E. H. CARTER & W. H. SELLEY.

LOOM SHUTTLE.

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1,237,298.

Patented Aug. 21, 1917.

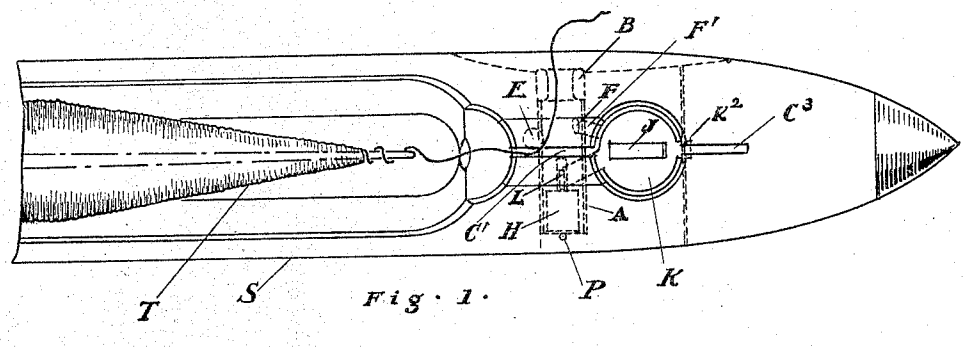

Fig. 1.

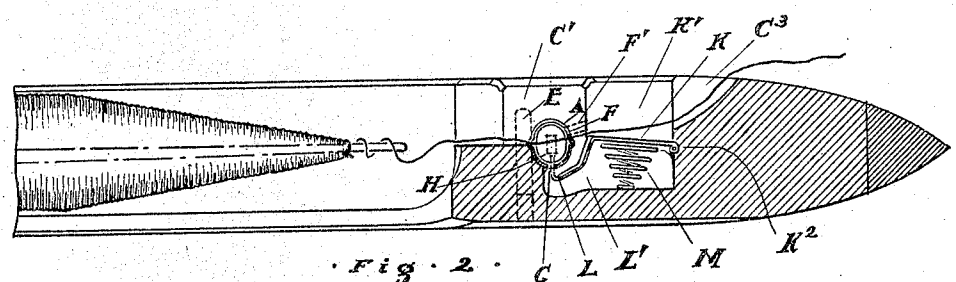

Fig. 2.

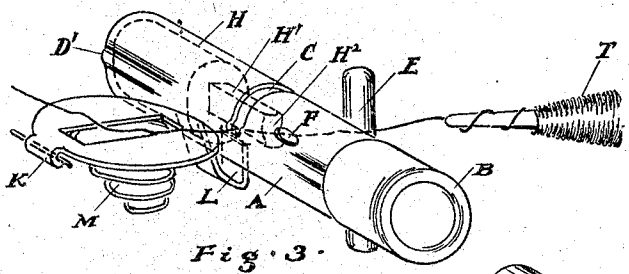

Fig. 3.

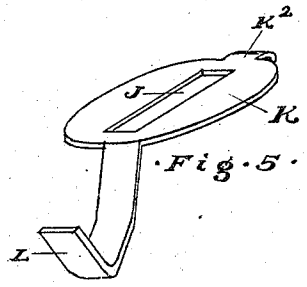

Fig. 5.

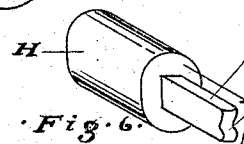

Fig. 6.

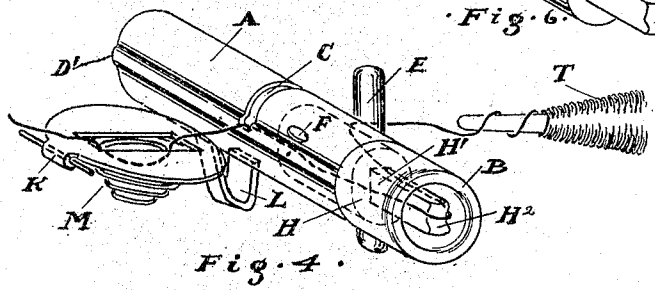

Fig. 4.

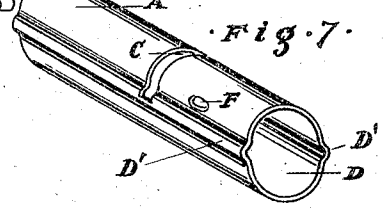

Fig. 7.

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UNITED STATES PATENT OFFICE.

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LOOM-SHUTTLE.

1,237,298. Specification of Letters Patent. Patented Aug. 21, 1917.

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To all whom it may concern:

Be it known that we, EDWARD H. CARTER and WILLIAM H. SELLEY, both citizens of the United States, and residents of New Bedford, in the county of Bristol and State of Massachusetts, have invented new and useful Improvements in Loom-Shuttles, of which the following is a specification.

Our invention relates to threading devices for loom shuttles, and is characterized by (among other things) a threading member which is not operated by any mechanical train, and need have no spring to hold it in or return it to normal position.

In the drawings hereto annexed, which illustrate our invention and show what we believe to be the best form thereof,

Figure 1 is a top plan view of part of a loom shuttle, embodying our improvements;

Fig. 2 is a longitudinal section of the loom shuttle;

Fig. 3 is a view in perspective, on a large scale, showing the shuttle threading devices in the relative positions they occupy before threading;

Fig. 4 is a view similar to Fig. 3, but showing the parts in the position they occupy when the shuttle is threaded;

Fig. 5 is a view in perspective, on large scale, of the finger plate and its plunger catch;

Fig. 6 is a view in perspective of the plunger; and

Fig. 7 is a view in perspective of the plunger tube.

The body of the shuttle S is cut away no more than has been the practice for many years, in the standard shuttles. A cavity K′ is formed to receive the finger plate K, and a narrow slot C′ leads from the cavity K′ to the usual space provided for the cop. A round hole is bored transversely through the shuttle body, intersecting the slot C′, to receive the plunger tube A and the porcelain eye B. A small metal pin P is inserted in the shuttle body to serve as a stop for the plunger H; and a porcelain pin E is inserted in a small hole through the bottom of the shuttle adjacent to the side of the slot C′. It will be observed that the shuttle body is left intact at the sides, except for the transverse hole for the plunger tube, which does not detract from the strength and solidity of the shuttle body, any more than the indispensable eye hole formed in old style shuttles.

The main factors in the threading device are the plunger tube A, and plunger H. The tube A is elliptical in cross section, and has longitudinal ribs D′ formed in its body. The channels made on the inside of the tube A serve a purpose presently to be described, while the outer ribs D′ make a tight fit in the hole formed in the shuttle body for the reception of the plunger tube A. When the plunger tube A is inserted in the hole prepared for it and bears against the stop pin P, the porcelain eye B is then fixed in the mouth of the hole. The plunger H consists of a solid piece of metal, made elliptical in cross section so as to slide in the tube A freely, but without turning on its axis. The plunger H carries an extension bar H′ in the end of which a thread-engaging notch H^2 is cut. The over-all length of the plunger H and extension bar H′ is such that when the butt of the plunger rests against the pin P, the notched end of the extension bar H will lie just clear of the slot C′, formed in the shuttle body (see Fig. 1).

The plunger tube A is transversely slotted at C, so that when the tube is seated against the pin P, the slot C in the tube coincides with the slot C′ in the shuttle body. The tube A has also a hole F, between the slot C and the eye B, and the shuttle body has a hole F′ formed in it, making communication from the cavity K′ to the hole F. A slot G is cut in the tube A at the bottom thereof, to receive the plunger-catch L. (See Fig. 2.)

The finger plate K is pivoted at K^2, and lies in the cavity K′. The finger plate K is slotted at J, and is provided with an extension which terminates in the plunger catch L. A spring M stresses the finger plate K upward and thus normally holds the plunger catch L in the slot G, in position to retain the plunger H in place at the inner end of the plunger tube A.

With the parts above enumerated in this normal position, the operation of threading the shuttle is as follows:—

The operator, holding the shuttle in his right hand with his left hand draws the filling from the cop T into the slot C′, across the finger plate K and into the notch C^3, and then depresses the finger plate K with the forefinger of his right hand. This draws the filling down into the slot C and at the same time removes the catch L from the tube A, releasing the plunger H.

Then the operator jerks the shuttle sharply to the left, checks it, and thereupon the inertia of the plunger H drives it to the

eye end of the tube A, carrying with it the filling, which is engaged by the notch H^2 in the extension bar H′, which, when the plunger H has made its full throw, protrudes slightly outside the mouth of the porcelain eye B (see Fig. 4). Since the filling lies along the slot J in the finger plate, the right forefinger of the operator does not bear on the filling, which can therefore draw into the tube A from the running end as well as from the cop. The channels formed by the ribs or corrugations D′ receive both parts of the filling; the plunger H is therefore left as free as possible to carry the loop of filling to the mouth of the eye B, when the operator picks it out with his left hand, and the threading is done. Then, still holding his right forefinger on the finger plate K, the operator jerks the plunger H back against the pin P, releases the finger plate R, allowing the spring M to return the plunger catch L to place in the slot G. After a little practice, any operator can thread his shuttle in much less time than is required for any other method known to us.

The threading devices above described obviously supersede the old and unsanitary method of sucking the filling through the shuttle eye. But habit is strong, and the proverbial conservatism of mill hands will doubtless constrain many, who have become accustomed to the old method of sucking the filling through the shuttle eye, to ignore the mechanical threader and attempt to thread our improved shuttle by sucking the filling through the eye. For the purpose of defeating this, we provide the vent hole F and the air channel F′ between the slot C and eye B. This air passage is made so large that all an operator can do is to suck air through the holes F and F′, without stirring the filling. After losing time with a few such attempts, the operator will handle the improved shuttle as he should.

The porcelain pin E takes the turn of the filling and protects the metal tube A from being cut by the filling during weaving.

The slot C is narrow, and when the filling tends to balloon, the sides of the slot C′ engage the filling, check ballooning, and produce a proper tension on the filling itself, obviating the necessity for providing shuttles (as is frequently the case) with two supplemental eyes for leading the filling into and out of the shuttle.

The inner end of the porcelain eye B serves as a stop for the plunger H, limiting its outward throw. The elliptical cross section of the tube A is best shown at D, Fig. 7.

The functions of the several operating parts above described are as follows:

That of the elliptic tube A, is to serve as a slideway for the plunger H, and prevent the plunger from turning on its longitudinal axis.

That of the plunger H, is to furnish mass and inertia wherewith to carry the filling to the outer end of the shuttle eye, without the employment of any mechanical propelling parts, and to carry the plunger itself back to normal position, without the employment of any reverse-propelling parts, such as a spring and mechanical connections.

That of the catch L is to hold the plunger H in its normal resting place at all times when the plunger is not required for shuttle-threading.

That of the finger plate K is to remove the catch L from its plunger holding position; that of the spring M, to return and hold the catch L to plunger holding position; that of the slot J, to prevent the finger of the operator from binding the filling while depressing the finger plate.

That of the slot C, to admit the filling to the tube A so that the notch H^2 of the extension bar H′ will engage it.

That of the extension bar H′ with its notch H^2, to engage and protrude the filling from the side of the shuttle.

That of the slot C′, to guide the filling into the slot C while threading, and to produce tension on the filling and prevent ballooning, while weaving is being done.

That of the porcelain pin E, to resist wear by the passage of the filling during weaving, and to protect the tube A against cutting by the filling.

That of the vent hole at F and F′, to baffle ill-advised attempts to suck the filling through the eye B in the old way.

What we claim and desire to secure by Letters Patent is:

In a threading device for loom shuttles, the combination of a plunger-tube placed transversely in the shuttle, opening at one side of the shuttle, and provided with a slot for introducing filling thread, a movable slotted finger plate mounted in the shuttle adjacent to the slot in the plunger-tube, a spring normally stressing the finger plate upward, and a plunger, freely movable in the tube and adapted by virtue of its mass alone to protrude the thread at the end of the tube when the shuttle is jerked sidewise.

Signed by us at New Bedford, Massachusetts, this 12th day of January, 1915.

EDWARD H. CARTER.
WILLIAM H. SELLEY.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."