(No Model.)

# I. RUSHWORTH.

## LOOM SHUTTLE.

No. 526,748. Patented Oct. 2, 1894.

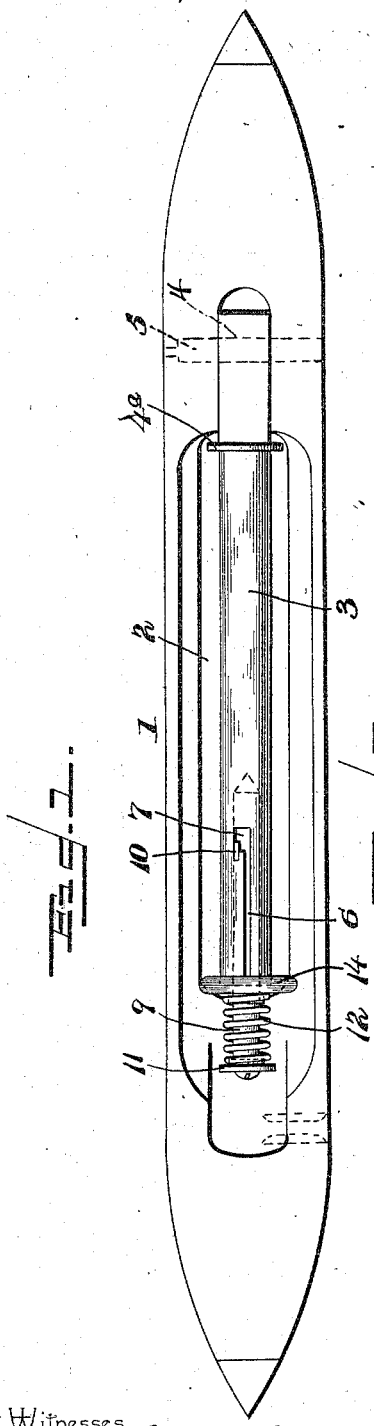


Fig. 1.

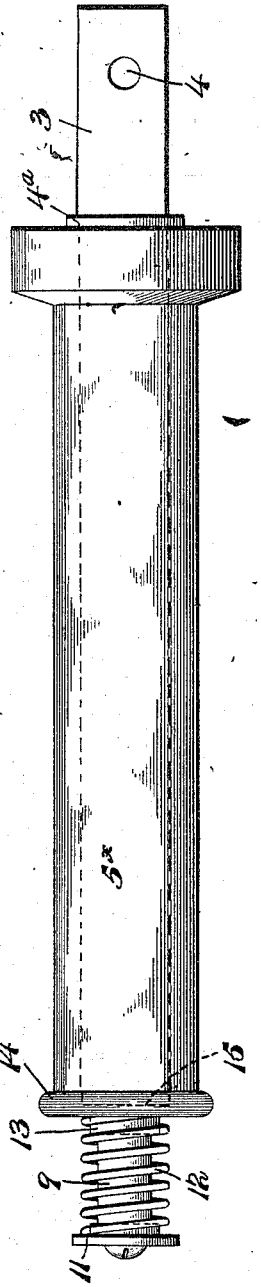


Fig. 2.

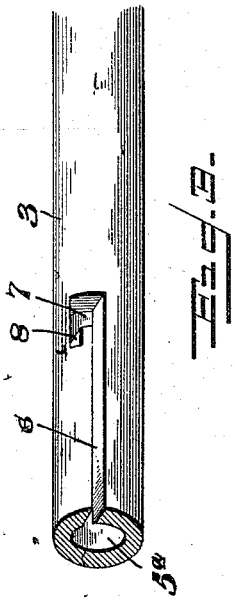


Fig. 3.

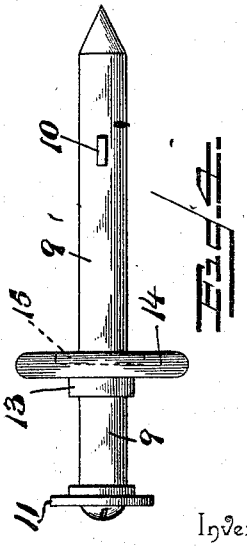


Fig. 4.

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# UNITED STATES PATENT OFFICE.

ISAAC RUSHWORTH, OF JAMESTOWN, NEW YORK.

## LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 526,748, dated October 2, 1894.

Application filed March 23, 1894. Serial No. 504,849. (No model.)

*To all whom it may concern:*

Be it known that I, ISAAC RUSHWORTH, a citizen of the United States, residing at Jamestown, in the county of Chautauqua and State of New York, have invented a new and useful Loom-Shuttle, of which the following is a specification.

This invention relates to loom shuttles for weaving in textile and other fabrics; and it has for its object to effect certain improvements in the spindles for shuttles of this character whereby the manipulation and working of the bobbin is rendered easier and with less injury thereto.

To this end the main and primary object of the present invention is to provide a new and useful two-part or separable spindle for shuttles which shall provide simple and efficient means for removing and replacing the bobbins, while at the same time avoiding the breaking of bobbins while placing them in position as is the case in the ordinary split or bowed spring-spindles, and also providing a spindle which will not spoil the small end of the bobbin as in some styles of spindles, and will provide a spindle on which broken bobbins may be placed so that the filling or yarn thereon may be used.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the accompanying drawings:—Figure 1 is a top plan view of a loom shuttle provided with the improved spindle. Fig. 2 is an enlarged detail elevation of the spindle with the bobbin thereon, removed from the shuttle body. Fig. 3 is an enlarged detail view of a portion of the spindle. Fig. 4 is a similar view of the removable spindle locking pin.

Referring to the accompanying drawings, 1 designates a loom shuttle body of the ordinary general construction having the opposite pointed ends and provided with a longitudinal body slot 2, in which is arranged to work the bobbin spindle 3.

In the present invention the bobbin spindle 3, is a cylindrical perfectly straight bar of metal of the same diameter from end to end of its bobbin receiving portion, and is provided at its rectangular end with the perforation 4, which receives the pivot pin 5, that is secured in one end of the shuttle body to pivot the spindle 3, therein in the ordinary manner, and at this end of the spindle is arranged the ordinary spindle spring for normally holding the spindle within the slot of the body in the ordinary manner, but since nearly all types of shuttles are provided with these features of construction the same are not further illustrated in the drawings.

The straight pivoted bobbin spindle 3, is provided near its point of pivot with the collar $4^a$, against which is held the large end of an ordinary shuttle bobbin $5^\times$, that is adapted to be slipped onto the cylindrical portion of the spindle 3, and to be carried thereby during the operating of the shuttle, and at its other swinging end the said bobbin spindle is centrally bored with a longitudinal recess $5^a$, and is provided with a longitudinally disposed guide slot 6, extending in from that end thereof and communicating with the longitudinal bore or recess $5^a$. At the inner end of the longitudinally disposed guide slot 6, the bobbin spindle is further provided with a short end slot 7, leading from the slot 6, at right angles and extended into an off-standing lock notch or recess 8, that is disposed at right angles to the slot 7, and is disposed in a substantially parallel plane with the guide slot 6.

The longitudinal recess $5^a$, in one end of the spindle 3, is adapted to removably receive the removable spindle locking pin 9. The spindle locking pin 9, is a cylindrical or round bar of metal and is provided near one end with the short off-standing lock-stud 10 that is adapted to be guided through the slot 6, and the end slot 7, into the notch or recess 8, when the spindle locking pin 9, is being placed in position, and is correspondingly guided out of the slots when the said spindle locking pin is being removed. The removable spindle locking pin 9, is provided at its outer end with the finger flange or collar 11, against which bears one end of the spring 12, coiled on one end of the spindle locking pin 9, and adapted to have its other end fit over the neck 13 at one side of the sliding or mov-

able retaining collar 14, that slides on the spindle locking pin 9, and is provided at one side opposite the neck 13 with the circular recess 15, which fits over the free end of the spindle 3 in order to allow the collar 14, to be pressed by the spring 12, against one end of the bobbin $5^{\times}$, to force the same against the collar 4 and retain it properly in position on the spindle, while at the same time serving to retain the spindle locking pin 9, in locking engagement with the spindle by reason of the tension of the spring bearing thereagainst, and it is to be further noted that the collar 14, has a rounded periphery and is designed to be of a larger diameter than the bobbin so that any roughness on the bobbin will not interfere with the free and easy unwinding of the filling or yarn.

To remove a bobbin from the spindle 3, it is simply necessary to lift the spindle out of the slot of the shuttle body in the ordinary manner; then by pressing inwardly on the finger flange or collar 11, the stud 10 may be disengaged from the notch or recess 8. It is then simply necessary to turn the spindle locking pin 9, in one direction, to carry the stud 10 through the short slot 7, into the slot 6, out of which the stud 10, will slide by pulling the spindle locking pin 9, out, and the old bobbin may be taken off and a new one readily replaced. After positioning a new or filled bobbin, the spindle locking pin 9, is again inserted into the recessed end of the spindle 3, and by pressing on the flange or collar 11, against the tension of the spring 12, the stud 10, may be again engaged with the notch or recess 8 and held in engagement therewith by said spring.

The many advantages of the herein described spindle have been already referred to and will be readily appreciated by those skilled in the art, and I will have it understood that changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. The combination of a straight spindle adapted to be pivotally mounted at one end within a shuttle body and provided with an opposite hollow end having a locking notch or recess, a removable spindle locking pin adapted to register in the hollow end of the spindle and having a stud adapted to removably engage said notch or recess, and a flange or collar at one end, a circularly recessed retaining collar mounted to slide on said spindle locking pin and adapted to have its recess receive one end of the spindle, and a spring arranged between the sliding collar and the flange or collar at one end of the spindle locking pin, substantially as set forth.

2. The combination of a straight spindle adapted to be pivoted at one end within a shuttle body and provided at its other end with a longitudinal recess or bore $5^{a}$, a longitudinally disposed guide slot communicating with said recess, a short end slot at the inner end of the guide slot, and an off-standing lock notch or recess communicating with said end slot, a removable spindle locking pin adapted to register in said longitudinal recess of the spindle and provided with a lock stud adapted to pass through said slots into and out of engagement with said lock notch or recess, a fixed flange or collar arranged on one end of said spindle locking pin, a movable recess retaining collar mounted to slide on said pin, and a spring interposed between said collars, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ISAAC RUSHWORTH.

Witnesses:
H. R. LEWIS,
L. W. WILTSIE.