

T. H. LOGAN & J. B. THOMPSON.
Loom-Shuttle Spindle.

No. 167,678.

Patented Sept. 14, 1875.

Fig. 1

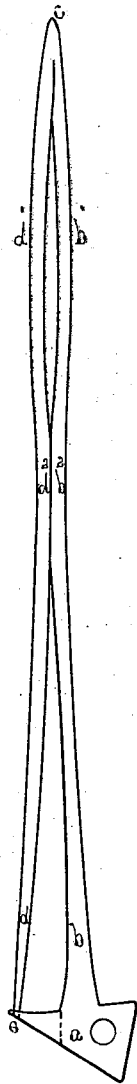


Fig. 2

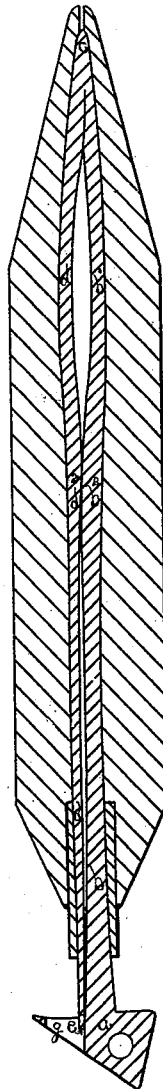


Fig. 3



Witnesses
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UNITED STATES PATENT OFFICE

THOMAS H. LOGAN AND JAMES B. THOMPSON, OF LOWELL, MASS.

IMPROVEMENT IN LOOM-SHUTTLE SPINDLES.

Specification forming part of Letters Patent No. 167,678, dated September 14, 1875; application filed June 17, 1875.

To all whom it may concern:

Be it known that we, THOMAS H. LOGAN and JAMES BRECK THOMPSON, both of Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Shuttle-Spindles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings forming part of this specification, in which—

Figure 1 is a side elevation; Fig. 2, a central longitudinal section, with a cop of yarn or filling on the spindle. Fig. 3 is a rear-end view of the slotted spindle-head.

This invention relates to split spindles for shuttles; and it has for its object the better and more perfect retention of the cop of yarn on the spindle, first, by creating a strong outward pressure near the tip or the outer end of the spindle and cop, and in addition to this a strong outward pressure at and near the rear end of the spindle and cop, so that the full cop of yarn will be held on the spindle by strong outward pressure in two places, and so that, after the yarn composing the forward or outer end of the cop has all run off, the rear portion or remainder of the cop of yarn will be retained on the rear portion of the spindle by the outward pressure until all the yarn has run off from the spindle. A second object of our said invention is to prevent the cop of yarn being upset or separated by the sudden blows of the shuttle striking the picker, and this is effected by outward pressure of the two parts of the split spindle near the outer end thereof, when expanded by the leverage action of the rear spring portion, as the cop is pushed on over it.

In the said drawing, *a* represents the head, and *b* the upper half or portion, of the split spindle, permanently united to the head. To the tip of the upper half *b* a second and lower half, *d*, is well united. This lower half *d*, and also the top *b*, are both bent or bowed outward, say, at *d*¹ and *b*¹, or near the tip *c*, and the middle portions of both parts are bent inward, say at *d*² and *b*², where both parts come in contact to form a fulcrum for the rear portion *d*, which, as the cop is pushed over it, operates to expand the bow *d*¹ *b*¹, and thereby to cause strong outward pressure against the interior

of the cop and along that portion filled by the bow, and thus firmly holding the forward end of the cop against the striking action of the shuttle and the draft of the yarn running off from the cop. When pressed by the rear end of the cop of yarn the rear spring portion *d* also acts by outward pressure against the interior of the cop, at and along its rear end, and not only holds that end of the cop in connection with the expanded bow *d*¹ *b*¹, but it holds the yarn which forms the rear end after the forward portion of the yarn has run off from the bow and the forward and middle portions of the spindle. To keep the spring portion *d* in line with the upper half *b* of the spindle, there is a tenon, *e*, on the end of the spring, and this tenon is movable in a slot, *g*, in the head *a*, as shown, and the tenon and the spring *d* are guided by the slot.

When the full cop of yarn is pushed onto this improved split spindle there is first an action to compress the bow, and this creates retaining-friction for the cop, and as the cop is further and fully pushed onto the spindle, the spring portion *d* is gradually compressed from its position shown in Fig. 1 to that shown in Fig. 2, and during this compression of the spring portion *d* its leverage action, by the fulcrum at *d*² *b*², operates to expand the bow and create greater and increased pressure outward, and increased friction near the forward end of the cop, by increased pressure on the rear end *d*, one spring acting against the other, and both co-operating to retain the cop on the spindle.

We claim as our invention—

A split shuttle-spindle, constructed as described, with a head, *a*, slotted vertically in its under side, a vertically-expanding-friction-bow, *d*¹ *b*¹, near the tip *c*, a fulcrum, *d*² *b*², near the center, and a frictional tenoned rear bottom spring-lever, *d*, entering the slot *g* and operating to retain the rear end of the cop and the yarn, and, by its fulcrum and leverage alone, to expand the bow and increase its outward pressure and friction, all as herein described.

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Witnesses:

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