

G. E. MORRILL & F. W. SAWYER.
Shuttle-Spindle.

No. 224,790.

Patented Feb. 24, 1880.

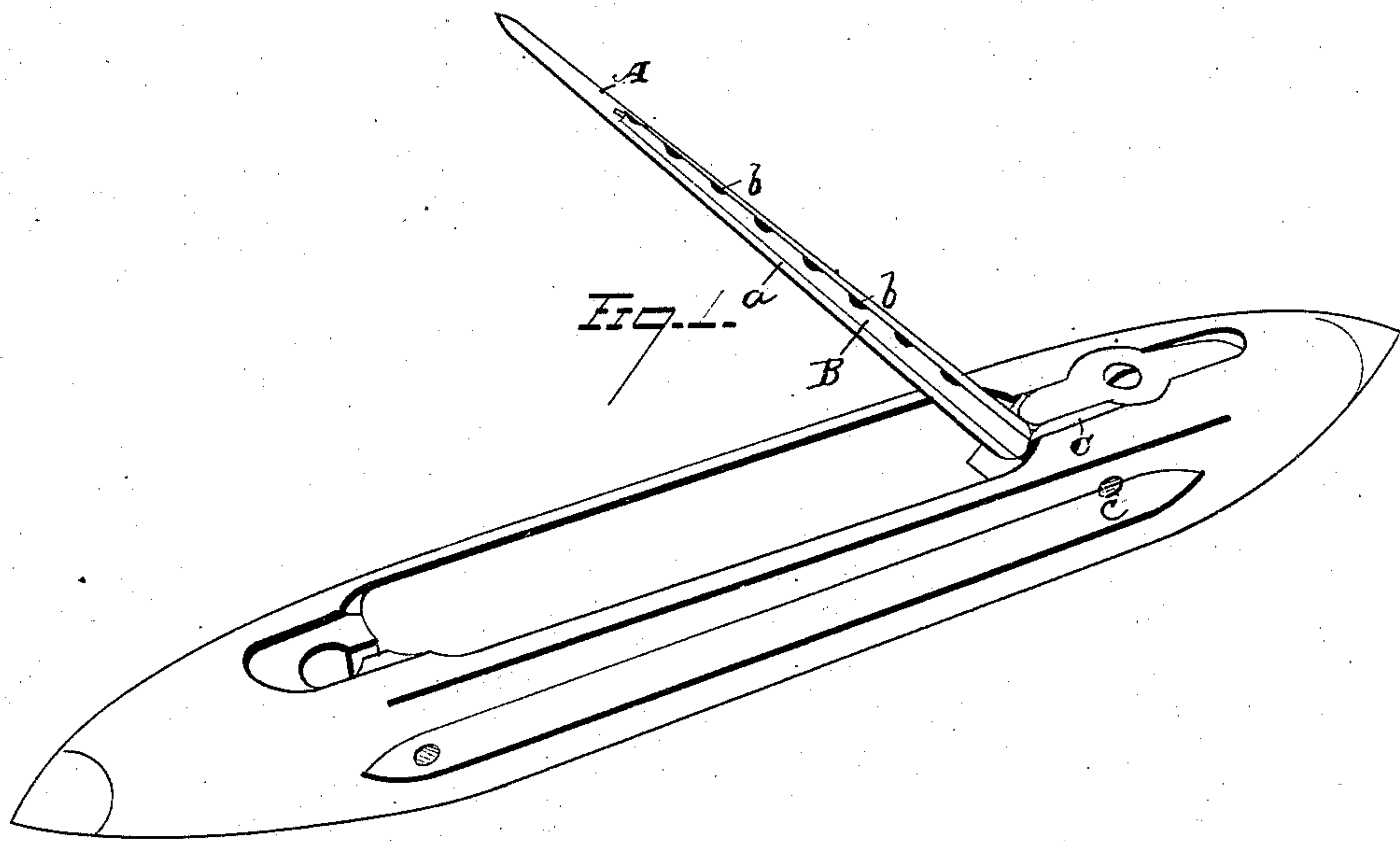


Fig. 1.

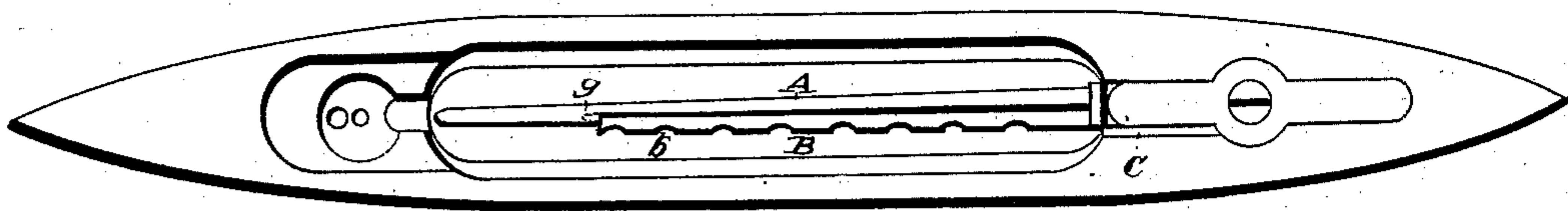


Fig. 2.

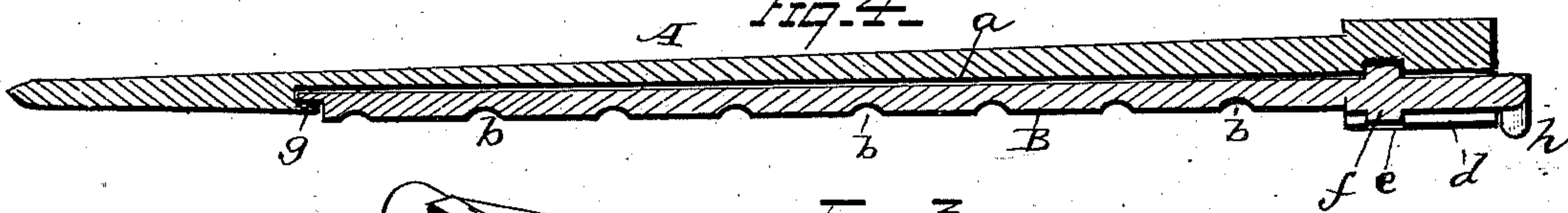
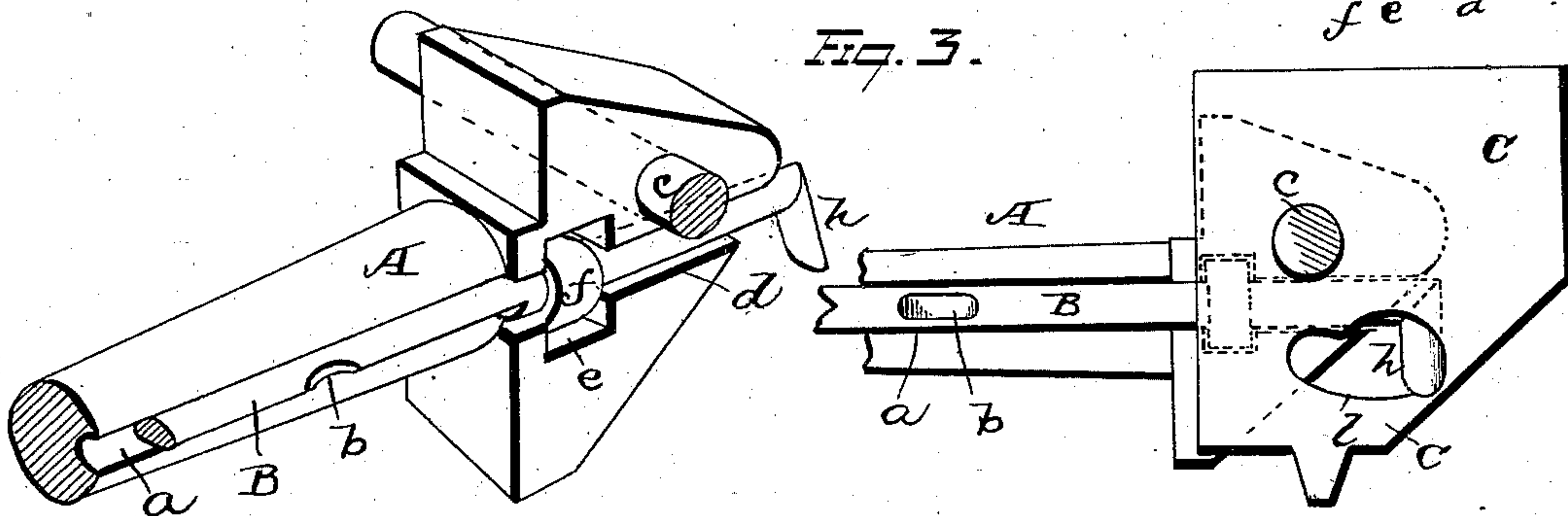


Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE E. MORRILL AND FREDERICK W. SAWYER, OF GARDINER, MAINE.

SHUTTLE-SPINDLE.

SPECIFICATION forming part of Letters Patent No. 224,790, dated February 24, 1880.

Application filed August 25, 1879.

To all whom it may concern:

Be it known that we, GEORGE E. MORRILL and FREDERICK W. SAWYER, of Gardiner, in the county of Kennebec and State of Maine, have invented certain new and useful Improvements in Shuttle-Spindles; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Our invention relates to shuttle-spindles, and is designed to provide improved means for holding the cop securely in place while the shuttle is working, and, after the yarn is used, permit the tube to be removed and a full tube substituted therefor.

The improvement consists in the construction hereinafter described and claimed.

Referring to the drawings, Figure 1 is a perspective view, showing the spindle thrown out from the shuttle. Fig. 2 is a plan view, showing the spindle in closed position. Fig. 3 represents detail views of the spindle and cam, and Fig. 4 is a detail longitudinal section of the spindle.

The spindle A is provided with a longitudinal groove, *a*, in which the rotary cam B fits, the latter consisting of a bar, preferably made of steel and of greater width than depth in its transverse sectional dimension. Its working edge is provided with a series of indentations, *b*, which cause it to engage more securely with the cop, which is held by the cam in position on the spindle. The heel of the latter is secured to the shuttle by a pivotal bearing, *c*, and its side is grooved, as shown at *d*, to receive the heel of the cam. A transverse circular recess, *e*, in the spindle-heel receives an annular shoulder, *f*, formed on the cam-heel, and thereby said cam is prevented from having longitudinal movement in its groove. The opposite extremity of the cam is provided with an end projection, *g*, which fits in a corresponding eye in the end of the spindle-groove nearest the point of the spindle, and thereby the cam is secured against accidental displacement from its groove.

The heel of the cam is provided with a lat-

eral projection, *h*, which fits in a slot, *l*, formed in the corresponding portion of the shuttle, the adaptation of parts being such that when the spindle is swung on its pivotal bearing in or out of operative position said cam is automatically rotated.

A plate, C, is provided, which prevents the shuttle from becoming unduly worn, as would be the case if the heel-projection engaged directly with the wood of the shuttle.

When the spindle is thrown out of operative position, as represented in the first figure of the drawings, the cam is rotated so that it does not project laterally beyond the circular contour or outline of the spindle; but when the spindle is in operative position, as shown in the second figure, the cam projects laterally beyond the circular outline of the spindle, and its working edge is adapted to engage securely with the cop-tube. Thus the cop is held firmly in place on the spindle while the shuttle is at work, and when the yarn is exhausted from any one tube a new one can be readily substituted therefor.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a shuttle-body having one end provided with an interior side slot and a pivotal spindle formed with a groove in the main portion of its length and extending across its heel, of a rotary cam fitted in the groove and having its extremity projecting beyond the spindle-heel, said projecting extremity being provided with a lateral arm adapted to engage with said side slot of the shuttle, substantially as set forth.

2. The combination, with a shuttle-body having a centrally-recessed end, a metallic slotted plate fitted in the latter, and a pivotal spindle having a groove formed in the main portion of its length and across its heel, of a rotary cam fitting in the groove and having its extremity projecting beyond the spindle-heel, said extremity being provided with a lateral arm adapted to engage with said slotted plate, substantially as set forth.

3. The combination, with a shuttle-body having a centrally-recessed end and a metallic slotted plate fitted in the latter, of a pivotal spindle formed with a groove in the main por-

tion of its length and across its heel, and also
formed with a transverse recess in its heel, to-
gether with a rotary cam fitting in said spin-
dle-groove and having its extremity project-
5 ing beyond the spindle-heel, said extremity
being provided with a lateral arm adapted to
engage with said slotted plate, substantially
as set forth.

In testimony that we claim the foregoing
we have hereunto set our hands this 15th day 10
of August, 1879.

GEORGE E. MORRILL.
FRED. W. SAWYER.

Witnesses:

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