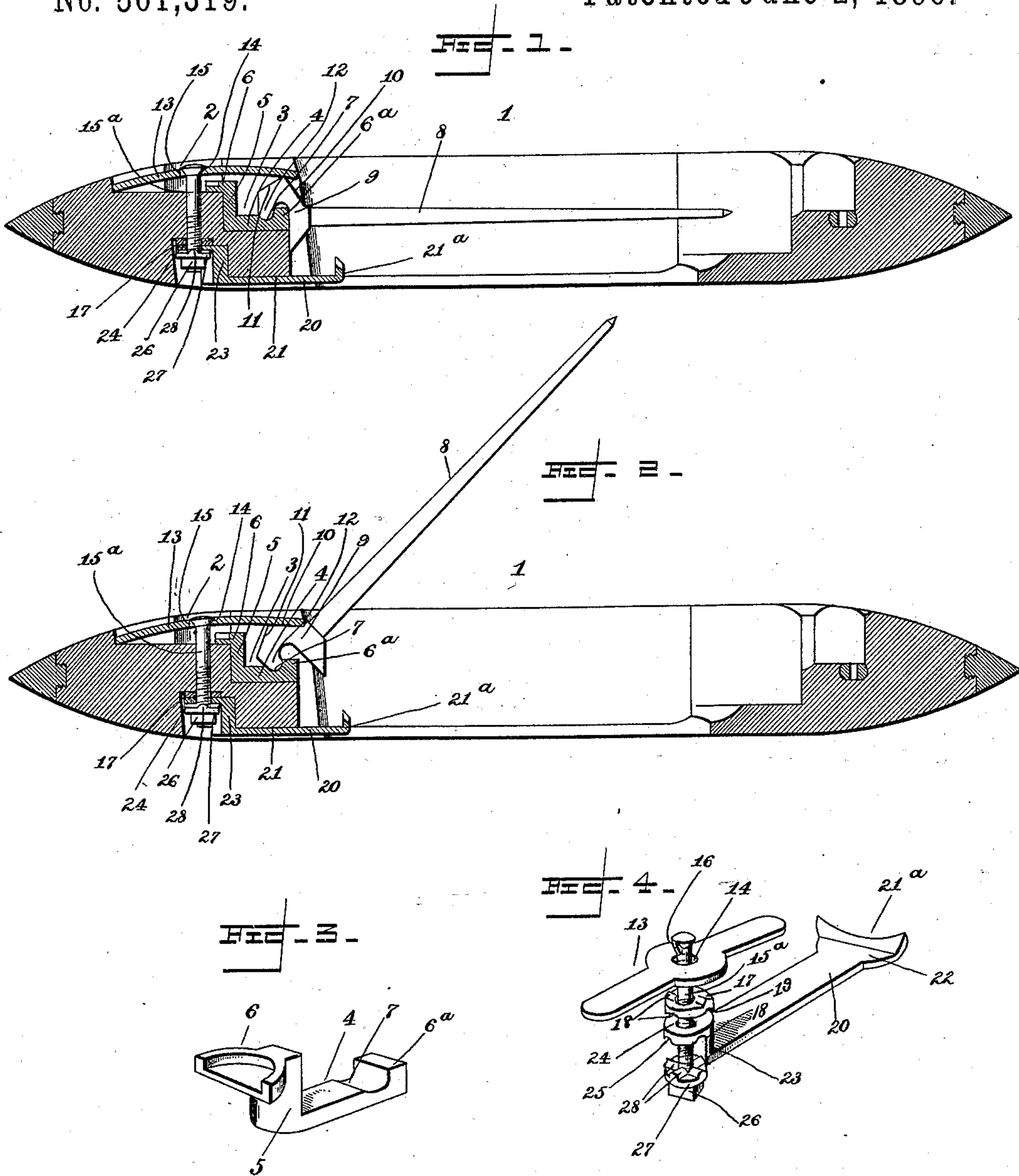


(No Model.)

A. ISHERWOOD.  
LOOM SHUTTLE.

No. 561,319.

Patented June 2, 1896.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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## LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 561,319, dated June 2, 1896.

Application filed June 22, 1894. Serial No. 515,437. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED ISHERWOOD, a citizen of the United States, residing at New Bedford, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Loom-Shuttles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to weaving, and more particularly to improvements in the shuttles employed in this art.

The objects of my improvements are to produce a nut-lock employed upon the bolt that supports the spring for holding the spindle, said lock being of such construction as to obviate the necessity of impairing or weakening the shuttle-stock by undue cutting away of the same; to provide for an improved yielding support for the bobbin-catch, whereby compensation is made for various sizes of bobbins, and so that the spindle will always remain in line with the eye of the shuttle; to adapt the shuttle to be used in connection with and to receive both cop-filling and bobbin-filling, and to secure in position by a single bolt both the spring for supporting the spindle and also the bobbin-catch, the parts being so constructed as to adapt the bolt to receive a nut-lock, whereby the spring mentioned performs the additional function of serving to coact with the nut-lock, thus retaining the latter in position upon the bolt.

With these objects in view my invention consists in certain features of construction, hereinafter specified, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a longitudinal sectional view of a shuttle embodying my invention, the spindle being shown as lowered into the shuttle. Fig. 2 is a similar view of the spindle shown as raised. Fig. 3 is a detail in perspective of the rest-plate for supporting the spindle; Fig. 4, details in perspective of the spindle-spring, its bolt, and the parts comprising the lock.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 designates the body portion of the shuttle, which has the usual external formation,

and the same is provided with the usual opening intermediate its ends for the reception of the spindle and filling. The upper side of the body portion, at its rear end, is provided with an annular recess 2, and from the front and rear sides thereof radiate branches. The front branch of the recess is deeper than the annular recess and produces a slot 3.

Seated in the slot 3 is the rest-plate 4, the same being provided at its rear end with a vertically-disposed neck 5, which terminates in a rearwardly-disposed segmental head 6. The neck is seated in the rear end of the slot 3 and is curved to conform therewith, while the head rests within the annular recess 2, occupying the front portion of the latter.

The front end of the rest-plate 6 is provided with a transverse lug 6<sup>a</sup>, and immediately in rear thereof the upper side of the rest-plate is provided with a rounded groove or seat 7.

8 designates the spindle, and the same is provided at its rear or butt end with the head 9. The head 9 has formed upon its upper side oppositely-disposed inclined faces 10 and 11, and its rear end is provided with a depending flange or rib 12, which interlocks with the transverse lug formed on the rest-plate, and, being rounded, fits rotatably within the groove of said rest-plate. When the spindle is lowered, its rear face abuts directly against the front end of the rest-plate, so that the two are interlocked, and the spindle is maintained in alinement with the eye of the shuttle. Inasmuch as the rest-plate is wholly within the slot 3 of the shuttle, that portion of the rear wall of the butt-end of the spindle not resting against the rest-plate will abut against the rear wall of the shuttle-cavity, this latter abutment serving to materially aid in securing the desired alinement.

Surmounting the rear end of the spindle and conforming to the configuration of the annular recess 2 and its branches is the bowed spring 13, the same having its rear end resting in the rear branch of the recess 2, and its front end upon either of the faces 10 or 11 of the spindle, in accordance with the position of said spindle—that is to say, when the spindle is lowered the spring-plate rests upon the angle of the two faces, or when raised to receive a bobbin it rests upon the front inclined face 10. The center portion of the spring



is enlarged annularly and provided with a central opening 14, which is countersunk and provided with a recess 15, the said opening corresponding with the vertical opening 5 produced concentrically in the recess 2 and through the body of the shuttle. Through the opening in the spring and that in the shuttle-body is passed vertically a bolt 15<sup>a</sup>, the head of which rests in the countersunk 10 recess formed in the opening of the spring. The lower end of the bolt projects into an annular enlargement formed at the lower end of the perforation in the shuttle-body, and terminates above the lower plane of said body. 15 The bolt is provided with a fin 16 immediately below its head, which engages with the recess in the perforation or opening in the bowed spring.

A bobbin-catch plate 20 is fitted removably 20 in a longitudinal recess 21, formed in the under side of the shuttle-body, the said recess extending from the usual slot or opening in the shuttle-body to the enlarged annular perforation in rear thereof. This catch-plate 20 has 25 its front end enlarged and provided with a vertical bearing-flange 21<sup>a</sup>, which is preferably beveled at its outer side and provided with a segmental seat 22. The rear end of the bobbin-catch is provided with a neck 23, 30 which is disposed at a right angle to the catch proper and finally terminates in a perforated head 24, disposed at a right angle to the neck and of such configuration as to fit within the annular enlargement at the lower end of the 35 perforation in the shuttle-body.

The head rests against the washer, if the same be used or permitted to remain in position, or it may rest directly against the fiber of the wood of which the shuttle-body is com- 40 posed, as will hereinafter appear. The under side of the head, like the washer, is grooved, as at 25. The nut 26 is threaded on the lower end of the bolt, and has formed upon its upper side the annular base 27, which is provided with superficial ribs 28, so that when 45 the nut is run up on the bolt and the latter is under tension from the spring 13 the said ribs will be caused to engage with the grooves of the washer if the catch-plate be out of position or with the grooves of the catch-plate 50 if the same be in position.

It is understood that the catch is only used when bobbin-fillings are employed; but the same may be left in position, if preferred. It 55 is obvious, however, that it may be removed in order to lighten as much as possible the weighted end of the shuttle.

When a bobbin is employed, the groove formed annularly in the head of the bobbin 60 rests in the bearing-flange at the front end of the catch-plate in a manner that will be obvious, so that said bobbin is retained in position. At the same time the spindle is free to be elevated with the bobbin thereon.

65 It will be observed that the outer or rear end of the catch-plate is of a uniform width and affords no projecting shoulders or protru-

sions of any kind that are calculated to catch the yarn or offer obstructions.

If, as it sometimes happens, the bobbin 70 varies in size, so that when lowered with the spindle into the shuttle-body it would naturally be out of alinement with the eye of the shuttle and thus obstruct the free running of the filling, it will be obvious that I have pro- 75 vided for such a contingency by securing the catch and spring in position by a single bolt, so that a compensation of these parts will take place—that is to say, if the catch-plate were rigid, as would be the case if it were 80 secured direct to the shuttle-body independent of the spring, it would not yield to any excess of size in the bobbin; but inasmuch as a single bolt connects both the spring and the catch-plate it will be obvious that any pres- 85 sure on the catch-plate caused by the excess of size of the bobbin will cause the bolt to draw upon the spring, and the latter will commensurately yield to such pressure, permit- 90 ting the catch-plate to lower, yet not altering the position of the spindle with relation to the shuttle-body. It will furthermore be seen that the spring employed not only serves its usual function of retaining the spindle in a raised or a lowered position, but it also serves 95 to draw the bolt upward and cause the flanged locking-nut to engage with the grooves of the catch-plate or the washer, as the case may be, and retain the nut against retrogression, and in addition serves to secure the catch- 100 plate in position in a yielding manner. Thus it is obvious that the spring serves a three-fold function not heretofore obtained.

I do not limit my invention to the precise details of construction herein shown and de- 105 scribed, but hold that I may make such variations in the same as come within the knowledge of the skilled mechanic without departing from the spirit thereof or sacrificing any of its advantages. 110

Having described my invention, what I claim is—

1. The combination with a shuttle-body, of a catch-plate arranged thereunder and provided with a perforation at its rear end, which 115 end is seated in a recess formed in the under side of the shuttle-body, a bolt passing through the perforation and extending below the plate, the spring interposed between the head of the bolt and the shuttle-body, and the locking- 120 nut on the lower end of the bolt below the catch-plate and within the recess of the shuttle-body, substantially as specified.

2. The combination with a shuttle-body and its spindle having an angular head, of a spring 125 secured upon the upper side of the shuttle-body and bearing upon the spindle-head, said spring having a perforation formed therein, the wall of which is provided with a notch, a bolt passed through the spring and through 130 the shuttle-body and provided at one side of its head with a fin for engaging the notch, a catch-plate having a rear upwardly-disposed end terminating in a securing-plate seated in



the recess in the shuttle-body and provided with a perforation for receiving the bolt, and a locking-nut on the end of the bolt below the perforation and plate and within the recess mentioned, substantially as specified.

3. The combination with a shuttle-body and its spindle having an angular head, of a spring resting on the spindle-head and provided with a perforation, a bolt passed through the perforation and through the shuttle-body, a catch-plate arranged on the under side of the shuttle-body and having a perforation to receive the lower end of the bolt, which lower end passes through and beyond this perforation, and a locking-nut on the lower end of the bolt retained in position by said spring, substantially as specified.

4. The combination with a shuttle-body and its spindle having an angular head, of a bowed spring arranged upon the shuttle-body and having its front end bearing upon said head, said spring being provided with a perforation having an offset, a bolt having a fin passed through the perforation and engaging the offset, a catch-plate on the underside of the shuttle-body and having a perforation through and beyond which the bolt passes, a grooved washer arranged on the lower end of the bolt above the catch-plate, and a nut having superficial ribs upon that side adjacent to the catch-plate for engaging grooves in the under side of the latter, substantially as specified.

5. The combination with a shuttle-body provided upon its under side with a recess

and upon its upper side with a spring-receiving recess, a spindle having an angular head, of the spring arranged in the recess, a catch-plate having a rear vertical neck, an angular head formed thereon and provided with a perforation, said head having grooves upon its under side, a bolt passing through the spring and through and beyond the perforation formed in the head of the catch-plate, and a ribbed locking-nut arranged on the bolt under the head of the catch-plate and engaging the grooves formed therein, substantially as specified.

6. The combination with a shuttle-body and its spindle having an angular head, of a bowed spring arranged upon the shuttle-body and having its front end bearing upon said head, said spring being provided with a perforation having an offset, a bolt having a fin passed through the perforation and shuttle-body and engaging the offset, a grooved washer arranged on the lower end of the bolt out of contact with the spring and provided upon its upper side with ribs, and a nut located on the lower end of the bolt and provided upon its upper side adjacent to the washer with ribs for engaging the grooves of said washer, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

ALFRED ISHERWOOD.

Witnesses:

THOMAS ISHERWOOD,  
JAMES REED.