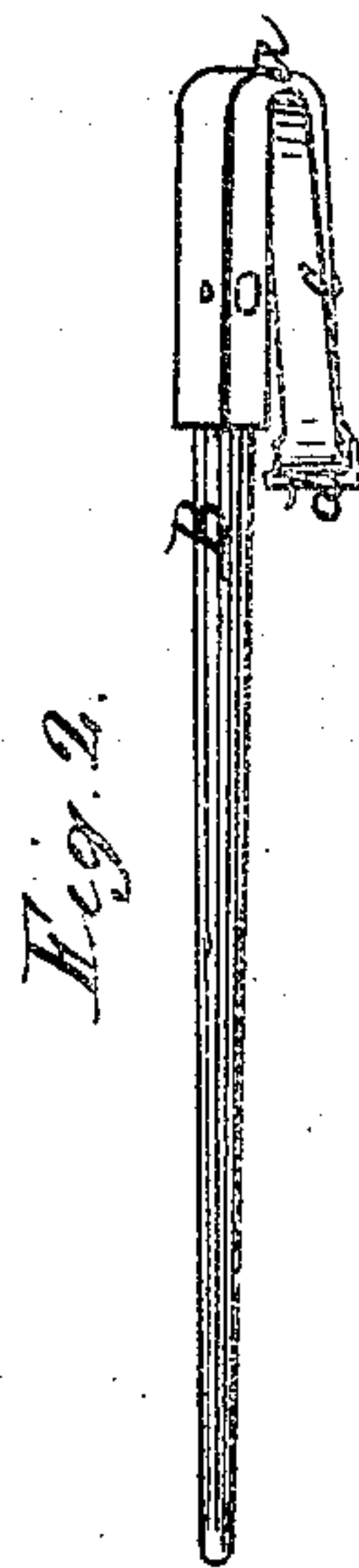
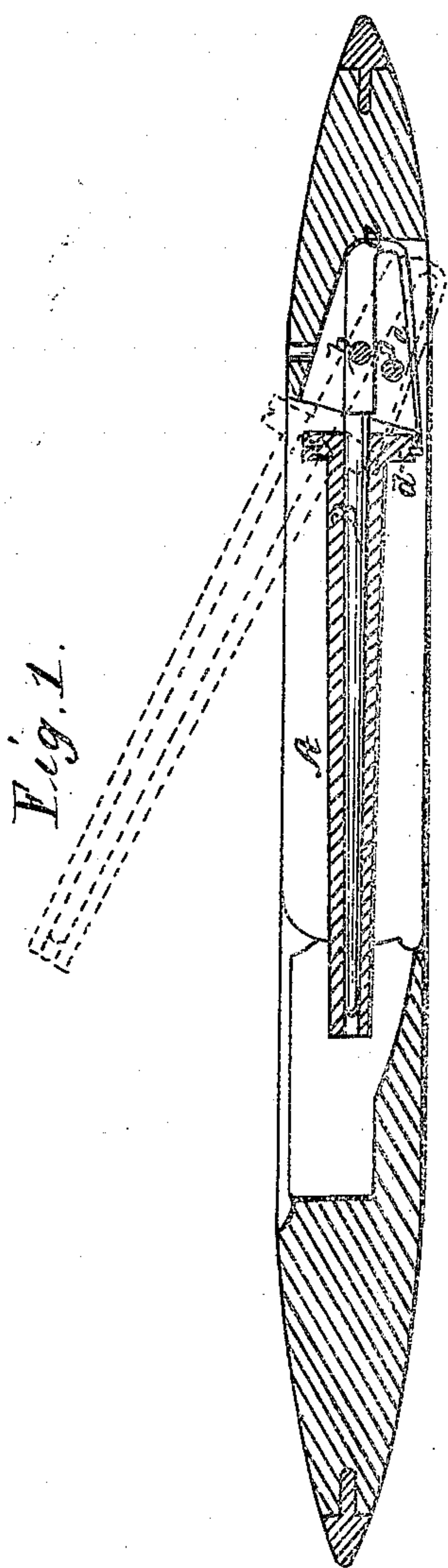


*L. Litchfield,
Shuttle,*

No. 8,390,

Patented Sept. 30, 1851.



UNITED STATES PATENT OFFICE.

LAROE LITCHFIELD, OF SOUTH BRIDGE, MASSACHUSETTS.

WEAVER'S SHUTTLE.

Specification of Letters Patent No. 8,390, dated September 30, 1851.

To all whom it may concern:

Be it known that I, LAROE LITCHFIELD, of Southbridge, in the county of Worcester and State of Massachusetts, have invented
5 a new and useful Improvement in the Shuttle Employed in Looms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1, is a longitudinal section of the shuttle, the spindle, spring and catch being shown entire, and Fig. 2, a view of the spindle, spring, and catch detached from the
15 shuttle.

Similar letters of reference indicate corresponding parts in each of the several figures.

My invention consists in forming the
20 spindle, the spring, and the catch all in one piece for the purpose of cheapening the construction and lessening the liability to get out of repair, and in providing the shuttle with a pin inserted transversely or
25 parallel to the pin on which the spindle plays for the purpose of throwing back the spring and catch and releasing the bobbin when the spindle is turned up from the mouth of the shuttle.

30 To enable others skilled in the art to make and use my invention I will proceed to describe its construction and practical effect.

A, represents the body of the shuttle. B, the spindle which plays in the usual manner upon a pin *b*, inserted transversely
35 through the shuttle, its head is prolonged back of the pin *b*, beyond the usual length, and is thinned off from *a*, to a suitable thickness and tapered to form the spring,
40 the part *c*, forming the spring being bent forward under the head nearly parallel to it, and its point being turned up in a suitable form to make the catch *d*, which fits in the usual manner in a groove in the head
45 of the bobbin C.

D, is the pin for opening or throwing back the spring and catch and releasing the bobbin when the spindle is turned up from the mouth of the shuttle, it is inserted
50 through the shuttle between the head of the spindle and the spring *c*, a short distance in front of the pin *b*, and when the spindle is turned down the upper side of the spring bears against its under side and holds the

spindle down but as soon as the spindle 55 begins to be turned up, the spring presses under it and is forced down or back until the spindle is turned up as high as desirable by which time the catch will be thrown out, free of the groove in the bobbin head and
60 the bobbins can be taken off, this position is shown by dotted lines in Fig. 1, by referring to which it will be observed that the pin D, bears upon the spring behind the pin *b*, and this holds the spindle up. A new bob- 65 bin being put on the spindle when it is raised, will be secured by the return of the spring consequent upon withdrawing its pressure upon the pin D, as the spindle is turned down into the shuttle. 70

The advantages of my invention and improvement are as follows, to wit namely. The spindle, spring and catch are all made in one piece, at less cost and are fitted into the shuttle with less labor, than when made 75 in separate pieces, besides there is no danger that the spring or pin, against which it acts will get loose and work out; while the shuttle is in operation and break the threads of warp; as the screw frequently does which 80 secures the spring when it is made in a separate piece.

The spring is made so much thinner between the catch *d*, and the pin D that the usual variations in the size of the bobbin 85 heads, does not materially effect the pressure it exerts on the pin D; so as to prevent the spring from holding the spindle in a proper position; neither does the usual variations in the size of the bobbin heads deflect 90 the spindle from its true position; as it does when the spring is made separate from the spindle, and fastened with a screw. For when they are so made a trifling variation in the size of the bobbin head, where it 95 comes in contact with the spring deflects the spindle out of its proper position so as to throw the weft above the top of the shuttle and in contact with the warp.

What I claim as my invention and desire 100 to secure by Letters Patent, is—

Making the spindle and spring both in one piece, by extending the spindle behind the hole for the pin, that fastens it into the shuttle, and reducing it to a proper thick- 105 ness and bending it to form the spring required, to hold the spindle in its proper positions in the shuttle, either with or with-

out the catch on the end of the spring, in combination with the pin D or, its equivalent, against which the spring acts to hold the spindle in the different positions required,
5 substantially as described, thereby avoiding the inconvenience arising from the loosening of the screw which holds the spring in

other shuttles, and saving the additional labor required to fit it in; when the spring is made separate from the spindle.

LARROY LITCHFIELD.

Witnesses:

SCHUYLER WHITNEY,
EDWIN H. SIKES.