No. 649,141. Patented May 8, 1900.

H. G. RAWLINGS.

LOOM SHUTTLE.

(Application filed June 7, 1899.)

(No Model.)

Fig. 1

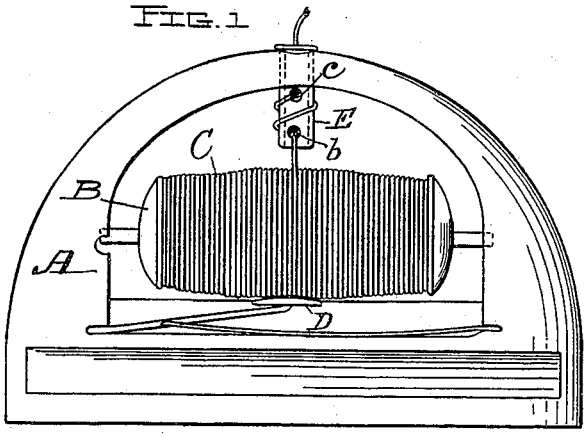


Fig. 2.

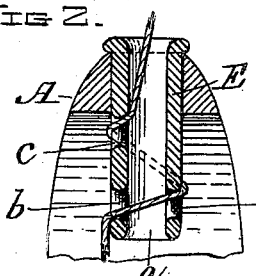


Fig. 3.

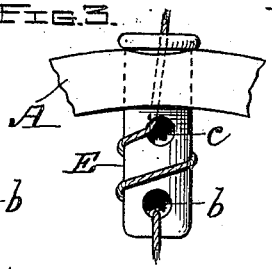


Fig. 4.

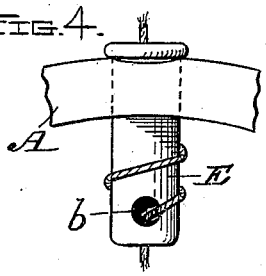


Fig. 5.

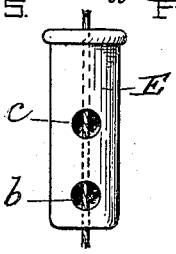


Fig. 6.

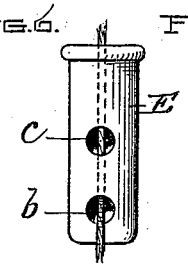


Fig. 7.

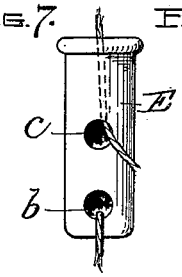


Fig. 8.

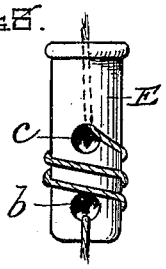


Fig. 9.

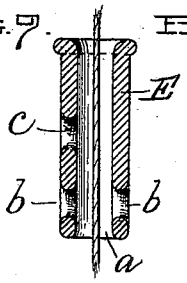


Fig. 10.

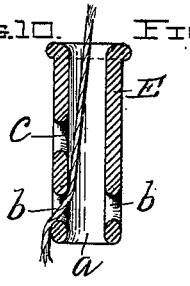


Fig. 11.

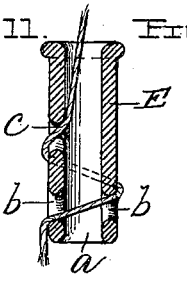
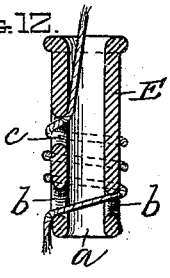


Fig. 12.



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Inventor;
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By A. A. Barker. Att'y.

UNITED STATES PATENT OFFICE.

HAROLD G. RAWLINGS, OF WORCESTER, MASSACHUSETTS.

LOOM-SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 649,141, dated May 8, 1900.

Application filed June 7, 1899. Serial No. 719,662. (No model.)

To all whom it may concern:

Be it known that I, HAROLD G. RAWLINGS, of the city and county of Worcester, in the State of Massachusetts, have invented certain new and useful Improvements in Loom-Shuttles; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a side view of a bow-shuttle for weaving tape, ribbon, or other narrow fabrics with my improvement applied thereto. Fig. 2 is an enlarged transverse section through the center of the bow of said shuttle and a central longitudinal section through my improved shuttle-eye hereinafter described. Figs. 3 and 4 are a front and back view, respectively, of said shuttle-eye and part of the bow of the shuttle; and Figs. 5 to 8 and 9 to 12, inclusive, represent side views and central longitudinal sections, respectively, through the shuttle-eye, showing the weft passed through the same in different ways to vary the tension thereof, as will be hereinafter more fully described.

My invention relates more particularly to what are commonly known as "bow-shuttles," used on wide looms for weaving tape, ribbon, and similar narrow fabrics, but is also applicable to ordinary narrow-loom reciprocating shuttles.

The object thereof is to provide an eye whereby a variable tension of the weft may be obtained in drawing the same from the bobbin through said eye; and it consists in combining with the old parts of the shuttle an eye made cylindrical in form, with a central longitudinal opening therethrough, and also having transverse holes substantially in alinement through both sides of its inner end and a transverse hole through one side only located between said inner transverse holes and the outer end of the eye, through which the weft may be passed in different ways to vary the tension thereof as it is drawn from the bobbin, as will be hereinafter more fully set forth.

To enable others skilled in the art to which my invention appertains to better understand the nature and purpose thereof, I will now proceed to describe it more in detail.

In the drawings, A represents the body or frame of an ordinary bow-shuttle for use in weaving narrow fabrics, as aforesaid.

B is the bobbin, upon which the weft C is wound. D is the usual spring friction-pad employed for producing a friction upon said bobbin and weft, and E is my improved eye for guiding the weft from the bobbin and shuttle and whereby a variable tension may be imparted to said weft, as previously stated. Said eye E is made in cylindrical form, with a central longitudinal opening *a* therethrough, both ends being open. It also has formed therein two transverse holes *b b*, substantially in alinement near its inner end, and a transverse hole *c* through one side only, located between said inner holes *b b* and the inner side of the shuttle-bow, when the eye is fitted in position, as is shown in Figs. 1 to 4, inclusive, of the drawings. The object of thus forming the eye is to admit of the weft being passed from the bobbin through the same in different ways, so as to vary the tension thereof. This feature is of the utmost importance, for the reason that one size of weft for certain kinds of goods being woven require a different tension from that of other wefts for other different kinds of goods, and therefore it is essential in order to properly weave said goods to vary said tension to conform to the weft and goods being woven, which result I am able to accomplish in a simple and effective manner by the use of my improved shuttle-eye E in the following manner: Assuming that a very fine weft-thread is to be used in weaving a thin light class of goods and no tension is required above the usual tension produced by the spring friction-pad D previously described, the weft C is passed straight through the longitudinal opening *a* in the eye, as is shown in Figs. 5 and 9, whereas if a little stronger tension is required for a heavier weft and grade of goods the weft may be passed in from the outside through one of the end transverse holes *b* and thence out through the central opening *a*, as is shown in Figs. 6 and 10, or if a still stronger tension is required the weft may be passed from the outside through both of the trans-

verse holes *b b*, thence half around over the outside surface of the eye, then through the transverse hole *c* into the eye, and out through the central longitudinal opening *a*, as is shown in Figs. 7 and 11. Still stronger tensions may be obtained by repeating the last-described method of passing the weft through the eye, except that instead of making only a half-turn around over the outer surface of the eye it may be wound one or more turns around the same, as is indicated by Figs. 1, 2, 3, 4, 8, and 12. It is therefore obvious from the foregoing description and drawings that practically an unlimited tension may be obtained by the simplest possible manipulation of the weft in passing it through the eye, from the slightest tension to one which would require a strong weft to draw the latter forward without breaking.

I am aware that it is not broadly new to produce a tension on the weft by means of a specially-constructed shuttle-eye through which said weft is passed; but I am not aware that a shuttle-eye has heretofore been employed whereby the tension of the weft may be varied at will from the slightest to the strongest tension, as in the present instance, by simply passing said weft through in different ways without any change in the construction of said eye.

It will of course be understood that the number of transverse holes *b b c* may be varied as circumstances require without departing from the principle of my invention.

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

1. In a loom-shuttle, a tension device comprising a tubular-shaped eye having open ends and holes therethrough for the passage of the weft longitudinally and transversely to produce varied tensions of said weft, substantially as set forth.

2. The frame, bobbin, spring and friction-pad of a shuttle, in combination with a tension device comprising a tubular-shaped eye having open ends and holes therethrough for the passage of the weft longitudinally and transversely to produce varied tensions of said weft, substantially as set forth.

HAROLD G. RAWLINGS.

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