

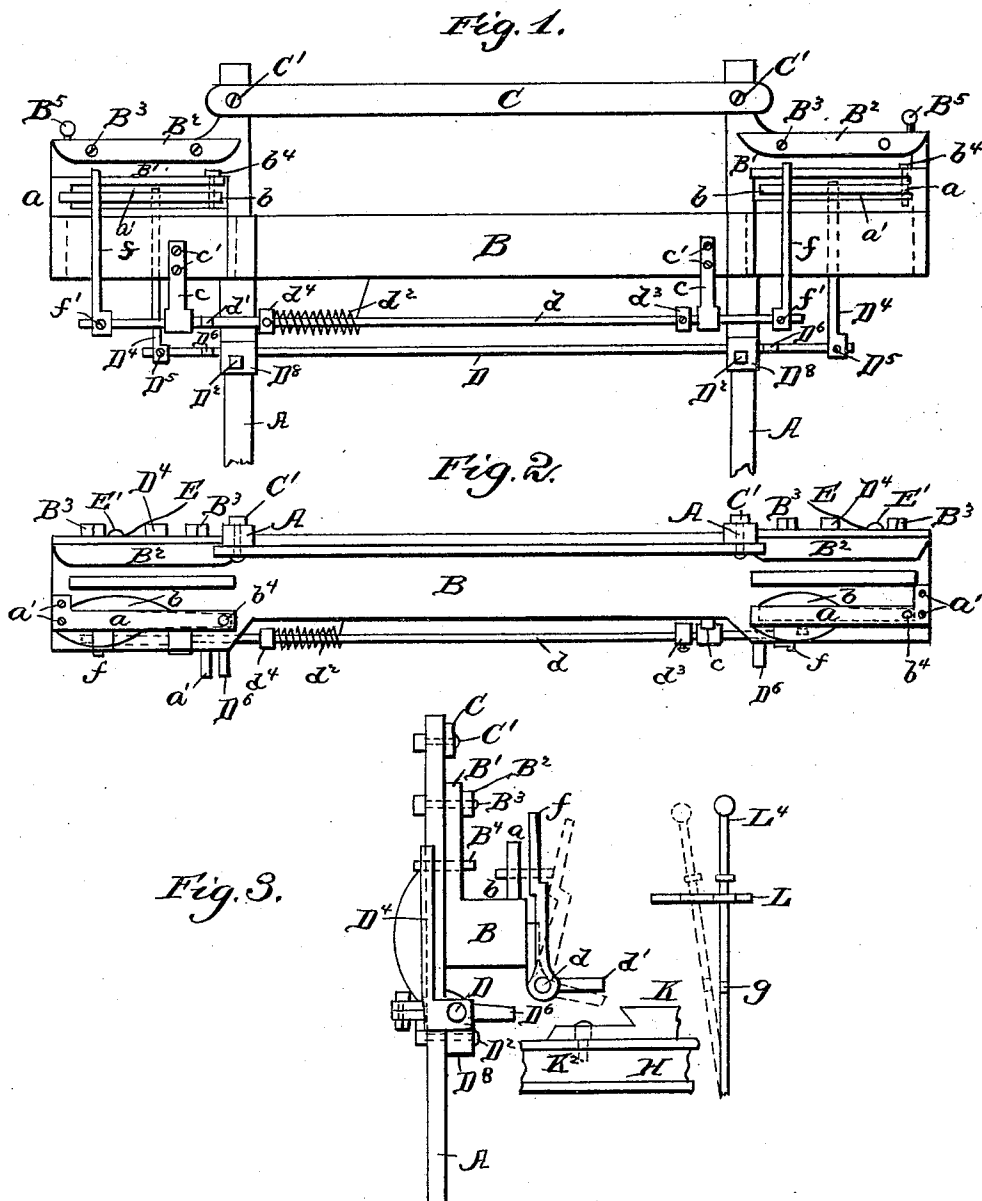
(No Model.)

2 Sheets—Sheet 1.

J. C. BROOKS.
LOOM SHUTTLE.

No. 473,414.

Patented Apr. 19, 1892.



(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

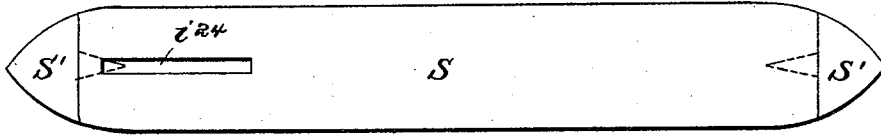


Fig. 5.

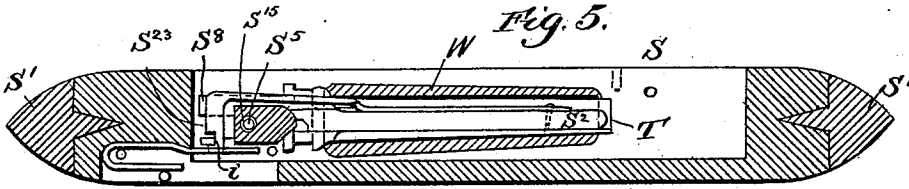


Fig. 6.

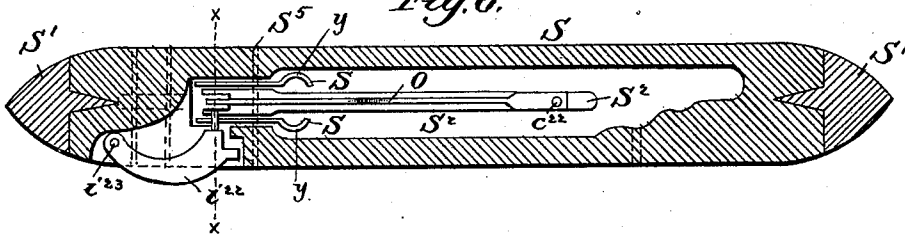


Fig. 7.



Fig. 8.

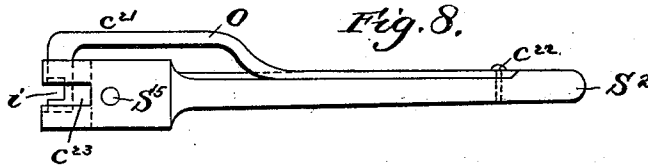
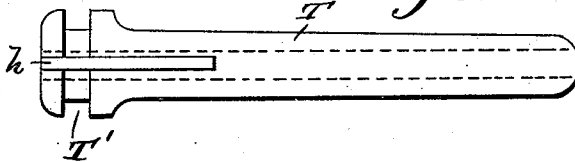


Fig. 9.



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UNITED STATES PATENT OFFICE.

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LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 473,414, dated April 19, 1892.

Application filed May 8, 1891. Serial No. 392,128. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. BROOKS, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Loom-Shuttles; and I 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.

My invention relates to improvements in shuttles for looms; and its object is to provide simple and effective means for stopping the loom before the filling or weft is entirely exhausted, and thus obviate the necessity of finding the pick before the loom is started again, and also preventing the forming of uneven places in the fabric in the loom.

With these ends in view my invention consists in the peculiar construction and arrangement of a shuttle, as will be hereinafter fully pointed out and claimed.

I have illustrated my invention in the accompanying drawings, in which—

Figure 1 is a front elevation of the lathe and other parts of a loom in which the shuttle embodying my invention is adapted to be used. Fig. 2 is a top plan view of the same. Fig. 3 is an end view of a portion of the loom-frame. Fig. 4 is a side elevation of a shuttle embodying my invention. Figs. 5 and 6 are respectively a vertical longitudinal sectional view and a sectional plan view of the same. Figs. 7 and 8 are respectively a detail top plan and side elevation of the shuttle-tongue shown in Figs. 5 and 6. Fig. 9 is a detail plan view of the quill or bobbin.

Like letters of reference denote corresponding parts in all the figures of the drawings, referring to which—

A A designate the swords of a loom, on which is mounted in the ordinary manner a batten or lay B. B' B' are the shuttle-boxes. A reed-cap C is attached to the swords A A' by means of bolts C'. The top shuttle-guides B² are secured in position by suitable bolts B³. The fronts a of the shuttle-boxes B' are slotted, as at a', and in each of these slots a' is arranged an acting binder b. The binders b are pivotally connected at one end to the box-fronts a by means of pivot-pins b⁴, which

extend through such binders and across the slots a' in the boxes B'.

B⁴ designates a swell or binder of the ordinary construction; B⁵, a pivot-pin.

D is a protecting-rod, which is mounted in suitable brackets D⁸, which are secured on the swords A by means of bolts D² or in any other suitable manner, and on this rod D, near the ends thereof, are secured by means of bolts D⁵ binder-fingers D⁴. (See Fig. 3.) To the rods D are also attached two protecting-fingers D⁶.

E designates flat spring-arms, which are each secured at one end by means of screws E' and have their free ends in contact with or bearing against the rear side of the fingers D⁴, which are engaged with the swells or binders B⁴, as is common in this class of looms.

H is the frame of the loom, only a small portion of which is shown in Fig. 3, and on this frame is secured, by means of a bolt K², a protecting-frog K.

L⁴ designates a shipping-lever of ordinary construction, which is guided in and supported by a bracket L, suitably attached to the frame of the loom. To the lay B are attached, by means of screws c', brackets c, in which brackets is mounted a rock-shaft d. On the shaft d are secured collars d³ d⁴, and around such shaft is fitted a coiled spring d², one end of which is attached to the collar d⁴ and the other end fastened to the lay B. The tendency of this coiled spring d² is to keep the shaft d, arms f, and lug d' in the position shown in full lines in Fig. 3. On the rock-shaft d, near the ends thereof, are also fitted arms f, which are held in position on the rod d by means of screws f', and said arms f contact with the acting binders b. (See Fig. 3.) A stud or lug d' is rigidly attached to or made integral with the rod d', and this stud or lug extends outwardly from such rod substantially at right angles to the length of the arms f thereon. On the shipping-lever L⁴, below the bracket L, is affixed a block or projection g, which lies in the same horizontal plane as the stud or lug d' when such lug occupies the position shown in full line in Fig. 3. The fronts a of the shuttle-boxes B' are attached to the batten or lay B by means of screws a'.

Referring now particularly to those figures

of the drawings in which my improved shuttle is illustrated, S designates the outer or inclosing shell of the shuttle provided with end tips S'. In the shell or casing S, near one end thereof, I make a longitudinal slot i^{21} , in which is fitted a cam-plate i^{22} . This cam-plate i^{22} is pivotally connected to the body of the shuttle by a pin i^{23} .

Instead of using an ordinary shuttle-tongue having a spring-top, I use a tongue S², which is pivoted within the shell or case S by a rod or pin S⁵, extending through a hole S¹⁵ in the enlarged head of the tongue transversely across the interior of the shuttle. I also provide a spring-arm O, which is attached to the shuttle-tongue S² near one end by a rivet c^{22} . This spring-arm O extends for some distance along the upper surface of the tongue S², and is then bent upwardly and extends above and parallel to the head of said tongue, as at c^{21} . The outer end of the arm O is bent downwardly and passes through or fits in a vertical slot S³, cut in the head of the tongue S². Near its lower end this bent end of the spring-arm O is provided with a notch or recess i . The head of the tongue S² is also provided with a slot c^{23} , which extends at right angles to and intersects the vertical slot S³.

T designates the quill or bobbin on which the filling or weft is wound. This quill has an annular groove or recess T' cut in its head. Clips S are arranged within the shuttle and extend parallel to the length of the shuttle-tongue S² on opposite sides thereof. The clips S are provided with curved portions γ , and when the quill or bobbin is placed in position on the shuttle-tongue S², the ends of the clips S enter the groove or recess T' and hold the quill or bobbin in place. The quill T is further provided with a longitudinal slot h , in which, when the quill is placed in position on the shuttle-tongue S², the raised or elevated part c^{21} of the spring-arm O fits.

The operation of my improvements is as follows: The weft or filling W is wound upon the quill T, which is then slipped over the shuttle-tongue S² and held in position by the clips s. The elevated or raised portion c^{21} of the spring-arm O is depressed, and the free bent end of such arm is depressed, so as to bring the notch or recess i therein below the horizontal slot c^{23} , and the inner end of plate i^{22} rests against the arm O. This causes the curved side of the cam-plate i^{22} to extend out through the slot i^{21} beyond the side

of the shuttle S. When the shuttle is placed in the shuttle-box B', the cam-plate i^{22} contacts with the acting binder b in said box and presses that binder and the arm f , which is in contact therewith, outward. (See dotted lines in Fig. 3.) As the arm f is forced outward, the rock-shaft d turns in its bearings and the stop or lug d' is lowered, so as to lie below the stop g on the shipping-lever L⁴. The loom is then set in motion and the shuttle reciprocated back and forth on the lay in the ordinary manner. As the filling or weft on the quill T is exhausted, the spring-arm O rises out of the vertical slot in the head of the shuttle-tongue S² and the portion c^{21} thereof passes through the slot h in the quill. When the spring-arm O has moved far enough to bring the notch i into alignment with the horizontal slot c^{23} in the shuttle-tongue, the spring d^2 on the rock-shaft d causes that shaft to turn, and the arm f thereon forces the acting binder b and the cam-plate i^{22} inward, the reduced end of such plate entering the notch i . As the rock-shaft d turns it brings the stud or lug d' up into a horizontal position, and at the next forward stroke of the lay B such stud strikes against the projection g on the shipping-lever and dislodges such lever from its position of rest, and the driving-belt is transferred from the fixed to the loose pulley on the main shaft and the loom comes to a stop before the weft or filling on the quill is entirely exhausted.

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

A shuttle consisting of an outer shell or case provided with a longitudinal slot, a cam-plate pivoted within the shell or case and projecting through the slot therein, a tongue pivoted within the shell and provided in its head with the intersecting slots, a spring-arm attached at one end to said tongue and having its free end bent to pass through one of the slots in the head of the tongue, said bent end having a notch i formed in one edge and adapted to align with one of the slots in the head of the tongue and designed to receive the free end of this cam-plate in the shuttle, substantially as described.

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