No. 719,685. PATENTED FEB. 3, 1903.

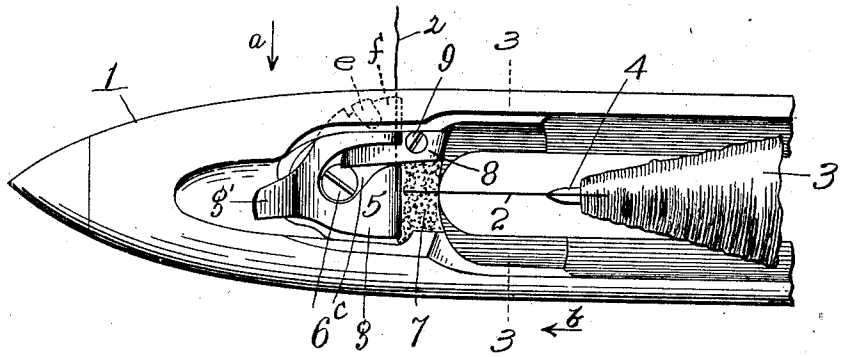
J. H. MORIN.

SHUTTLE.

APPLICATION FILED NOV. 3, 1902.

NO MODEL.

Fig. 1.



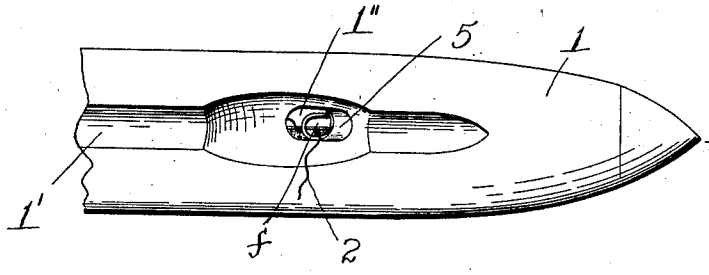


Fig. 2.

Fig. 3.

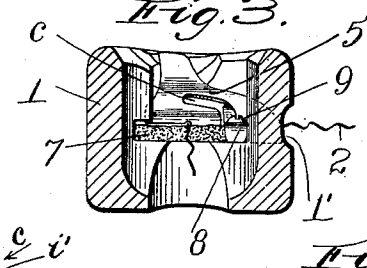


Fig. 6.

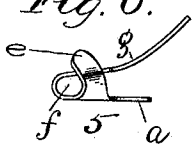


Fig. 4.

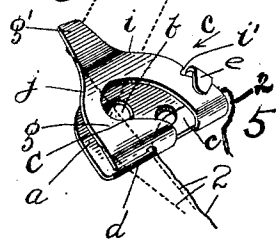


Fig. 5.

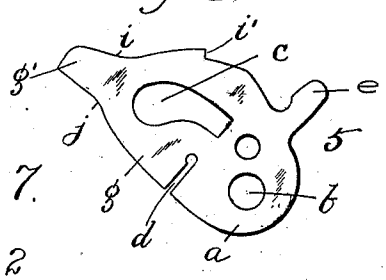
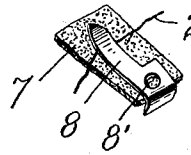


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOSEPH H. MORIN, OF WILKINSONVILLE, MASSACHUSETTS.

SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 719,685, dated February 3, 1903.

Application filed November 3, 1902. Serial No. 129,803. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. MORIN, a citizen of the United States, residing at Wilkinsonville, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Shuttles, of which the following is a specification.

My invention relates to a shuttle, and particularly to the threading of a shuttle or the drawing of the free end of the thread or filling-weft from the bobbin through the eye of the shuttle preparatory to using the shuttle in the loom.

In the ordinary construction of a shuttle the free end of the thread is sucked or drawn through the shuttle-eye by the mouth of the operator.

The object of my invention is to do away with the sucking of the thread through the shuttle-eye and to provide a device to be applied to and secured in the shuttle-throat by means of which the shuttle is threaded by hand.

I am aware that there are self-threading shuttles which are substantially automatic in operation and are particularly designed to be used in what are termed "automatic looms." In these shuttles the side of the shuttle at the threading end is slotted or cut down to allow of the free passage of the thread. My improvements do not relate to this class of self-threading shuttles.

In my improvements the threading device is preferably made of sheet metal in one piece cut and formed into the desired shape. A part of the device forms the eye for the thread where it passes through the side of the shuttle, and thus the use of the ordinary eye is dispensed with.

In using my improvements the shuttle has a hole or opening through its side at one end for the thread to pass through, as is customary; but the side of the shuttle is not slotted or cut down, as is the case in self-threading shuttles, as above mentioned.

My invention consists in certain novel features of construction of my improvements, as will be hereinafter fully described.

Referring to the drawings, Figure 1 is a plan view of the delivery end of a shuttle with my improvements applied thereto. Fig. 2 is a side view of the end of the shuttle shown in Fig. 1 looking in the direction of arrow *a*, same figure. Fig. 3 is a vertical cross-section on line 3 3, Fig. 1 looking in the direction of arrow *b*, same figure. Fig. 4 is a perspective plan view of my threading device detached. Fig. 5 shows the blank from which my threading device shown in Fig. 4 is formed. Fig. 6 is a side view of the threading device shown in Fig. 4 looking in the direction of arrow *c*, same figure; and Fig. 7 is a perspective plan view of the tension mechanism for the thread removed, showing the felt and spring.

In the accompanying drawings, 1 is the shuttle-body, which may be of the ordinary shape and construction, with one side longitudinally grooved or recessed, as shown at 1′, and a perforation or opening 1″ therethrough for the passage of the thread 2 from the bobbin 3 on the spindle 4, as is customary.

The shuttle-body 1 is cut out or recessed at its delivery end to receive the threading device 5. (Shown detached in Fig. 4.) The threading device 5 is preferably made from one piece of sheet metal stamped or cut out by a die or otherwise into the blank shown in Fig. 5, which is bent or pressed into the shape shown in Fig. 4.

The threading device 5 is of loop shape, as shown in Figs. 4 and 6, and consists of the flat or base portion and the upper part for guiding the thread. The flat or base part *a* extends within and rests upon the recessed or cut-out portion in the body of the shuttle and is secured therein by a screw 6, extending through a hole *b* in the base *a*. Access to the head of the screw 6 to turn the same in or out is obtained through the slot or perforation *c* in the upper part of the threading device 5, which extends to the base part *a*, and one edge of the threading device 5 at the loop portion is slotted, as shown at *d*, Fig. 4, to receive the thread 2. The inner end of the slot *d* is in line with the end of the spindle 4, as shown in Fig. 1. On one edge of the threading device 5 is the lip or extension *e*, which in forming the device 5 is bent upwardly and then downwardly at its free end to extend over the upper side of the threading device 5, as shown in Fig. 4. The lip or extension *e* forms with the loop portion of the

device 5 the eye f for the passage of the thread 2. (See Figs. 2 and 6.) The eye f is located at the opening 1″ in the shuttle-body 1, as shown in Fig. 2, and forms the delivery-eye for the shuttle.

The free end g' of the upper thread-guiding part g of the threading device 5 is of reduced width and bent upwardly, as shown in Fig. 5. The edges of the upper part g are inclined or tapering, and one edge i is notched at i'. (See Fig. 4.)

In connection with the threading device 5 shown in the drawings and above described I prefer to use a tension device for the thread; but this is not necessary, and my threading device 5 may be used with or without a tension.

I have shown in the drawings a tension device combined with the threading device 5, which in this instance consists of a piece of felt 7, located in the shuttle-body 1, in front of the threading device 5, and a spring-blade 8, which has a hole 8′ therein and is secured in the shuttle-body outside of the threading device 5 by a screw 9, as shown in Fig. 1. The free end of the spring 8 extends through the lower end of the perforated part c in the upper part of the threading device 5 and bears on the felt 7, extending within the threading device, (shown in Fig. 4,) and in this way puts a tension on the thread 2 as it is drawn from the bobbin 3 through the eye f of the threading device 5.

The tension on the thread may be varied by turning in and out the screw 9, which holds the tension-spring 8.

The operation of my threading device will be readily understood by those skilled in the art.

The free end of the thread from the bobbin is passed under the upwardly-bent end g' of the upper part of the threading device 5 and is drawn down along the edge i. (See broken lines, Fig. 4.) The other portion or loop of the thread moves over the upper part of the device 5 and on its other edge j and finally slips over the edge j and enters into the slot d. The free end passing along the edge i enters into the notched portion i' and passes under the lip e into the eye f, as shown in Fig. 4, with the free end extending into the cut-out portion in the body of the shuttle. The loop of thread formed at the eye portion is then grasped by the operator and drawn out to bring the free end outside of the shuttle, as shown in the drawings. In case the tension-spring 8 is used the free end passes down under the free end of the spring 8 and over the felt extending under the spring, as shown in Fig. 6.

The advantages of my improvements will be readily appreciated by those skilled in the art. My threading device is of simple construction, and in its use the shuttle-body is not slotted or cut down on the side of the delivery end and the ordinary eye fitted into the side of the shuttle is not required, and my threading device may be combined with any ordinary form of shuttle.

It will be understood that the details of construction of my threading device may be varied, if desired, and it may be used with or without the tension-spring for the thread.

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

1. In a shuttle, a threading device of loop shape, secured within the throat or delivery end of the shuttle, and comprising a base secured to the shuttle, an upper part for guiding the thread and under which the thread is drawn, a slot on one edge into which the thread passes, a lip on the opposite edge under which the thread passes, said lip and the looped portion of the device forming an eye for the thread as it passes out of the shuttle, substantially as shown and described.

2. In a shuttle, a threading device of loop shape, secured within the throat or delivery end of the shuttle, and comprising a base secured to the shuttle, an upper part for guiding the thread having a perforation therein, and under which the thread is drawn, a slot on one edge into which the thread passes, a lip on the opposite edge under which the thread passes, said lip and the looped portion of the device forming an eye for the thread as it passes out of the shuttle, substantially as shown and described.

3. In a shuttle the combination with a threading device of loop shape, secured within the throat or delivery end of the shuttle, and comprising a base secured to the shuttle, an upper part for guiding the thread and under which the thread is drawn, a slot on one edge into which the thread passes, a lip on the opposite edge under which the thread passes, said lip and the looped portion of the device forming an eye for the thread as it passes out of the shuttle, of a tension device for the thread, comprising felt or yielding material and a spring-blade, between which the thread passes, substantially as shown and described.

4. In a shuttle the combination with a threading device of loop shape, secured within the throat or delivery end of the shuttle, and comprising a base secured to the shuttle, an upper part for guiding the thread and under which the thread is drawn, a slot on one edge into which the thread passes, a lip on the opposite edge under which the thread passes, said lip and the looped portion of the device forming an eye for the thread as it passes out of the shuttle, of a tension device for the thread, comprising felt or yielding material, and a spring-blade, between which the thread passes, and means for adjusting the tension, substantially as shown and described.

5. The combination with a shuttle having an opening through its side at its delivery end, which opening does not extend to the top or upper side of the shuttle, of a threading device of loop shape, secured within the throat

or delivery end of the shuttle, and comprising a base secured to the shuttle, an upper part for guiding the thread, and under which the thread is drawn, a slot on one edge into which the thread passes, a lip on the opposite edge under which the thread passes, said lip and the looped portion of the device forming an eye for the thread as it passes out of the shuttle, substantially as shown and described.

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