

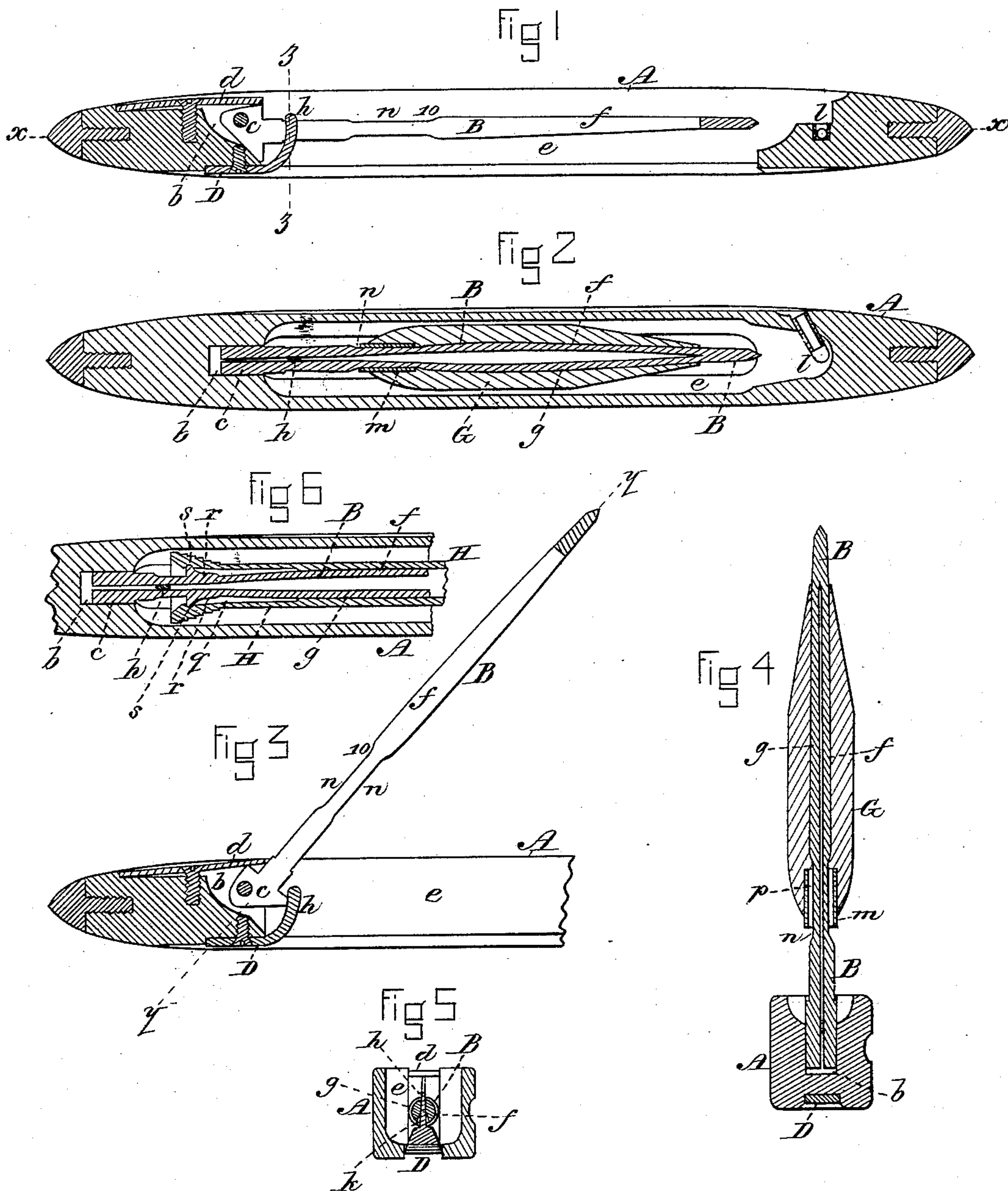
(No Model.)

A. B. TAYLOR & J. P. TIRRELL.

LOOM SHUTTLE.

No. 336,599.

Patented Feb. 23, 1886.



WITNESSES
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UNITED STATES PATENT OFFICE.

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TON, MASSACHUSETTS.

LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 336,599, dated February 23, 1886.

Application filed March 16, 1885. Serial No. 159,090. (No model.)

To all whom it may concern:

Be it known that we, AMOS B. TAYLOR, of Wollaston, in the county of Norfolk and State of Massachusetts, and JACOB P. TIRRELL, of Chelsea, in the county of Suffolk and State aforesaid, citizens of the United States, have invented certain Improvements in Loom-Shuttles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a central vertical section through a shuttle constructed in accordance with our invention. Fig. 2 is a horizontal section through the same on the line *x x* of Fig. 1, with the cop in place upon the expanded spindle. Fig. 3 is a central vertical section of a part of our improved shuttle with the spindle raised. Fig. 4 is a section on the line *y y* of Fig. 3, showing the cop in place upon the spindle before the latter has been expanded. Fig. 5 is a transverse vertical section on the line *z z* of Fig. 1. Fig. 6 is a sectional detail illustrating a modification of our invention to adapt it for use with a shuttle in which a bobbin is employed.

Our invention has for its object to simplify and improve the construction of that class of loom-shuttles which are provided with split spindles adapted to be expanded, when closed down into the shuttle, to hold the cop firmly in place.

To this end our invention consists in the combination, with the shuttle-body and a split spindle pivoted therein, of a stationary wedge projecting upward into the cop-chamber near the heel or base of the spindle, in line with the axis thereof, and adapted to enter the split and expand the spindle when the latter is closed down into the shuttle, and be withdrawn from the said split when the spindle is raised, as hereinafter more particularly set forth.

Our invention also consists in certain details of construction, as hereinafter set forth and specifically claimed.

In the said drawings, A represents the shuttle-body, of the usual form, within a cavity or recess, *b*, at one end of which is pivoted the

spindle B, upon the top of the heel or base *c* of which bears the ordinary flat spring, *d*. The spindle B is split lengthwise from near the point entirely through the heel, and when raised out of the cop chamber *e* of the shuttle its two parts, *f g*, are intended to lie nearly in contact with each other, as seen in Fig. 4, to allow of the cop being easily slipped thereon or the cop-tube to be removed therefrom. To the under side of the end of the shuttle-body A, to which the heel of the spindle is pivoted, is secured a plate, D, the front end of which is turned up, and is tapered to form a wedge, *h*, which extends up vertically within the cop-chamber *e*, near the base of the spindle and in line with the axis thereof, to such a height that when the spindle is closed down into the shuttle it will shut over the wedge *h*, which will project up through the split and separate the two parts *f g*, thus expanding the spindle against the hollow interior of the cop G, which is thereby held securely in place, as desired.

When the spindle is raised on its pivot out of the shuttle, it is withdrawn from contact with the stationary wedge *h*, when the two parts *f g* will spring together, as seen in Fig. 4.

The split of the spindle is slightly enlarged or recessed out on the under side, as seen at *k*, Fig. 5, to facilitate the entrance of the flat point of the wedge *h*.

As the spindle is split entirely through the heel, it is obvious that when it is expanded by the wedge *h* the two sides of the heel will be forced outward tightly against the adjacent sides of the recess *b* in which the spindle is pivoted, thus taking up the wear and causing the spindle to be held firmly with its point exactly in line with the eye *l*, and all loose lateral movement of the spindle within the shuttle is thus avoided.

That portion of the spindle near the base over which the paper cop-tube *m* of the cop G fits is turned down to reduce its diameter, as seen at *n*, so that when the cop is forced down over the raised spindle an annular space, *p*, will be left between the cop-tube and the spindle, as seen in Fig. 4. This reduction of the diameter of the spindle at this particular

portion of its length prevents the cop-tube from tightly clasping the spindle near its heel, as heretofore, and, consequently, as the parts *f g* are not compressed and held tightly together by the cop-tube they are free to be expanded by the wedge *h* throughout the entire length of the cop, whereby the desired amount of friction is produced against the cop-tube *m* and the interior of the cop *G* beyond the cop-tube, as seen in Fig. 2, and the cop is thus held firmly on the spindle throughout its entire length, as is desirable to prevent it from becoming separated or pulled apart when the shuttle is in use. The front end, 10, of the reduced portion *n* of the spindle is made tapering toward the heel, thus presenting no shoulder or obstruction to the free withdrawal of the cop-tube.

Where a bobbin is used instead of a cop, a spindle may be used having no turned-down or reduced portion *n*, for the reason that the expansion of the parts *f g* of the spindle by the stationary wedge *h* against any portion of the interior of the bobbin will, in most cases, produce sufficient friction to hold it firmly in place. Where, however, a bobbin, *H*, Fig. 6, is used, having a recess or chamber, *q*, at the base, the spindle *B* is provided with a corresponding enlargement or divided collar, *r*, near its base, adapted to be expanded tightly against the interior of the chamber *q* in the bobbin, or into an annular groove, *s*, therein, by which means the bobbin *H* is held immovably in place upon the said spindle.

What we claim as our invention, and desire to secure by letters Patent, is—

1. The combination, with a shuttle-body and a split spindle pivoted therein, of a stationary wedge projecting upward into the cop-chamber near the heel or base of the spindle, in line with the axis thereof, and adapted to enter the split and expand the spindle when the latter is closed down into the shuttle, substantially as set forth.

2. The combination, with the shuttle-body *A* and its pivoted split spindle *B*, of the plate *D*, secured to the under side of the body *A*, and having at its front turned-up end a wedge, *h*, extending up into the cop-chamber near the heel or base of the spindle, in line with the axis thereof, and adapted to enter the split and expand the spindle when the latter is closed down into the shuttle, substantially as described.

3. The combination, with the shuttle-body *A*, of the spindle *B*, split from near the point entirely through the heel or base, and pivoted within the recess *b*, and the stationary expanding-wedge *h*, whereby when the spindle is closed down into the shuttle the sides of the heel will be forced outward against the adjacent walls of the recess *b*, substantially in the manner and for the purpose set forth.

Witness our hands this 12th day of March, A. D. 1885.

AMOS B. TAYLOR.
JACOB P. TIRRELL.

In presence of—

P. E. TESCHEMACHER,
W. J. CAMBRIDGE.