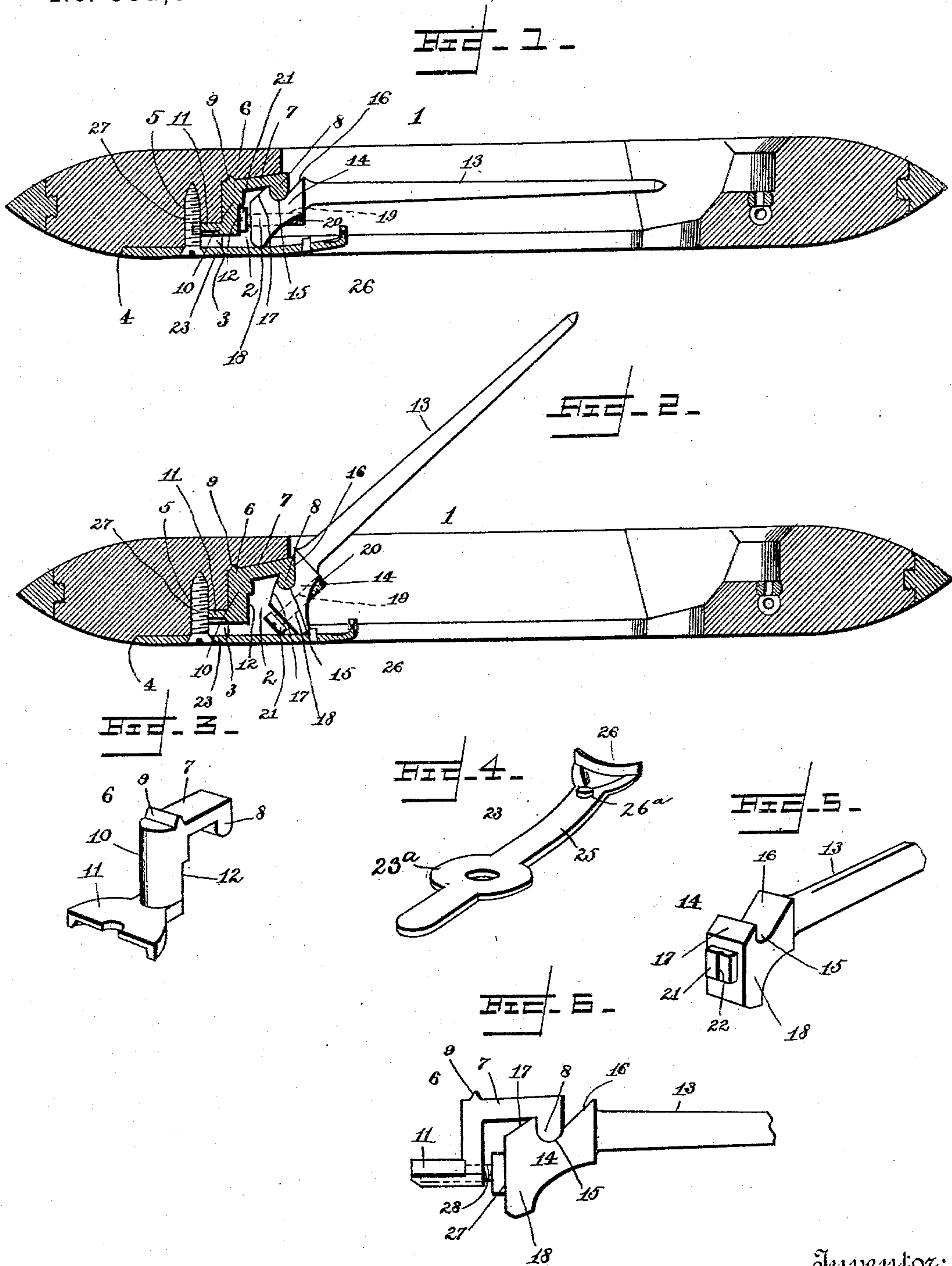


(No Model.)

A. ISHERWOOD.
LOOM SHUTTLE.

No. 551,383.

Patented Dec. 17, 1895.



Witnesses:

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UNITED STATES PATENT OFFICE.

ALFRED ISHERWOOD, OF NEW BEDFORD, MASSACHUSETTS.

LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 551,383, dated December 17, 1895.

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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 improvements in weaving, and has special reference to improvements in shuttles employed in the same, and also to that class of shuttles wherein the spring for retaining the spindle is located on the under side of the shuttle-body.

The objects of my invention are to produce a connection between the inner end or head of the spindle and the shuttle-body, the said connection being of cheap and simple construction and adapted to permit of a ready movement and at the same time a secure retention of the spindle in either position; to obviate the necessity of employing a pivot-pin for the spindle, and to dispose the wear at such points as will permit of a proper taking up of the same, and, finally, to provide such a take-up whereby the spindle will always be maintained in alignment.

Various other objects of minor importance will appear in the following description, and the novel features of the invention will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a longitudinal sectional view of a shuttle embodying my invention, the same being shown with the spindle in position within the shuttle. Fig. 2 is a similar view with the spindle raised out of position. Fig. 3 is a detail in perspective of the rest-plate. Fig. 4 is a similar view of the spring and bobbin-catch. Fig. 5 is a perspective view of the rear end of the spindle. Fig. 6 is an elevation of a portion of the spindle and a modified construction of rest-plate.

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

The shuttle-body 1 is provided with the usual filling opening or recess and the rear wall thereof is slotted at 2 and communicates with a shallow recess 3, a portion of which is

annular, formed in the under side of the shuttle and having a rear branch 4. Concentric with the annular portion of the recess 3 the shuttle-body is provided with a screw-receiving opening 5.

The rest-plate 6 comprises a horizontal portion 7, at whose front end there is produced upon the under side a depending rounded transverse bearing-rib 8 and upon its upper side near its rear end a transverse angular spur 9 is formed. From the rear end of the rest-plate there depends a neck or shank 10, which in cross-section is preferably semicylindrical, and the same terminates finally at its lower end in a horizontally and rearwardly disposed segmental securing-plate 11, which is adapted to fit in the shallow recess 3. The front wall or face of the neck is provided with an angular recess, forming a transverse horizontal shoulder 12.

13 designates the spindle, the same having at its rear end the head 14. This head 14 is provided with a transverse rounded bearing-groove 15, whose front wall is inclined at 16, and whose rear wall is similarly inclined at 17. Below the same the head depends in an extension 18. The groove between the two walls mentioned engages with the rounded bearing-rib 8 of the rest-plate, and when the spindle is elevated the front inclined wall bears against the front end of said rest-plate. The lower extended end 18 of the head of the spindle is provided with a threaded perforation 19 disposed longitudinally with relation to the spindle and having seated adjustably therein a screw 20. The screw 20 is provided at its rear side beyond the head of the spindle with a rectangular head 21, and may if desired be provided at its outer end with a kerf 22 for the reception of an ordinary screw-driver, whereby, as will be obvious, the said screw may be adjusted so as to locate the head at any distance from that of the spindle. It is to be understood that the head of the screw is designed to fit within and abut against the wall of the recess and shoulder 12 when the spindle is in its lowest position, and consequently when wear occurs an adjustment of the screw will compensate for the same by adjusting the point of the spindle with relation to the shuttle-body.

Arranged upon the under side of the shuttle is the spring 23, the same having an intermediate annular enlargement 23^a which fits a shallow recess, forming a rearward extension of the recess 3. The spring 23 has a front branch 25 which is provided at its end with an upwardly-turned flange 26 and a stop pin 26^a arranged in the path of the lower extension 18 of the head of the spindle in rear of the flange. This flange is provided at its edge with a concaved recess and is adapted to engage the annular groove of the bobbin. The annular enlargement of the spring is perforated and a screw 27 is passed upwardly through the perforation and into the opening 5 formed in the recess 4, thus clamping the securing-head of the rest-plate and the spring in position within the shuttle-body.

It is obvious that various changes may be made as to the details of my invention, and I therefore do not limit the same to those herein shown and described, but hold that I may vary the same to such a degree as comes properly within the skill of the mechanic without departing from the spirit of my invention or sacrificing its advantages. As, for instance, in lieu of perforating the head of the spindle I may recess the same at 27, as shown in the illustration of the modification, Fig. 6, and instead of arranging the screw in the head of the spindle I may seat the screw 28 in a proper perforation formed in the lower end of the neck of the rest-plate, as also shown in said figure. This, however, is a mere reversal of the parts and an obvious modification.

In raising and lowering the spindle it will be obvious that the lower end of the extension 18, which I preferably slightly bevel, rides over the upper side of the spring and arrives in contact with the stop-pin at the same time that the front inclined wall 16 of the head arrives in contact with the end of the rest-plate 7, or the wall of the filling-opening in the shuttle, as the case may be. The tension of the spring is such as to maintain the spindle in either of its positions. It will be observed that no lateral wear can occur between the movable and stationary parts of the connection, but that all wear will be in the direction or disposition of the spindle. Hence the spindle will not get out of alignment and obstruct the free passage of the filling from the bobbin, and furthermore it will be observed that all wear may be compensated for by a slight adjustment of the screw. As is well known by those conversant with the manufacture of shuttles and spindles, it is a difficult matter to produce the spindle-heads of a uniform size, and I therefore obviate the necessity of such accuracy of finish by the employment of the adjustment shown, so that even though a head differs from another it may be inserted in the shuttle and by a simple turn or partial turn of the screw secure a proper adjustment of the parts.

Where the screwdriver is not employed in the front end of the screw, the screw for supporting the spring may be loosened slightly, so as to permit the withdrawal of the spindle, and the screw adjusted by means of a wrench applied to its head, or, as will be obvious, a socket-wrench might be employed for this purpose after a removal of the spindle.

From the foregoing description in connection with the accompanying drawings it will be seen that I have provided a very simple mechanical construction of connection or joint between the spindle and shuttle wherein the former is readily removable from the latter, is maintained in either its raised or lowered position, where the wear is disposed to parts that will not impair or throw the spindle out of alignment, and that I have compensated for such wear so that the life of the shuttle and spindle is increased.

Having described my invention, what I claim is—

1. The combination with a shuttle body having its under side provided with a recess, of a rest-plate, a spindle arranged movably under and interlocking with said rest-plate and provided with a lower extension, a spring seated in the recess under the spindle head and provided at its inner end with a stop arranged in the path of the extension of the head of the spindle, and means for securing the spring in position, substantially as specified.

2. The combination with a shuttle body having a recess upon its under side, a rest-plate arranged in the recess and provided at its front end upon its under side with a depending rounded transverse bearing-rib, of a spindle terminating at its rear end in a head having a rounded transverse bearing groove to receive the rib and upon its under side a depending extension, a spring arranged upon the under side of the spindle and bearing thereagainst and provided at its front end with a stop-pin arranged in the path of the depending portion or extension of the head, substantially as specified.

3. The combination with a shuttle body having a recess, a rest-plate having a transverse bearing rib arranged in the recess, a spindle having a transversely grooved head engaging loosely with the rib or the rest-plate and provided with an extension having a longitudinal threaded perforation, and an adjusting screw arranged in the perforation and adapted at its rear end to bear against the rest-plate, substantially as specified.

4. The combination with a shuttle body having a recess, an angular rest-plate seated therein and provided with a depending bearing-rib and in rear of the same with a recess, of a spindle having a head provided with a transverse bearing-groove for receiving the rib, a threaded perforation formed longitudinally in the spindle head, an adjusting screw arranged in the perforation and terminating at its rear end in a head adapted to fit the re-

cess of the rest-plate and provided at one end with a tool-receiving kerf and a spring arranged at the under side of the shuttle and bearing on the spindle head, substantially as specified.

5 5. The combination with a shuttle body having a recess and a slot, of a rest-plate seated in the slot and having at its front end upon its under side a depending rounded bearing
10 rib and at its rear end a depending neck terminating in an angularly disposed head or plate seated in the recess, a spindle having a head at its rear end provided upon its upper side with a transverse groove for engaging the
15 rib, the front wall of said groove being inclined, said head being provided upon its under side with an extension having a longitudinal threaded perforation, a headed adjusting-
20 screw arranged in the perforation, and a spring arranged at the under side of the shuttle and having a stop located in the path of the extension, substantially as specified.

6. The combination with a shuttle body

having a recess and a slot, of a rest-plate seated in the slot and having at its front end upon 25 its under side a depending rounded bearing rib and at its rear end a depending neck terminating in a rearwardly disposed securing head seated in the recess, a spindle having a head at its rear end provided upon its upper 30 side with a transverse bearing groove for engaging the rib, the front wall of said groove being inclined, said head being provided upon its under side with an extension having a threaded perforation, a headed adjusting- 35 screw arranged in the perforation, and a spring arranged at the under side of the shuttle and having a stop located in the path of the extension, and at its end a concaved bobbin catch flange, substantially as specified. 40

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

ALFRED ISHERWOOD.

Witnesses:

JAMES REED,

THOMAS ISHERWOOD.