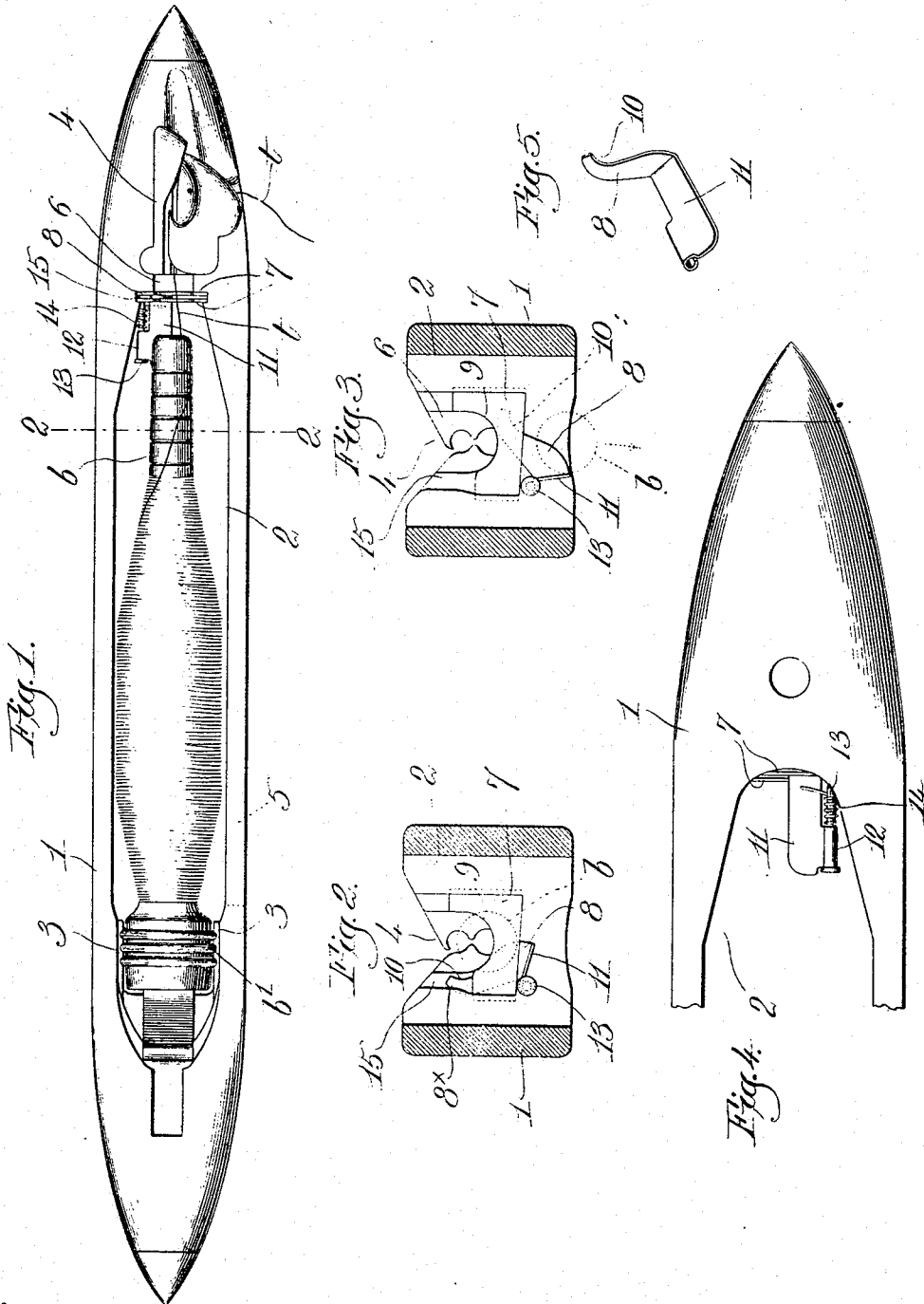


No. 827,953.

PATENTED AUG. 7, 1906.

A. E. BENSON.  
LOOM SHUTTLE.

APPLICATION FILED SEPT. 27, 1905.



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# UNITED STATES PATENT OFFICE.

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## LOOM-SHUTTLE.

No. 827,953.

Specification of Letters Patent.

Patented Aug. 7, 1906.

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*To all whom it may concern:*

Be it known that I, ARTHUR E. BENSON, a citizen of the United States, residing at Agricultural College, county of Oktibbeha, and State of Mississippi, have invented an Improvement in Loom-Shuttles, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to loom-shuttles of the type in which a bobbin or other filling-carrier is automatically inserted in the shuttle at the proper time, the incoming filling-carrier engaging and ejecting the previous one from the shuttle, and more particularly the invention relates to such shuttles used on so-called "feeler-loom." In such looms the filling change or replenishment is effected automatically prior to complete exhaustion of the filling in the running shuttle, so that the outgoing filling must be parted or cut to facilitate the threading of the new supply for the shuttle and to prevent the ejected filling being woven into the cloth. Various means have been devised for effecting such parting of the old filling, and my present invention has for its object the production of novel and very effective means for parting such filling.

In accordance with my invention the outgoing filling is severed by or through the ejection of the filling-carrier from the shuttle.

The various novel features of my invention will be fully described in the subjoined specification, and particularly pointed out in the following claims.

Figure 1 is a top plan view of a loom-shuttle provided with one form of filling-parting means embodying my invention, the latter being shown in normal or inoperative position. Fig. 2 is an enlarged transverse section on the line 2 2, Fig. 1, looking toward the right. Fig. 3 is a similar view, but showing the parting means as operating to part the filling of the ejected filling-carrier indicated by dotted lines. Fig. 4 is an under side view of the right-hand end of the shuttle shown in Fig. 1, and Fig. 5 is a perspective view of the movable member of the parting means detached.

The shuttle-body 1, having a longitudinal opening 2 extended therethrough from top to bottom, as herein shown, for the reception

and discharge of a filling-carrier *b*, said filling-carrier having annular projections *b'* at its butt-end, Fig. 1, to be engaged and frictionally held by holding-jaws 3 in one end of the opening 2, and a threading device 4 at the opposite end of the opening, may be and are all of well-known construction.

The threading device is herein shown as of the automatically-self-threading type, to thread the shuttle when a fresh filling-carrier is inserted automatically therein—as, for instance, in the Northrop loom, which forms the subject-matter of United States Patent No. 529,940, granted to Northrop, and other patents of later date.

In Fig. 1 the side wall of the shuttle has a feeler-opening 5 for the intermittent entry of the feeler, which contacts with the filling and indicates the degree of exhaustion thereof, so that filling replenishment may be effected prior to complete exhaustion of the filling.

Referring to Figs. 1, 2, and 3, the shuttle-body is cut out at 6 at the entrance to the threading device to form a guide for the filling *t*, Fig. 1, as it passes to said device from the tip or delivery end of the filling-carrier. In accordance with my present invention I have provided the shuttle with filling-parting means adjacent such guide portion 6, said means in the present embodiment of my invention comprising a fixed member (shown as two parallel blades 7, fixed in the shuttle-wood) and a movable coöperating member 8, adapted to swing or rock between them. The parallel blades 7 are cut out or concaved at their upper edges, as at 9, (see Figs. 2 and 3,) so that the filling may pass freely over the upper edges to the threading device, the blades being located in front of the tip of the filling-carrier and transversely to the path of the filling. The member 8 has its inner edge concaved, as at 10, Figs. 2, 3, and 5, and its lower end is bent and extended to form a foot 11, the inner end of the foot being provided with a cylindrically-bent portion 12, which loosely embraces a headed pivot pin or stud 13, firmly fixed in the shuttle-wood and substantially parallel to the longitudinal axis of the shuttle.

A spring 14 is coiled around the pin and one end is secured to it, its free end bearing against the foot 11, as in Fig. 4, the spring being so wound as to normally throw the blade

8 into inoperative position, with its tip end 8<sup>x</sup> withdrawn into a recess or housing 15 in the side wall of the shuttle. (See Fig. 2.) When in such normal inoperative position, the movable blade is held away from the path of the filling, and by housing its tip, which then projects above the fixed blades 7, there is no danger of the filling being caught. At the same time the foot 11 projects into the opening 2 of the shuttle in the path of the tip of the filling-carrier when ejected, the dotted circle *b* in Fig. 2 indicating the normal relative position of the tip of the filling-carrier. When the filling is changed or replenished, the incoming filling-carrier strikes the one then in the shuttle and ejects it from the open bottom of the opening 2 in well-known manner, and as the ejected filling-carrier is discharged its tip hits the foot 11 and turns it and the blade 8 into the position shown in Fig. 3. The filling *t*, Fig. 1, is thus caught between the fixed and movable parting members 7 and 8 and cut or parted instantly and cleanly close to the tip of the filling-carrier and between it and the threading device, leaving a very short length of the old filling to be pulled out through the threading device and shuttle-eye. The chance of the old filling end fouling or twisting around the incoming filling is thus practically eliminated, and, further, there is no long end of filling hanging from the tip of the ejected filling-carrier. Immediately after the ejected filling-carrier has passed the foot 11 the spring 14 returns it and the member or blade 8 to normal position out of the way of the fresh filling.

So far as I am aware it is broadly new to part the old filling within the filling-receiving opening in the shuttle, and I believe it is also broadly new to part such old filling by or through the action of the ejected filling-carrier. Accordingly my invention is not restricted to the precise construction and arrangement herein shown, which is merely one practical embodiment thereof; but various changes or modifications may be made by those skilled in the art without departing from the spirit and scope of my invention.

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

1. A loom-shuttle provided with a threading device and having an opening there-through to receive, and permit the discharge of, a filling-carrier, and a thread-cutting device on the shuttle to cut the filling by or through discharge of the filling-carrier from the shuttle.

2. A loom-shuttle having means to engage and sustain a removable filling-carrier and permit it to be ejected, and a thread-parting device carried by the shuttle and so located as to be operated by the tip of the filling-carrier when ejected from the shuttle, to part the filling near the tip of such filling-carrier.

3. An automatically-self-threading loom-shuttle open at opposite sides to permit the entrance and ejection of a removable filling-carrier, and fixed and movable filling-parting means carried by the shuttle and operated by the ejected filling-carrier to part the filling thereof near its tip.

4. A loom-shuttle having means to engage and sustain a removable filling-carrier and permit it to be ejected, and a thread-parting device carried by the shuttle, and having an operating member in the path of and actuated by engagement with the tip of an ejected filling-carrier, to part the filling thereof.

5. A loom-shuttle having an opening therein to receive a filling-carrier at one side and permit the ejection thereof at the opposite side, holding means for the filling-carrier at one end of such opening, a threading device at the other end, and means located adjacent said device and actuated by or through the ejected filling-carrier to part the filling thereof between its tip and the threading device.

6. The combination, in a loom-shuttle open at its top and bottom for the entrance and ejection of a filling-carrier, and provided with holding-jaws therefor, of parting means operated by an ejected filling-carrier to part the filling thereof, and a spring to normally retain said means inoperative.

7. A loom-shuttle adapted to receive an automatically-inserted filling-carrier and to permit ejection of the previous filling-carrier thereby, a threading device for the shuttle, a fixed parting member extended transversely of the shuttle below the path of the filling between the filling-carrier and the threading device, and a cooperating member operated by or through the ejected filling-carrier, to part the filling thereof adjacent the threading device.

8. A shuttle for automatic feeler-loom, having a self-threading device, and normally inoperative parting means carried by the shuttle and actuated by the tip of the filling-carrier ejected therefrom, to part the filling of such filling-carrier between its tip and the threading device.

9. A shuttle for automatic feeler-loom, having a self-threading device, and normally inoperative parting means carried by the shuttle, said means including a transverse, fixed parting member, a cooperating movable member, a spring to retain it inoperative, and a foot on said member normally extended below and in the path of the tip of an ejected filling-carrier, engagement by the latter causing its filling to be caught between said parting members and severed.

10. An automatically-self-threading loom-shuttle open at opposite sides to permit the entrance and ejection of a removable filling-carrier, a recess or housing in the said opening, a fixed parting-blade transversely extended below the filling-path, a spring-retracted,

pivoted cooperating blade normally retained in said housing at one side of the filling, and a foot on said member adapted to be struck and moved by an ejected filling-carrier, to rock said pivoted blade and sever the filling between it and the fixed blade.

11. An automatically-self-threading shuttle for filling-replenishing feeler-loom, open at opposite sides for the entrance and ejection of a removable filling-carrier, and means carried by the shuttle and operated by or through ejection of the filling-carrier to sever the filling thereof adjacent its tip.

12. In an automatically-self-threading shuttle for filling-replenishing feeler-loom, having an opening therethrough to receive an incoming filling-carrier and permit its ejection, means operated by the ejected filling-car-

rier to sever the filling thereof within such opening.

13. A shuttle for filling-replenishing feeler-loom, having an opening therethrough to receive an incoming filling-carrier and permit its ejection, an instrumentality mounted on the shuttle to sever the filling of the partially-exhausted filling-carrier, and means to cause the operation of said instrumentality at the time of filling replenishment.

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

ARTHUR E. BENSON.

Witnesses:

JAMES S. COOKE,  
ROBERT COOKE.