J. HAMILTON.

SPINDLES FOR LOOM-SHUTTLES.

No. 192,692. Patented July 3, 1877.

Fig. 1

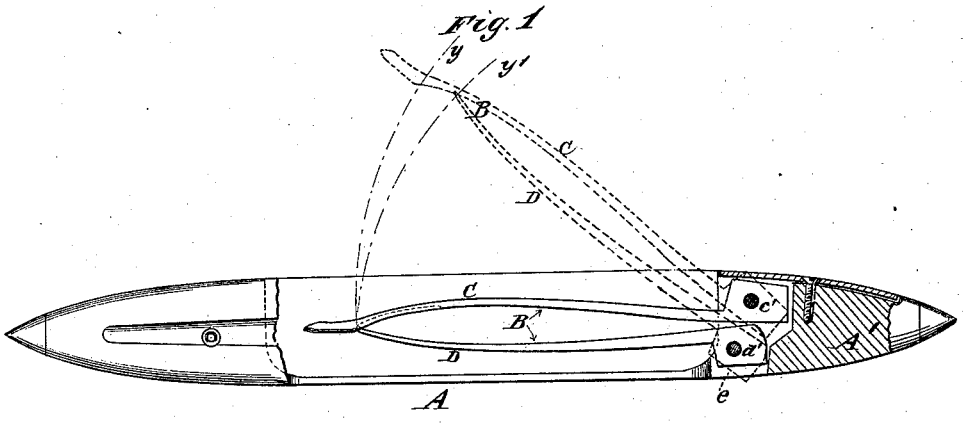

Fig. 2

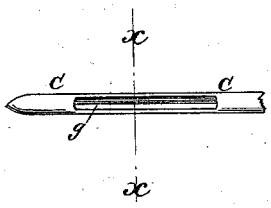

Fig. 3

WITNESSES:

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JAMES HAMILTON, OF SALMON FALLS, NEW HAMPSHIRE.

IMPROVEMENT IN SPINDLES FOR LOOM-SHUTTLES.

Specification forming part of Letters Patent No. **192,692**, dated July 3, 1877; application filed May 12, 1877.

To all whom it may concern:

Be it known that I, JAMES HAMILTON, of Salmon Falls, in the county of Strafford and State of New Hampshire, have invented a new and Improved Cop-Spindle, of which the following is a specification:

This invention relates to shuttle-spindles which are expansible, for the purpose of firmly holding the cops or filling in place; and the nature of my invention consists in a spindle which is made of two parts, and applied in the shuttle by means of independent pivots, arranged in such manner that when said parts are raised to introduce the cop they will be contracted, and when they are adjusted in position for weaving they will expand and firmly hold the cop, as will be hereinafter explained.

Figure 1 shows my improved spindle applied to a shuttle, partly in section. Fig. 2 is a detail of the grooved prong of the spindle. Fig. 3 is a cross-section through dotted line *x x*.

Similar letters of reference indicate corresponding parts.

In the annexed drawing, A designates the body or stock of the shuttle, which is of the usual well-known form, and B designates the improved spindle, which is formed of two spring-metal prongs, C D, bowed or curved, as shown in Fig. 1. The flat shanks of the two prongs are applied in a slot, *e*, made in the stock, and connected by pivots *c' d'*, arranged in planes one above the other, the upper pivot *c'* of the longest prong C being nearest to the end A' of the stock A. The longest prong C terminates in a round-pointed end for readily entering a cop, and just in rear of this rounded portion is a groove, *g*, which receives the beveled free end of the prong D, as shown in Fig. 1, and allows a cop to be slipped freely on the spindle. By thus fitting the end of the prong D into the groove *g*, lateral displacement of this prong is prevented.

It will be seen, from the above description, that in the act of opening the spindle B the free end of prong D will slip from *y* to *y'*, and the spindle will be contracted laterally.

When the cop is applied on the spindle, and the latter shut into the stock, the two prongs will expand in the cop and hold it firmly.

It is obvious that if either one of the prongs should break another can be easily substituted when the spindle is composed of two separate parts.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An expansible spindle formed of two detached bowed prongs, in combination with the body of a shuttle, A, provided with the pivots *c' d'*, substantially as and for the purpose set forth.

2. The prong C, provided with a groove, *g*, in combination with the prong D and the body of the shuttle A, having pivots *c' d'*, substantially as herein set forth.

JAMES HAMILTON.

Witnesses:
ALBERT MORTON,
HERBERT E. HAMILTON.