Aug. 6, 1929. A. CEDERLUND ET AL 1,723,921

SELF THREADING SHUTTLE

Filed Nov. 10, 1927

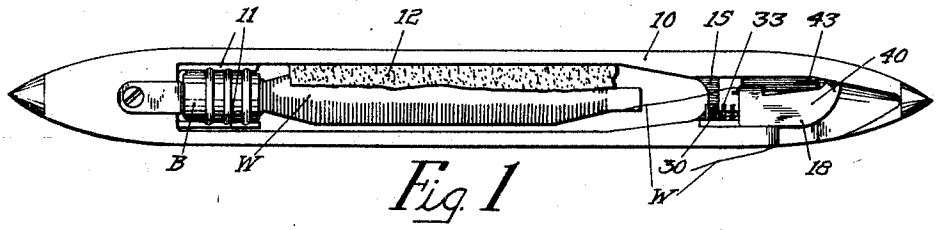


Fig. 1

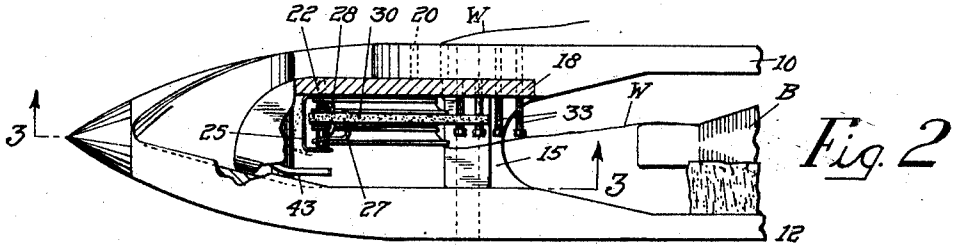


Fig. 2

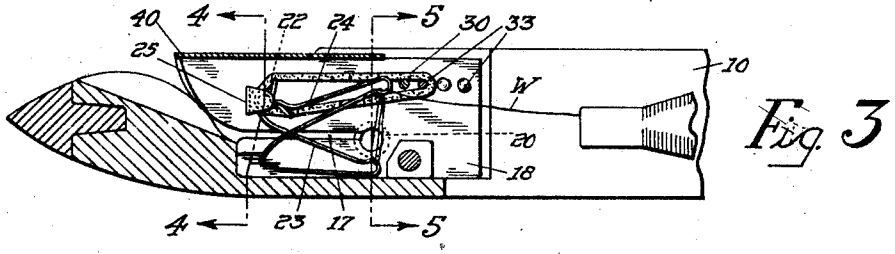


Fig. 3

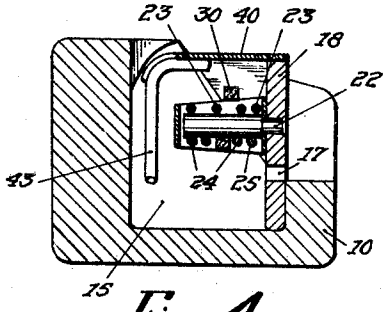


Fig. 4

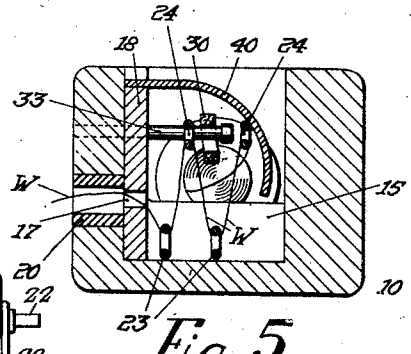


Fig. 5

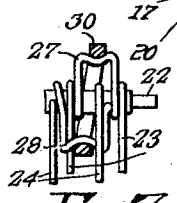


Fig. 7

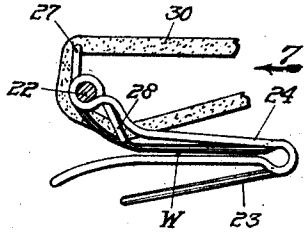


Fig. 6

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Patented Aug. 6, 1929. 1,723,921

UNITED STATES PATENT OFFICE.

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SELF-THREADING SHUTTLE.

Application filed November 10, 1927. Serial No. 232,433.

This invention relates to a self-threading shuttle particularly designed for use in an automatic weft replenishing loom using silk weft or other fine filling.

It is the general object of our invention to provide an improved form of self-threading shuttle eye and to provide improved means for tensioning the weft and for taking up slack weft, thereby preventing kinks or snarls. Unless such tensioning and take-up mechanism is provided, great difficulty is encountered in weaving silk or similar fine weft.

We have also provided improved means for placing tension on two separate weft-engaging tension arms by the use of a single resilient tensioning member.

Our invention further relates to certain arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

An improved form of the invention is shown in the drawings in which

Fig. 1 is a plan view of a shuttle embodying our improvements;

Fig. 2 is an enlarged partial plan view, reversed in direction, and having certain parts of the shuttle eye broken away to disclose parts concealed thereby;

Fig. 3 is a sectional side elevation, taken along the line 3—3 in Fig. 2;

Figs. 4 and 5 are transverse sectional elevations, taken along the lines 4—4 and 5—5 in Fig. 3;

Fig. 6 is an enlarged side elevation of certain parts; and

Fig. 7 is a detail view, looking in the direction of the arrow 7 in Fig. 6.

Referring to the drawings, we have shown a shuttle having a body portion 10 with spring jaws 11 to receive the butt of a bobbin B in the manner customary in self-threading shuttles. The weft W on the bobbin is engaged by a strip of fur 12 to prevent the weft from unwinding until drawn therefrom by the operation of the loom.

The delivery end of the shuttle is provided with a recess 15, extending longitudinally of the shuttle and having its open end communicating with the open interior of the shuttle body 10. The shuttle is also provided with a laterally disposed slot aligned with a similar slot 17 in the side wall of the frame 18 on which the tension members are mounted. At its rear end the slot 17 communicates with an eye 20 which may be of metal, porcelain or other suitable wear-resisting material.

The frame 18 is provided with a stud 22 on which a pair of tension arms 23 and 24 are pivotally mounted. A retaining clip 25, (Fig. 2) is provided which may be pushed forward when the tension members are to be placed on or removed from the stud 22. The clip 25 normally occupies the position shown in full lines in Fig. 2, thereby preventing displacement of the members 23 and 24.

Each tension member comprises two rearwardly extending arms joined together by connecting portions 27 and 28 respectively, said portions being disposed adjacent the pivot 22 and being positioned for engagement by the single elastic band or cord 30, which may preferably be formed as a continuous loop having one end extending around the front side of the pivot 22 and engaging the arms 27 and 28 and having its opposite ends mounted on a selected one of a series of pins 33 in the frame 18. These pins thus provide different degrees of tension for the tension members 23 and 24.

The arms 27 and 28 are offset in their middle portions as shown in Fig. 7 to provide seats for the band 30 and to prevent sidewise slipping thereof.

Each tension member further comprises a pair of rearwardly extending arms and each arm has a forwardly extending end portion, thus providing a loop at the rear end of each arm. The normal position of the parts is as shown in Figs. 3 and 5, with the end portions of the arms of the member 24 crossing the main portions of the arms of the member 23.

The connecting portion 28 of the member 24 extends upwardly, as indicated in Fig. 6, and the connecting portion 27 of the arm 23 extends downwardly. The tension of the band 30 thus acts to normally move the tension members apart to the position shown in Fig. 3.

A guard plate 40 is mounted on the frame 18 and extends over the tension arms and

down along the inner side of the shuttle eye as indicated in Fig. 5. A portion of the guard plate 40 is cut away as indicated in Fig. 1, and a guard wire 43 is provided to guide the weft downward past the tension members 23 and 24.

As the shuttle begins its return flight, the weft end is drawn into the front end of the slot 17 and is then drawn backward across the crossed portions of the tension members, which move towards each other to the relative positions shown in Fig. 6, where the weft W is shown as partially inserted between the tension members.

The weft will finally be drawn by the flight of the shuttle to the position indicated in Figs. 2 and 5. Whenever the tension on the weft is thereafter released, the members 23 and 24 will be moved apart by the elastic cord 30, taking up the slack in a series of zig-zag loops as shown in Fig. 5.

When the tension is again applied to the weft, the arms are moved towards each other to release the strain, thus placing them in a position to again take up the slack when the tension is again released. We thus provide an extremely simple construction having only two moving parts, both on the same pivot and actuated by the same tension element. Our threading mechanism is extremely reliable in operation, and misthreading rarely happens when our improved shuttle eye is used.

Having thus described our invention and the advantages thereof, we do not wish to be limited to the details hereinafter disclosed otherwise than as set forth in the claims but what we claim is:—

1. A self-threading shuttle having a shuttle body with a threading recess at one end thereof and a threading slot at the side of said recess, a pair of tension members mounted in said recess on a common pivot above said delivery slot and having thread-engaging portions extending longitudinally from said pivot, and means to tension each of said members to take up slack thread.

2. A self-threading shuttle having a shuttle body with a threading recess at one end thereof and a threading slot at the side of said recess, a pair of tension members mounted in said recess on a common pivot above said delivery slot and having thread-engaging portions extending longitudinally from said pivot, and means to tension each of said members to take up slack thread, said latter means comprising a single resilient element engaging both of said tension members and tensioning the weft by swinging movement of said members about said pivot in opposite directions.

3. A self-threading shuttle having a shuttle body with a threading recess at one end thereof and a threading slot at the side of said recess, a pair of tension members mounted in said recess on a common pivot above said threading slot, said longitudinally extending portions each comprising loop elements through which the weft is threaded, and means to tension each of said members to take up slack thread.

4. A self-threading shuttle having a shuttle body with a threading recess at one end thereof and a threading slot at the side of said recess, a pair of tension members mounted in said recess on a common pivot above said delivery slot and having thread engaging portions extending longitudinally from said pivot, and means to tension each of said members to take up slack thread, said latter means comprising a single resilient element engaging both of said tension members and tensioning the weft by swinging movement of said members about said pivot in opposite directions.

5. A self-threading shuttle having a shuttle body with a threading recess at one end thereof and a threading slot at the side of said recess, a pair of tension members mounted in said recess on a common pivot above said delivery slot and having portions extending longitudinally from said pivot, said longitudinally extending portions each comprising loop elements through which the weft is threaded and means to tension each of said members to take up slack thread, said latter means comprising a single resilient element engaging both of said tension members and tensioning the weft by swinging movement of said members about said pivot in opposite directions.

In testimony whereof we have hereunto affixed our signatures.

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ALLAN S. HUTCHINS.