

(Model.)

J. W. KEELEY.
LOOM SHUTTLE.

No. 505,203.

Patented Sept. 19, 1893.

Fig. 1.

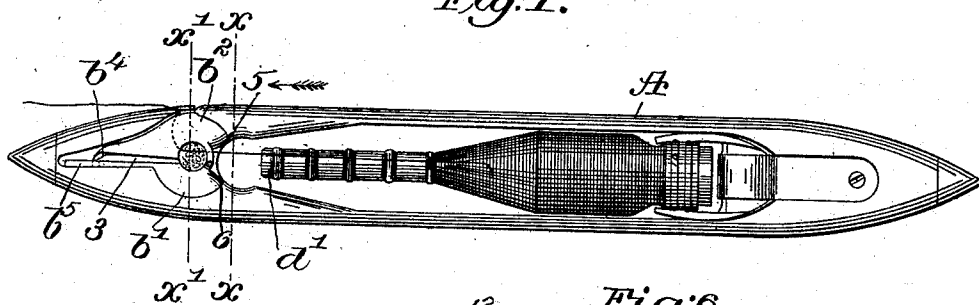


Fig. 6.

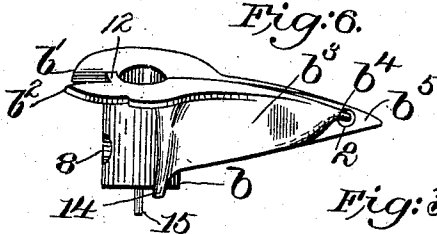


Fig. 2.

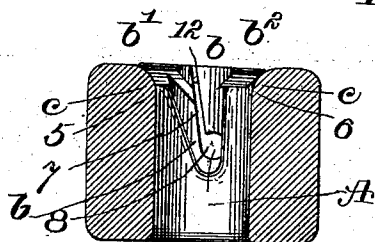


Fig. 3.

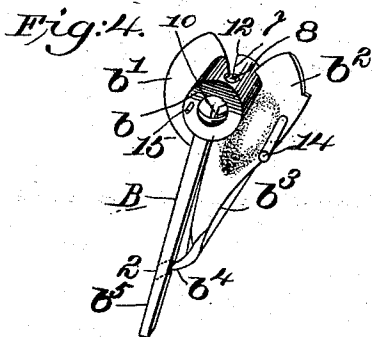
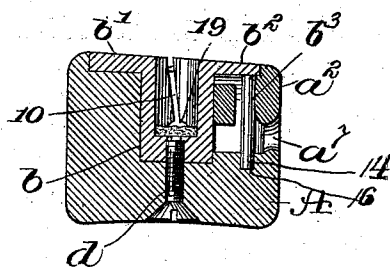
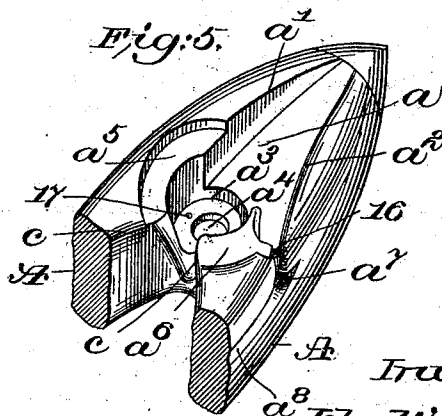


Fig. 5.



Witnesses.
Edward F. Allen.

Louis N. Howell

Inventor.

J. W. Keeley.
by Crosby & Gregory
Attys.

UNITED STATES PATENT OFFICE.

JOHN W. KEELEY, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO GEORGE DRAPER & SONS, OF SAME PLACE.

LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 505,203, dated September 19, 1893.

Application filed September 17, 1892. Serial No. 446,179. (Model.)

To all whom it may concern:

Be it known that I, JOHN W. KEELEY, of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Loom-Shuttles, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention has for its object to improve that class of shuttle known as "self-threading" and adapted for use in looms wherein bobbins containing yarn are fed into the shuttle while in the shuttle box and in motion.

15 The invention herein to be described relates more especially to the construction of the cage or device let into the top of the shuttle near its delivery end to facilitate the self-threading of the shuttle and obviate the accidental escape of the weft.

20 The cage referred to has a substantially cylindrical shank provided at its outer end with flanges and having a finger provided with an inclined beak, and a co-operating socketed finger to receive the said beak, the said shank being provided next the end of the bobbin with an inclined threading slot.

25 Figure 1, is a top view of a shuttle embodying my improvements; Fig. 2, an enlarged cross section in the line x Fig. 1, looking to the left; Fig. 3, a section in the line x' ; Fig. 4, a perspective detail of the self-threading cage or device, the subject of my invention, removed from the shuttle and somewhat inverted; Fig. 5, on an enlarged scale shows part of the shuttle body cut away for the reception of the cage; and Fig. 6 is a side elevation of the "cage" or self-threading device detached.

30 The shuttle body A of any usual shape or material is cut away, as shown in Fig. 5, to receive the cage or device shown in Fig. 4.

35 In Fig. 5, a , is a tapering cavity with side walls a^1 , a^2 , in the bottom of which is a well hole a^3 bored through at a^4 .

40 The upper side of the shuttle body is countersunk as at a^5 , a^6 , and the wall a^2 is cut through to form a delivery slot a^7 in communication with the usual outside groove a^8 .

50 The cage or self-threading device B, composed for the best results, of metal, consists

essentially of a shank b , preferably cylindrical, the upper end of the shank having wings b^1 , b^2 , the wing b^2 being prolonged as a finger b^3 having a beak b^4 turned inwardly and inclined downwardly to enter a socket or hole 2, see dotted lines Fig. 4, in a socketed finger b^5 made as an extension of the wing b^1 , the finger b^5 being prolonged beyond the beak to thus protect the wall a' . The inward and downward incline referred to of the beak b^4 , is such that as the thread from the bobbin is drawn into the slot 3 during the movement of the shuttle on the shuttle-race, the tension of the thread will be such that the thread bearing on the beak will be caused to travel inwardly and downwardly beyond and below the point of the beak. These two fingers, are, as it will be noticed, so shaped as to leave a threading slot 3, see Fig. 1, between them crossed or bridged by the beak b^4 . The inner ends of the wings b^1 , b^2 , are bent down as at 5, 6, see Fig. 2, to protect the inner walls c , c , of the bobbin receiving cavity.

The shank of the cage, entering the well hole a^3 , is threaded at its lower end to receive the fastening screw d to confine the cage in the shuttle. The shank b , has at its side next the front of the bobbin d' , a slot 7 inclined upwardly and outwardly away from the longitudinal center line of the shuttle, the said slot terminating preferably with a circular opening 8, it being understood that the shuttle thread between the bobbin and the eye 8 becomes bowed out in loop form due to centrifugal action as the thread is pulled rapidly from the mass of thread upon the bobbin.

At a point in the shank directly opposite the slot 7 is an inclined slot 10, as best shown in Fig. 3, the latter slot being in line with the slot 3 before referred to and also in line with the slot 7.

In making the slot 7 it is preferred to cut away part of the shank at one side the said slot to thus leave a projection or shoulder against which the weft will catch and be led into the slot 7 as the weft bows out or travels in a circular path on coming off the bobbin tip, as it will be noticed that the bobbin is put into the shuttle automatically, and that the thread is drawn from the bobbin as soon as the bobbin gets into the shuttle and before

the shuttle thread becomes threaded into the delivery eye of the shuttle body during the movement of the shuttle on the raceway of the loom, as provided for in self-threading shuttles, the operation of which is fully described and one form of such shuttle shown in United States Patent No. 454,810, dated June 23, 1891. For greater stability, I prefer to provide the cage with a steady pin 15 to enter a suitable hole 17 in the shuttle body.

The under side of the finger b^3 , see Fig. 6, is tapered from its front end near its beak toward its rear end, thus forming a substantially vertical wall located a short distance from the shank b , the lower end of the said wall being made as a pin 14 to enter a hole 16 in the shuttle body, as in Fig. 3, the right hand edge of the pin 14 terminating a little to one side of the delivery hole a^7 in the shuttle body, the shuttle thread being drawn across the right hand side of the said pin as it leaves the shuttle body. The lower side of the finger b^3 is tapered, as shown in Fig. 6, so that it will act upon the thread after passing below the beak b^4 and will aid in drawing said thread down into the slot 10 in the shank b and into the eye a^7 . After the thread has been automatically threaded into the eye a^7 of the shuttle body, as stated, thereafter the bobbin thread enters first the eye 8, then across the shank b into the eye, out of the said eye and across one side of the pin 14, and out through the hole a^7 .

The butt of the bobbin and its spring holder are of usual construction, and the top and bottom of the shuttle are open alike for the passage through it of the bobbin as required in the class of shuttle first referred to.

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

1. The described self-threading cage consisting of a slotted shank having a socketed finger, and a finger located near it and provided with a beak to enter the socket in the socketed finger, the two fingers presenting between them a slot obstructed by the said beak, the said beak being inclined down-

wardly to permit the descent of the weft between the fingers and past the beak, the latter also preventing the upward movement of the weft from between the fingers, substantially as described.

2. The self-threading cage containing a shank slotted diagonally upwardly and outwardly as at 7 away from the longitudinal center line of the shuttle, and having the two fingers, one having a socket and the other a beak to enter the socket, substantially as described.

3. The self threading cage having a shank provided at one side with a slot 10, and at its other side with a slot 7 and a shoulder 12 at the end of said slot, said shoulder acting to arrest the weft and direct it into the said slot 7, substantially as described.

4. The metallic self-threading cage having a slotted shank, wings and fingers, one finger provided with a beak and the other with an opening for the entrance of and to partially cover said beak, combined with the shuttle body cut away substantially as described, and having a slot leading to its delivery opening as set forth.

5. In a self-threading shuttle, a shuttle body provided with an eye a^7 a cage having a shank, two fingers as b^5 and b^3 , the underside of the finger b^3 being beveled downwardly and backwardly toward the shank to thus depress the thread into the eye of the shuttle body, substantially as described.

6. In a self-threading shuttle, a shuttle body provided with an eye a^7 , a cage having a shank, two fingers as b^5 and b^3 , the underside of the finger b^3 being beveled downwardly and backwardly toward the shank, and having its end 14 shaped to form a bearing for the thread at one side of the eye in the shuttle-body, substantially as described.

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

JOHN W. KEELEY.

Witnesses:

C. E. LONGFELLOW,
H. F. SEARLES.