L. Litchfield,

Shuttle,

No. 12,780. Patented May 1. 1855.

Fig. 1.

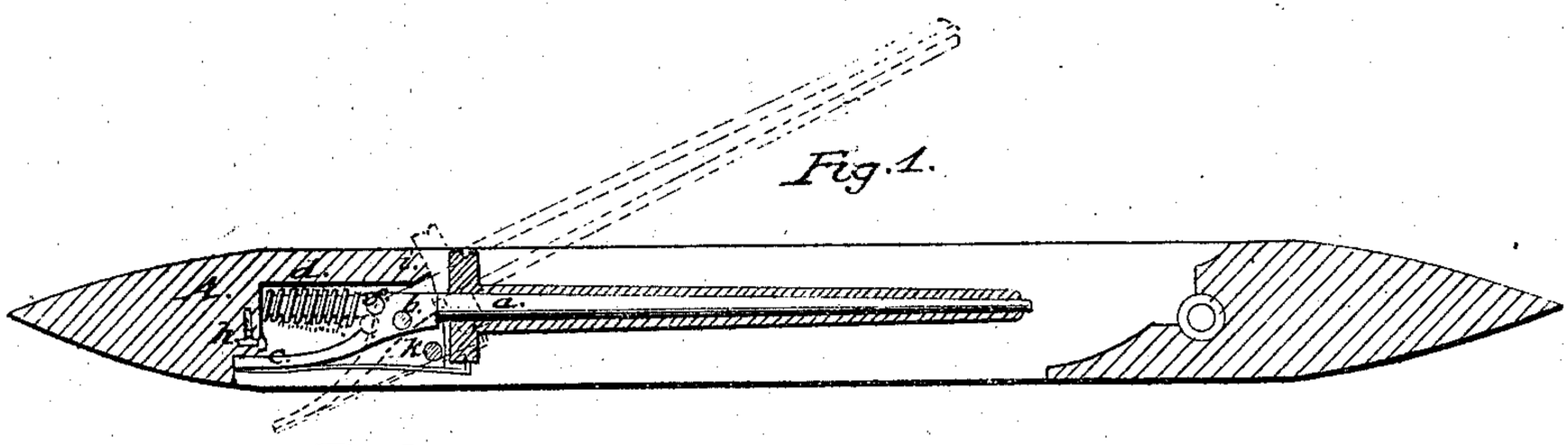
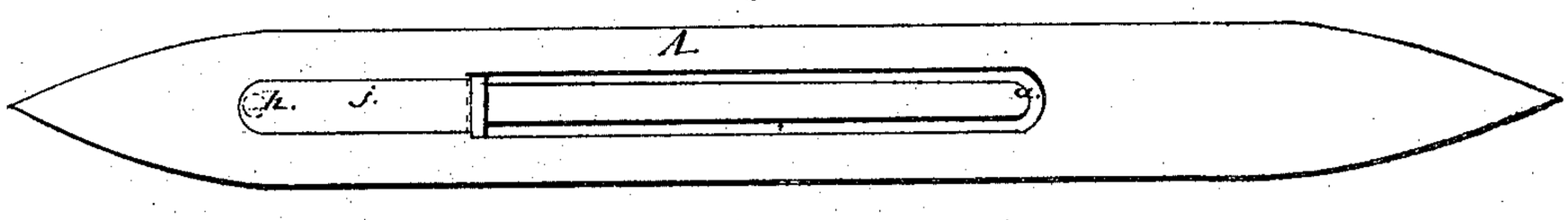


Fig. 2.

Fig. 3.



UNITED STATES PATENT OFFICE.

LAROY LITCHFIELD, OF SOUTHBRIDGE, MASSACHUSETTS.

SHUTTLE FOR LOOMS.

Specification of Letters Patent No. 12,780, dated May 1, 1855.

To all whom it may concern:

Be it known that I, LAROY LITCHFIELD, of Southbridge, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Shuttles for 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, forming part of this specification, in which—

Figure 1, is a longitudinal section of a shuttle constructed according to my invention. Fig. 2, is a side view of a pin around which is coiled the spring which keeps the spindle in place. Fig. 3, is an underside view of the shuttle.

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

This invention consists in a novel mode of applying a spring to keep the spindle in place, which admits of the repeated raising and replacing of the spindle to renew the yarn, without causing any wear of such a nature as to throw the spindle out of place.

a is the spindle and *b*, the pin which fastens it in the shuttle. The hole which receives the pin *b*, is placed a little lower than the axis of the spindle and the spindle is extended some distance behind the said hole. The part *c* of the spindle so extended, which may be termed the heel, is inclined downward from the pin *b* in order to make room for the coiled spring *d*, which holds the spindle in its place. This spring *d*, is coiled around a pin *e*, which fits with a knuckle *f*, to the back part of the spindle a little higher than the spindle *a*, and is compressed between a shoulder in rear of the knuckle and a suitable bearing in the body A of the shuttle. The pin *e*, when the spindle is in its operative position as shown in black outline in Fig. 1, stands nearly in line with the spindle, and the spring *d*, by exerting its force above the pin *b*, throws up the heel of the spindle against a bearing in the body of the shuttle and holds the spindle firm. This bearing may be formed in the body of the shuttle, but I prefer to use the head of the regulating screw *h*, for the purpose, as by screwing that screw in or out, the spindle when first placed in the shuttle may have its point readily brought to the proper height. The screw is exposed when the point of the spindle is thrown up to the position, shown in red outline, in which, it receives the cop or bobbin. When the spindle is in the last named position the knuckle *f* stands below the pin *b*, and holds the spindle against a bearing at *i*, in the upper part of the body of the shuttle.

j, is the spring catch which confines the bobbin. This is attached to the heel of the spindle and thrown off the bobbin when the point of the spindle is raised, by coming in contact with a stationary transverse pin *k*, placed below and in front of the pin *b*, and in these respects resembles the spring of the shuttle for which Letters Patent were granted to me on the 30th of September 1851; but the pin *k*, is so placed that the spring will not, while a bobbin is on the spindle, come in contact with the said pin until the point of the spindle is raised some distance, and therefore it will hold equally well a large or small headed bobbin without interfering with the firmness of the spindle, while if a very large headed bobbin be placed in my other shuttle it takes off the pin *k* the pressure of the spring which is necessary to hold the spindle secure. The same difficulty with regard to a large headed bobbin is common to other shuttles.

In this shuttle the firmness of the spindle is in every way provided for. The length of the heel *c*, is such that it prevents lateral play of the point of the spindle. The spindle cannot get out of place by wear on the spring which holds it as it will in other shuttles. A new spindle can be inserted readily and at once adjusted by the regulating screw *h*.

The shuttle can be as cheaply constructed as my other shuttle or as most other good shuttles as the spindle, or all the rear part of it and the pin *e*, may be made of malleable cast iron, and the spring *j* of light steel plate riveted to the heel of the spindle.

The cop shuttle would only differ from that represented, in the absence of any spring *j*.

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

The backward extension of the heel *c*, of the spindle as described combined with the application of the spring *d*, above the said heel, and above and in rear of the pin *b*, on which the spindle moves in such manner as to hold the spindle in its operative position, by throwing its heel upward against a proper fixed bearing substantially as herein described.

LAROY LITCHFIELD.

Witnesses:

SCHUYLER WHITNEY,

LIBERTY LITCHFIELD.