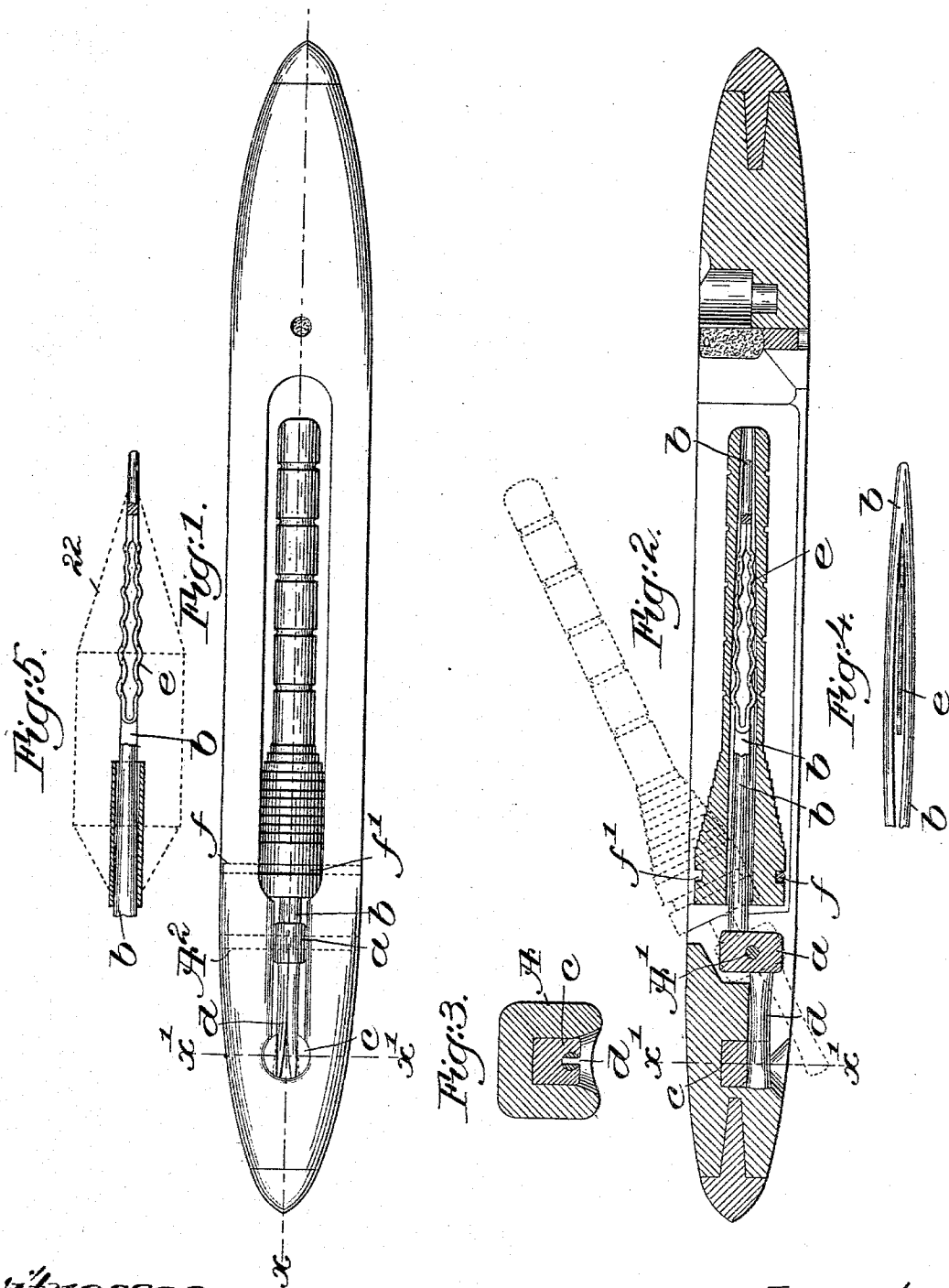


(No Model.)

O. PIPER.
LOOM SHUTTLE.

No. 516,108.

Patented Mar. 6, 1894.



Witnesses.

Edward F. Allen.

Thomas J. Drummond.

Inventor:
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UNITED STATES PATENT OFFICE.

ORIN PIPER, OF MANCHESTER, NEW HAMPSHIRE, ASSIGNOR OF ONE-HALF
TO GEORGE DRAPER & SONS, OF HOPEDALE, MASSACHUSETTS.

LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 516,108, dated March 6, 1894.

Application filed May 29, 1893. Serial No. 475,897. (No model.)

To all whom it may concern:

Be it known that I, ORIN PIPER, of Manchester, county of Hillsborough, State of New Hampshire, have invented an Improvement in Loom-Shuttles, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to provide a shuttle with novel means for holding the spindle in position in the shuttle; also to improvements in the shuttle spindle whereby it is better adapted to maintain upon it the shell, a bobbin, or cop, on which the thread is wound.

In accordance with my invention I have provided the spindle-head with a tail-piece that co-operates with a holder which engages the tail-piece, the said tail-piece and holder being so constructed as to yield one part with relation to the other when their contact is being made or broken. The shuttle spindle as improved by me is split for part of its length and provided with a wire-like spring loop, the ends of the loop being attached to the spindle preferably near its point, the sides of the spring loop contacting with the interior of the shell of whatever form of material on which the thread is wound.

Figure 1 is an under side view of a loom shuttle embodying my invention; Fig. 2, a section in the line *x*, the dotted lines showing the spindle turned out for the removal of the shell, bobbin or cop the near side of the spindle being broken out to show the spring loop in elevation; Fig. 3, a section in the dotted line *x'*. Fig. 4 shows the forward part of the spindle in elevation at right angles to Fig. 1, with the spring loop in position. Fig. 5 shows the spindle as engaging a shell of the kind designated as a cop.

The shuttle body A of wood or other material, has a pin A' for the head *a* of the spindle *b*. The shuttle body is also provided with a holder *c*, shown in Figs. 1 to 3, as a metal block having a concavity, the mouth of which is constructed to receive the split or yielding tail-piece *d*, said tail-piece extended from the spindle head springing into the mouth of said holder, as shown in Figs. 1 and 2 by full lines when the spindle is in working position. The pin 20 in Fig. 5 confines the holder in the

shuttle. The blade of the spindle is split or slotted for part of its length, and in this slot I have secured a shell holder *e*, composed, as shown, of a wire bent upon itself and expanded to present a loop with yielding sides, the said sides being preferably corrugated. This shell holder, as represented in Fig. 2, engages the interior of a bobbin and aids in keeping it in place, but it may engage and hold a cop 22 as in Fig. 5. To further aid in keeping the shell in place, especially when in the form of a bobbin, I have added to the shuttle a bobbin engaging bar *f*, which is embraced by the groove *f'* of the bobbin when the latter is turned into the shuttle body, as in Fig. 2, full lines.

Prior to my invention I am aware that loom shuttle spindles have had devices to engage a shell carrying the thread, but such devices have not been made in the form of a spring-acting loop.

I do not claim a spindle blade which is split and has its split end extended behind the pivotal point of the blade in the shuttle; nor do I claim a corrugated spring placed in a groove in one side of the spindle blade. My improved spring *e* is made as a loop, and the end of the loop where the wire forming the loop is brought together, is connected to the spindle, and both arms of the loop are always exposed outside the spindle blade to be acted upon by the bobbin or cop to which it is to be held. I do not claim a loop which is expanded and contracted automatically.

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

1. The shuttle body, the tail-piece holder therein, and the spindle having a blade, a head, and a tail-piece extending from said head in a different plane from that occupied by the blade, the tail-piece being held in the holder elastically, substantially as described.

2. The shuttle body, the tail-piece holder having a recess in its lower portion, and the spindle having a blade, a head, and a tail-piece extending from said head in a different plane from that occupied by the blade, the tail-piece being split longitudinally to form elastic limbs to be sprung into the recessed holder, substantially as described.

3. A shuttle spindle split through longi-
tudinally and having its members separated
or bowed outwardly from one another, com-
bined with the spring loop *e* having corru-
5 gated limbs projecting outwardly between the
split members of the spindle, and secured in
the outer end of the spindle, substantially as
described.

In testimony whereof I have signed my
name to this specification in the presence of 10
two subscribing witnesses.

ORIN PIPER.

Witnesses:

HENRY E. BURNHAM,
ALBERT O. BROWN.