P. LEAR.

Loom-Shuttles.

No. 156,027. Patented Oct. 20, 1874.

Fig. 1.

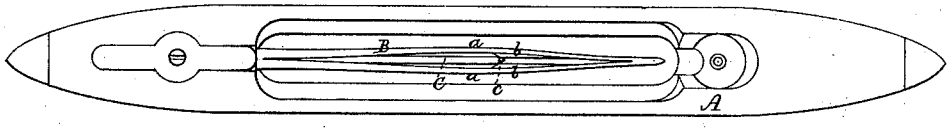


Fig. 2.

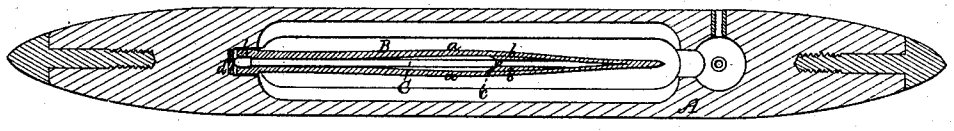
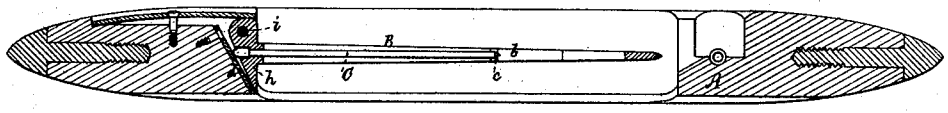


Fig. 3.



Witnesses.
S. N. Piper.
J. R. Snow.

Peter Lear.
by his attorney.
R. H. Eddy

UNITED STATES PATENT OFFICE.

PETER LEAR, OF MEDFORD, MASSACHUSETTS.

IMPROVEMENT IN LOOM-SHUTTLES.

Specification forming part of Letters Patent No. **156,027**, dated October 20, 1874; application filed August 27, 1874.

To all whom it may concern:

Be it known that I, PETER LEAR, of Medford, of the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Loom-Shuttles; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a horizontal section, and Fig. 3 a vertical section, of a shuttle provided with my invention, such being an improvement in devices or mechanism to effect the secure holding of a cop on the spindle while the shuttle may be in operation, such being accomplished by making the spindle expansive laterally, and providing it with mechanism for so expanding it while it may be in the act of being turned down into the body of the shuttle, the spindle being elastic in the expansible parts, so as to readily contract while being raised up out of the shuttle.

In the drawings, A denotes the shuttle-body, and B the spindle, they being arranged and applied together in the usual way. The spindle is split lengthwise from near its heel to near its point, and has each portion *a a* bowed in manner as represented, the expansible parts *a a* being elastic like a bow, and provided with two cams or projections, *b b*, arranged and formed as shown. A rod, C, or expander, wedge-shaped or conical at its front end, as represented at *c*, is arranged and applied so as to be capable of sliding lengthwise freely within the spindle, and it extends back through the spindle-head *h* and against its stop *d*, which may be a metallic plate, arranged as represented.

In the act of turning down the spindle, the expander C, extending a little in rear of the head, will be moved forward between and against the cams *b b*, and, by its action thereon, will cause the elastic bowed parts *a a* of the spindle to be simultaneously pressed out laterally in opposite directions, they, by their inherent elasticity, springing toward one another, and causing the cams *b b* to crowd backward the expander, while the spindle may be in the act of being raised on its fulcrum *i*. When a cop is on the expansion of the latter will cause the cop to be firmly held to the spindle, whose subsequent contraction will set the cop free.

By my invention the expansion of the spindle, at or near the middle of its elastic bows, can be effected to greater advantage than by a long wedge, acting mainly on the inner surfaces of the bows; and, furthermore, the addition of the cams to the bows enables them, by their contractile power and by such cams and the wedge of the spindle, to drive back the expander while the spindle may be in the act of being raised from the shuttle.

With my improvement I dispense not only with a hook at the heel of the expander and a pin for such hook to act against, but with a chamber or space in rear of such and the head of the spindle, all as shown in the United States Patent No. 134,971. By so doing, and by having the spindle-head when down resting directly against the plate *d*, instead of against a pin in advance of such, I avoid all danger of the expander's being choked or estopped in its operation by waste, such as is liable to gather in the chamber when a hook and pin are used.

I do not claim a shuttle-spindle provided with a tapering rod or expander having a hook at its heel to extend back of the head of the spindle, and into a chamber in rear of such, and to operate with a pin going through such chamber, all being as shown in said patent.

I claim—

1. In combination with the expansive shuttle-spindle B and the expander C thereof, the cone or wedge *c* at the end of the latter, and the cams *b b* of the former, to operate by the inherent elasticity of the bows *a a* to force back the expander while the spindle may be in the act of being raised.

2. The back stop or plate *d*, arranged to abut against both the expander and the spindle-head when the latter is down, in combination with the expander, provided with the cone or wedge *c* at its point, and with the expansive spindle, having the cams *b b*, all being as shown and described.

PETER LEAR.

Witnesses:
R. H. EDDY,
J. R. SNOW.