the lock-pin the nut will be locked in place on the bolt and cannot work loose.

It will be understood that the details of construction of some of the parts of my improvements may be varied, if desired, and any well-known manner of pivotally attaching the spindle-head in the shuttle-body may be employed.

The nut-locking device shown in the drawings and above described may be dispensed with or any other well-known form of nut-lock substituted, or a second nut may be used to lock the first nut in the ordinary way.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a shuttle-body, provided with a slot or recess, and a spindle pivoted therein, of a non-reversible spring, with one end bearing on the spindle-head, and the other end bent back upon itself toward the bearing end, to form a hook to receive the head or bent end of the attaching-bolt, and said bolt provided with a head or bent end, and extending at right angles to the plane of the spring, through a hole in the shuttle-body, and a nut on said bolt, substantially as shown and described.

2. The combination with a shuttle-body provided with a slot or recess, and a spindle pivoted therein, of a spring, with one end bearing on the spindle-head and the other end bent back upon itself, toward the bearing end, to form a hook, and curved upwardly in cross-section to form a depression or recess to receive the head or bent end of the attaching-bolt, and said bolt, provided with a head or bent end, and extending at right angles to the plane of the spring, in a transverse hole in the shuttle-body, and a nut on said bolt, and means for locking said nut on the bolt, substantially as shown and described.

JOSEPH H. MORIN.

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