No. 755,561. PATENTED MAR. 22, 1904.

D. BROWN.

HAND THREADING SHUTTLE.

APPLICATION FILED JULY 23, 1903.

MODEL.

Fig. 1.

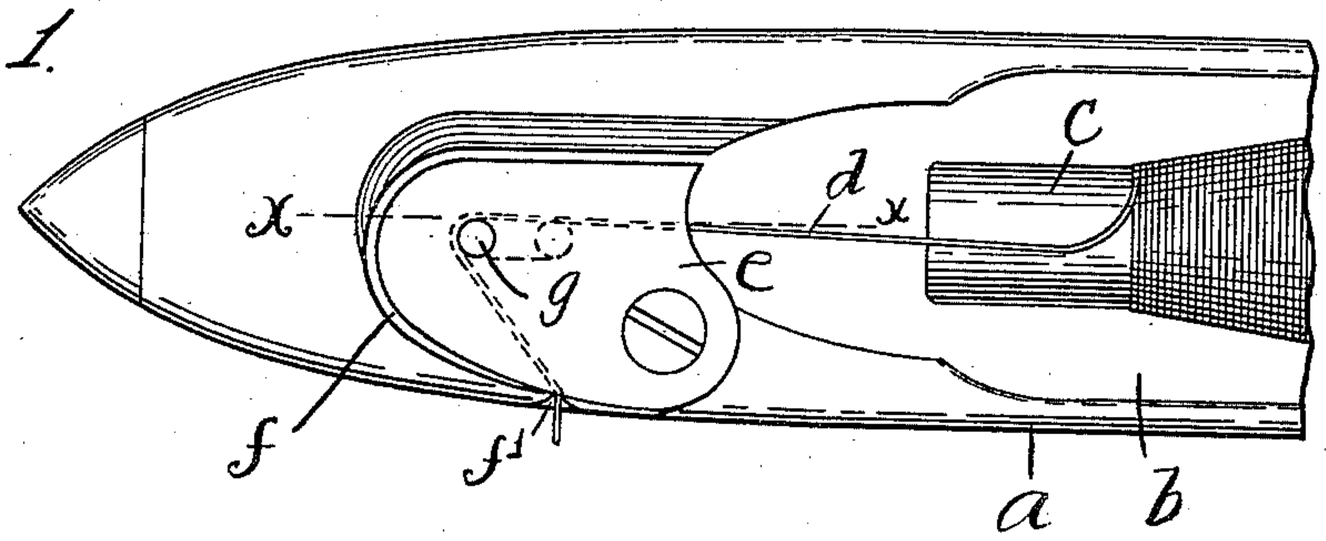
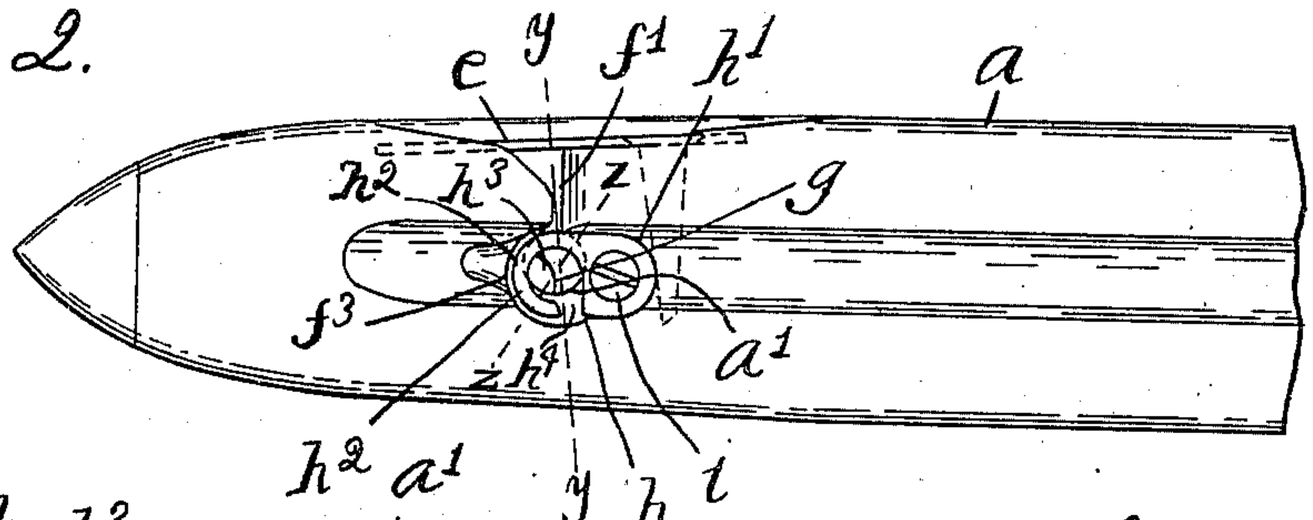


Fig. 2.



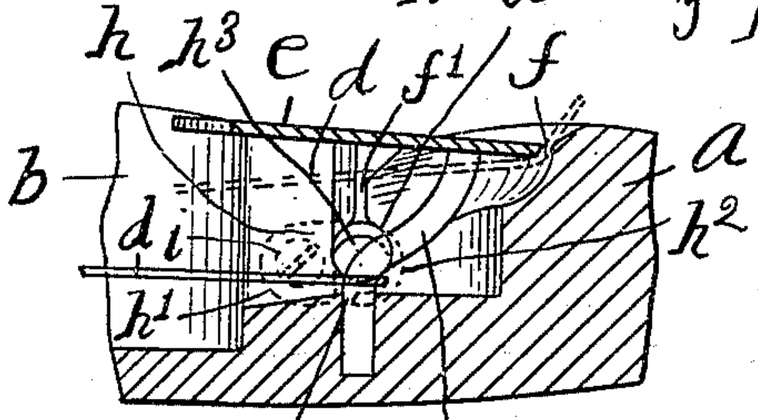


Fig. 3.

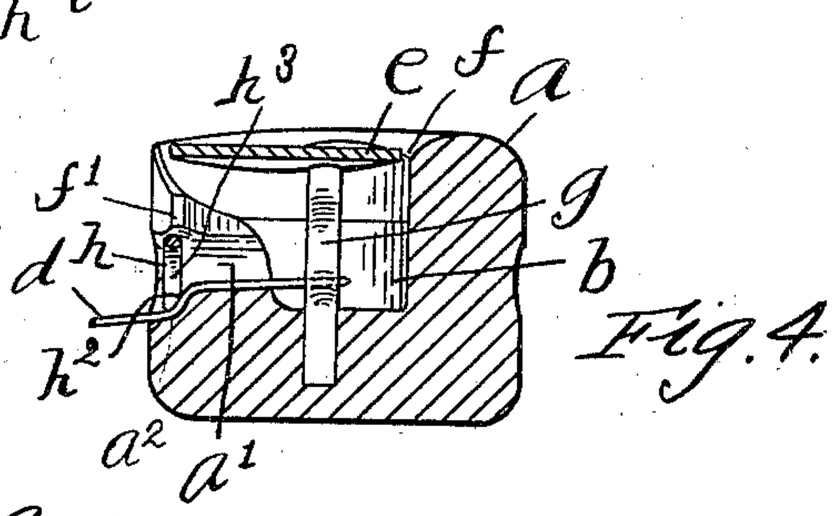


Fig. 4.

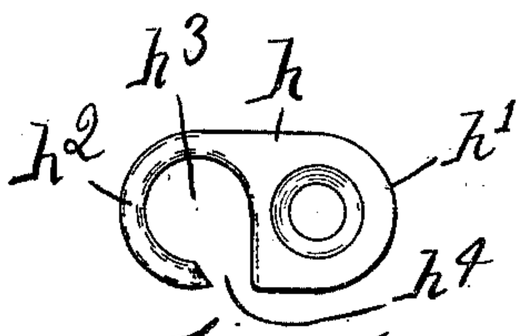


Fig. 6.

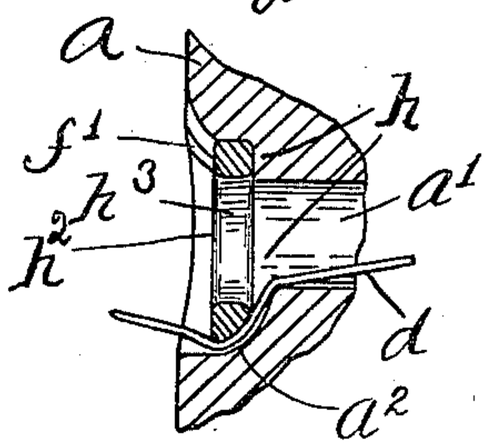


Fig. 5.

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No. 755,561. Patented March 22, 1904.

UNITED STATES PATENT OFFICE.

DAVID BROWN, OF LAWRENCE, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO JOHN A. ABERCROMBIE, OF LAWRENCE, MASSACHUSETTS.

HAND-THREADING SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 755,561, dated March 22, 1904.

Application filed July 23, 1903. Serial No. 166,675. (Model.)

To all whom it may concern:

Be it known that I, DAVID BROWN, of Lawrence, county of Essex, State of Massachusetts, have invented an Improvement in Hand-Threading Shuttles, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

My invention relates to that class of loom-shuttles which are known as "hand-threading" shuttles, or shuttles in which the yarn may be drawn into the shuttle-eye from the bobbin by hand, the bobbin-containing recess of the shuttle being connected to the shuttle-eye by a threading-slot through which the thread is drawn.

More specifically, my invention relates to certain improvements upon the shuttle disclosed in my pending application, Serial No. 162,024, filed June 18, 1903, in which a thread-engaging beak is provided at the side of the threading-plate which prevents the thread from being drawn back through the threading-slot to such an extent that the shuttle will become unthreaded. In the device disclosed in said application and in other devices where means have been provided for catching the thread in the threading-slot the thread has been free to be drawn and often was drawn out of the eye and through the slot until it passed over the top of the bobbin instead of along its side, as it is intended to do during the normal operation. Such an occurrence is objectionable for the reason (among others) that the tension on the thread is thereby reduced or at least varied from the normal. These thread-intercepting devices also sometimes catch in the warp as the shuttle is driven across the loom and break it, causing damage and delay.

The object of my invention is to provide a hand-threading shuttle with means which absolutely prevent the thread from leaving the eye and passing into the threading-slot during the ordinary operation of the shuttle and without appreciably increasing its cost of manufacture.

A further object of my invention is to provide a shuttle of the above character in which there are no projections or devices which will be likely to catch in the warp of the loom.

I accomplish these objects by means shown in the accompanying drawings, in which—

Figure 1 is a plan view, and Fig. 2 a side elevation, of one end of a hand-threading shuttle provided with my invention. Fig. 3 is a longitudinal section thereof on the line $x\ x$ of Fig. 1. Fig. 4 is a cross-section on the line $y\ y$ of Fig. 2. Fig. 5 is a cross-section, on a larger scale, taken on the line $z\ z$ of Fig. 2. Fig. 6 is a detail view of the shuttle-eye.

The shuttle-body a is provided with the usual bobbin-containing recess b and the bobbin c, from which the thread d is drawn. The recess b extends toward the tip of the shuttle and is covered by a threading-plate e, secured to the body and so arranged that a threading-slot f is provided between the edge of said plate and the body, as is common in this class of devices. The usual thread-guiding post g is embedded in the shuttle-body at its lower end and secured to the plate e at its upper end. A thread-passage a' leads through the side of the shuttle from the recess below plate e and adjacent the post g, and a vertical threading-slot f' is also formed through the body, connecting passage a' and the threading-slot f. An eye h is provided, which consists of a flat plate having a shank h' and a circular-shaped hook or beak h^2, which extends therefrom at its upper edge and terminates adjacent its lower edge, forming a circular passage h^3 and a threading-slot h^4, which leads to the under side of the eye. Said eye h is secured to the side of the shuttle by a screw i, which passes through the shank, so that the thread-passage a' is encircled approximately by said hook and shank, they thereby performing the function of the ordinary shuttle-eye.

The shuttle-body is grooved or recessed, as at a^2, beneath the hook h^2, so as to provide a threading-slot f^3 between the shuttle-body and outer edge and inner side of the hook, which leads into the slot f^2 at its upper end, into the slot h^4 of the eye at its lower end, and into passage a' at its inner side. The hook h^2 is so ar-

ranged that it lies partly within this groove or recess a^2—that is, the outer edge of the hook lies between a straight line from one side to the other of the groove a^2 and the bottom of said groove.

In threading the shuttle the thread is drawn through the slot f in the usual manner, down through the slot f' into the threaded passage a', then down about the outer edge of the hook and through the slot h^4 of the eye into the eye-aperture h^3. As the thread is drawn about the outer edge of the hook it will be pushed down into groove a^2 by the hook or deflected from a straight course, so that it will be held against the inner and outer edges of said groove until it is drawn past the point of the hook. The extent to which the thread will thus be deflected from a straight course is the greatest at the extreme end of the hook, so that after the thread has been drawn into the eye it cannot pass under the end of the hook without being loosely looped in a peculiar way, and as it is impossible for this to occur in the ordinary operation of the shuttle it is practically impossible for the thread to be drawn out of the eye or the shuttle to become unthreaded. The inner and outer edges of the groove a^2 thus act as thread supports or guides, as they hold the thread above the end of the hook as it passes out of the shuttle-eye. The end of the hook preferably extends some distance below the bottom of the thread-passage a', the latter thereby holding well above said end. This distance is somewhat increased by beveling the tip end so as to bring the point at its outer edge.

The outer edge of the hook is beveled inwardly, as shown in Fig. 5, so as to provide a smooth surface for the thread as it is drawn against it, and the inner edge of the hook is also beveled or rounded, so as to provide a smooth surface over which the thread runs as it is drawn out of the bobbin.

As the thread cannot leave the eye after it has been drawn therein, the tension on the thread will be the same at all times and the operation of the shuttle will be precisely the same as an ordinary shuttle which is threaded by sucking the thread through the eye.

It will be apparent that the particular form of eye which I have produced not only performs the functions of an ordinary shuttle-eye, but also prevents the thread from escaping from the eye of a hand-threading shuttle.

Matter shown and described in this application, but not claimed herein, is claimed in my said copending application, Serial No. 162,024.

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

1. In a loom-shuttle, in combination, the body, a slotted eye connected thereto, said body having a bobbin-containing recess, and a threading-slot leading to the slot of said eye from said recess, said eye having a hook or beak at the outer end of its slot, and a thread-support at one side of said hook for holding the thread away from the end thereof as it is drawn through the eye, substantially as described.

2. In a loom-shuttle, in combination, the body, a slotted eye connected thereto, said body having a bobbin-containing recess, and a threading-slot leading to the slot of said eye from said recess, said eye having a hook or beak at the outer end of its slot, and thread-supports at opposite sides of the end of said hook for holding the thread outside of said end, substantially as described.

3. In a loom-shuttle, in combination, the body having the bobbin-recess, a thread-passage in its side, and a threading-slot leading therefrom to said passage, a slotted eye secured to said body having its opening adjacent said thread-passage, said body being recessed at one side of said thread-passage beneath said eye, to connect the threading-slot and the slot of said eye, and supports for holding the thread to one side of the outer end of the eye-slot, substantially as described.

4. In a loom-shuttle, in combination, the body having the bobbin-recess and the thread-passage through its side, an eye comprising a shank secured to the body and a curved hook providing an opening in register with said passage, said body having a threading-slot leading from said recess to said passage, the end of said hook forming one side of said slot at its outer end, substantially as described.

5. In a loom-shuttle, in combination, the body having the bobbin-recess and the thread-passage through its side, an eye comprising a shank secured to the body and a curved hook providing an opening in register with said passage, said body having a threading-slot leading from said recess to said passage, the end of said hook forming one side of said slot at its outer end, and extending to one side of said passage, substantially as described.

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

DAVID BROWN.

Witnesses:
LOUIS H. HARRIMAN,
MAUD M. PIPER.