

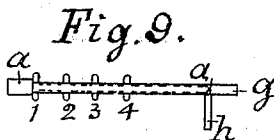
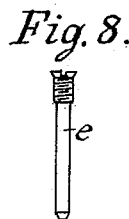
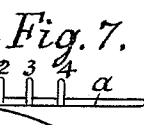
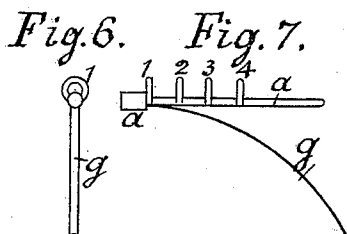
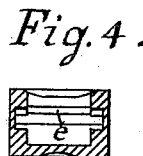
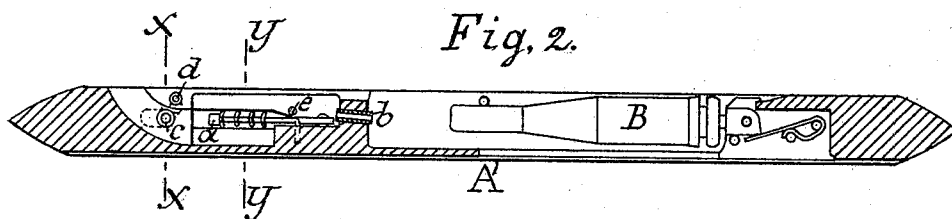
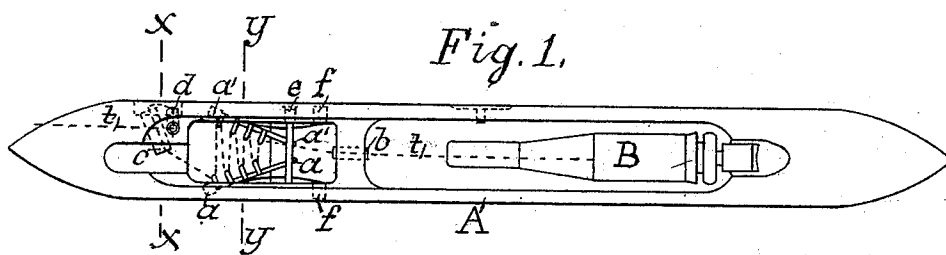
No. 624,670.

Patented May 9, 1899.

J. NUVER.
SHUTTLE TENSION DEVICE.

(Application filed Nov. 14, 1898.)

(No Model.)



WITNESSES:

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OF SAME PLACE.

SHUTTLE TENSION DEVICE.

SPECIFICATION forming part of Letters Patent No. 624,670, dated May 9, 1899.

Application filed November 14, 1898. Serial No. 696,393. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH NUVER, a citizen of the United States of America, and a resident of the city of Paterson, county of Passaic, and State of New Jersey, have invented a new and useful Improvement in Shuttle Tension Devices, of which the following is a specification.

The object of my invention is to provide a tension device for loom-shuttles which will be simple in construction, cheap and durable, and which will facilitate the regulation of the tension on the thread as it is taken from the quill, insuring an even and uniform distribution of the filling and secure the accurate binding of the cloth in weaving, especially in weaving silk goods.

My invention consists in certain features of construction and in the combination, with the shuttle constructed as herein shown and specified, of tension fliers and springs and screws to regulate the tension of the springs, all of which will be hereinafter described, and shown in the drawings, which form a part of this specification.

In the drawings, Figure 1 is a plan of the device. Fig. 2 is a longitudinal section of the same. Fig. 3 is a cross-section of the shuttle on the line $x x$, showing the location and arrangement of the eyes through which the thread passes to the loom. Fig. 4 is a cross-section of the shuttle on the line $y y$, the recess in each side of the shuttle for the springs, and a screw passing transversely through the sides of the shuttle to prevent the tension-springs and fliers from rising out of their places. Fig. 5 represents a round-headed screw, or, rather, round-ended, which is used to press against the free end of the tension-spring and to regulate the tension thereof. Fig. 6 is an end view of the tension spring and flier combined. Fig. 7 is a top view of the same when in position. Fig. 9 is a side view of the same, showing the end of the flier bent down at right angles with the main stem thereof; and Fig. 8 is the screw that holds the tension spring and fliers down in the shuttle.

My shuttle has a bridge, through the central portion of which is located the eye b , and in the end of the shuttle is obliquely lo-

cated another eye c and an upwardly-slanting eye d , for the purpose of conducting the thread in a direct line from the quill B through the eye b , through the rings 1, 2, 3, and 4 of the tension-fliers $a a'$, alternately, through the eye c , the entrance to which is in a direct line with the eye b and the quill B , and to the loom through the eye d .

As shown in Figs. 6, 7, and 9, a tension spring g is secured to the swinging end of the fliers a on one side thereof, and on the other side of the fliers are the rings 1, 2, 3, and 4. The ends of the fliers are bent at right angles, as shown in Fig. 9, so as to be pressed down in the bottom of the shuttle, as is shown in Fig. 2, thus swinging laterally, and the shuttle is provided with a recess on each side of its interior to receive the tension-spring and the end of the fliers, as is shown in Figs. 1, 2, and 4. When so placed in position in the shuttle, the tension spring and fliers are prevented from rising therefrom by the screw e , as shown in Fig. 1. The tension-spring g is much longer than the arm of the fliers a , as is shown in Figs. 1, 2, 7, and 9, and is adapted to press against the side of the shuttle. Through an opening in each side of the shuttle a screw f passes and is screwed until it engages the tension-spring; pressing it until the desired tension is obtained. By the proper manipulation of these screws f any degree of tension may be secured.

When the tension is regulated, there is the least possible danger of it being changed, because the pressure of the spring is against the rounded end of the screw, and the only way the tension may be released or lessened is by unscrewing the screw f . Thus by a slight turn of the screw f to the right or to the left the tautness or slackness of the thread is effected, thus obviating all the objections to fixed springs and kindred devices in which the tension is apt to be disturbed or interfered with and which requires much time to regulate.

With this description of my invention, what I claim is—

1. A shuttle-body, provided with a recess on each side of its interior adapted to receive a tension-spring and the outer end of a flier, in combination with fliers, the inner ends of

which are bent at right angles to form a pivot adapted to be pressed down in the bottom of the shuttle to permit the fliers to swing laterally, and tension-springs one end of each
5 being secured to the outer end of one of said fliers, said springs being much longer than the fliers so as to pass the bent or pivoted ends of the fliers and press against the sides of the shuttle and screws passing through the
10 sides of the shuttle and against the free ends of the tension-springs, and a screw passing transversely through the sides of the shuttle and over the tension springs and fliers, substantially as shown and described and for the
15 purposes specified.

2. In a tension device for loom-shuttles the combination with the shuttle of fliers having tension-loops at right angles to the sides thereof, the inner ends of the fliers being bent
20 downwardly at right angles to the main shank or stem thereof to form pivots to permit the fliers to swing laterally, and tension-springs, the outer end of each being secured to the outer end of one of the fliers, said springs being
25 longer than the fliers, the free ends of

the springs passing beyond the pivotal ends of the fliers and adjusting-screws passing through the sides of the shuttle to engage the free ends of said tension-springs, substantially as shown and described and for the
30 purposes specified.

3. A tension device for shuttles consisting of a flier having a main shank *a*, tension-loops 1, 2, 3 and 4 secured to one side thereof and at right angles with the main shank, a
35 pivot *h* to permit the flier to swing laterally, and formed by bending the inner end of the shank downwardly at right angles with the main body of the flier and a spring *g* one end of which is secured to the outer end of the
40 flier the other end being free and extending backwardly beyond the pivot *h* of the flier in combination with a shuttle-body and adjusting-screws *e* passing through the sides of shuttle-body and engaging the free end of the
45 tension-spring *g*, for the purposes described.

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