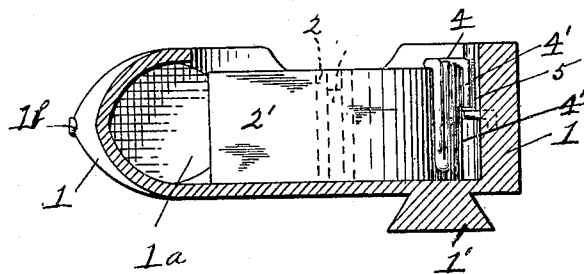
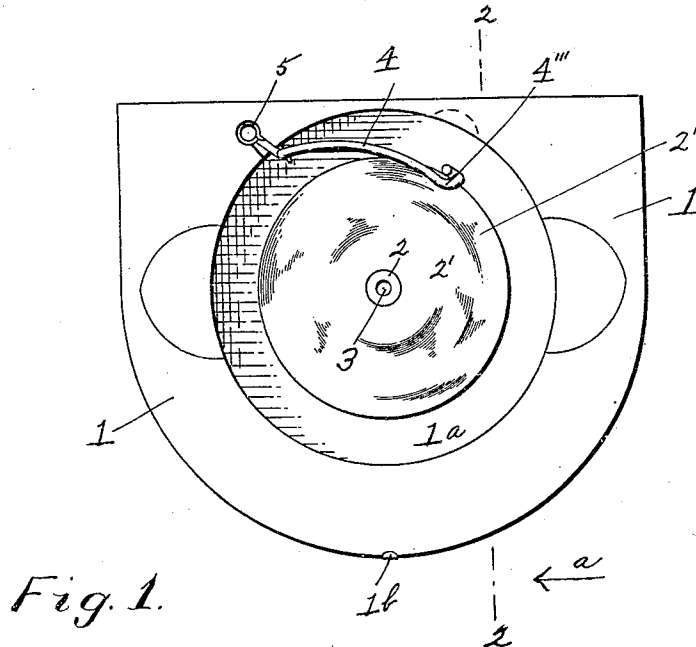


E. H. SAWYER.
SHUTTLE.
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932,180.

Patented Aug. 24, 1909.



Witnesses

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SHUTTLE.

932,180.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDMUND H. SAWYER, a citizen of the United States, residing at Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Shuttles, of which the following is a specification.

My invention relates to that class of open-topped shuttles having thread receiving chambers or recesses and central spindles which hold the quills or bobbins on which the cops or masses of thread are wound, and the invention has for its object to provide a simple device for this class of shuttles which, in addition to its function as a tension device, will also serve to retain the cop or mass of thread supported on the spindle within the shuttle.

I have found in practice, that the quill with the thread thereon, is liable to be raised out of the shuttle, on the spindle in the shuttle, as the thread is unwound from the quill in the operation of the loom, and therefore it is desirable to provide means for holding the quill within the shuttle body and in proper position on the spindle in the shuttle, without interfering with the free rotation of the quill on said spindle.

In my improvements I make the tension device for the thread wound on the quill in such a way, that the pivotal arm thereof will extend over the upper edge of the thread, and act as a retaining device to hold the quill with the thread thereon on the spindle and within the shuttle, and at the same time act as a tension device for the thread.

Referring to the drawing:—Figure 1 is a plan view of a shuttle for a narrow ware loom, embodying my improvements, and having a quill therein with the thread wound thereon. Fig. 2 is a section, on line 2, 2, Fig. 1, looking in the direction of arrow *a*, same figure.

In the accompanying drawing, the shuttle 1 is preferably of general semi-circular shape, as shown, having a longitudinal projection 1^a upon its underside, with inclined or slanting edges, and having a central recessed part 1^a, to receive the quill 2 and thread 2' wound thereon. The quill 2 loosely fits upon a spindle 3, which extends upwardly from the central portion of the recessed part 1^a, and is secured to the shuttle. The spindle 3 is preferably shorter than

the quill 2, as shown by broken lines in Fig. 2.

The tension means for the thread 2' on the quill 2, consists preferably of an arm 4 of wire, bent at one end, and loosely attached to the body of the shuttle at one side of the recess 1^a, to have a swinging or pivotal movement, with its vertically extending part 4', in this instance encircled by a helically coiled torsion spring 5, which acts to yieldingly move inwardly the tension arm 4, and cause its free end, which in this instance has a downwardly extending part, made in loop shape, as shown at 4'' in Fig. 2, to extend upon and bear against the outer surface or periphery of the thread 2'. The arm or lever 4 extends over the upper edge of the thread 2', and has an offset 4''' therein, leading to the end 4'', which acts as a holding or retaining device, to hold the quill 2 with the thread 2' thereon, on the spindle 3, and within the shuttle body. As the shuttle is operated in the loom, the thread 2' is drawn off from the spool 2 through the eye 1^b of the shuttle, in the usual way, and the arm 4 acts as tension device for the thread, to restrain the rotation thereof, and the offset 4''' on said arm 4, acts to hold the quill 2 with the thread 2' thereon down within the shuttle, and to retain it in position on the spindle 3.

By referring to the drawings it will be seen that the thread delivery eye 1^b is on the opposite side of the cop or mass of thread 2' from the loop 4'', so that as the thread is drawn off through the said loop to the said delivery eye, in engagement with one of the bars of said loop, the draft of the thread will have a tendency to hold the said loop against the side of the body of thread and thus tend to increase, rather than lessen, the tension, as also to retain the off-set or shoulder 4''' in engagement with the upper end of the said cop or mass of thread, thereby reliably preventing the cop of thread from rising in the shuttle.

It will be understood that the details of construction of my improvements may be varied if desired.

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

1. The combination with a shuttle having an open-topped thread-receiving recess therein, and a spindle extending up from the bottom of said recess to receive the quill on

which the thread is wound, of a spring-pressed tension arm arranged to bear against the side of a cop or mass of thread on said spindle, said arm having an offset part or shoulder extending over the upper edge of the mass of thread, to hold the quill, with the thread therein, within the shuttle.

2. The combination with a shuttle having a thread receiving recess, a thread delivery eye, and a central spindle, of a pivoted spring-pressed tension arm having a loop arranged to bear against the side of a cop or mass of thread mounted on said spindle and having also an off-set or shoulder adapted to engage the end of the cop or mass of thread and thereby prevent it from being raised on said spindle.

3. The combination with a shuttle having an open-topped thread receiving recess or chamber, a central spindle therein, and a thread delivery eye in its side, of a spring-pressed tension arm in said recess or chamber and having a loop arranged to bear against that side of a cop or mass of thread which is opposite said delivery eye, said arm having also an offset or shoulder adapted to engage the upper end of the cop or mass of thread and thereby prevent it from being raised on said spindle.

EDMUND H. SAWYER.

Witnesses:

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