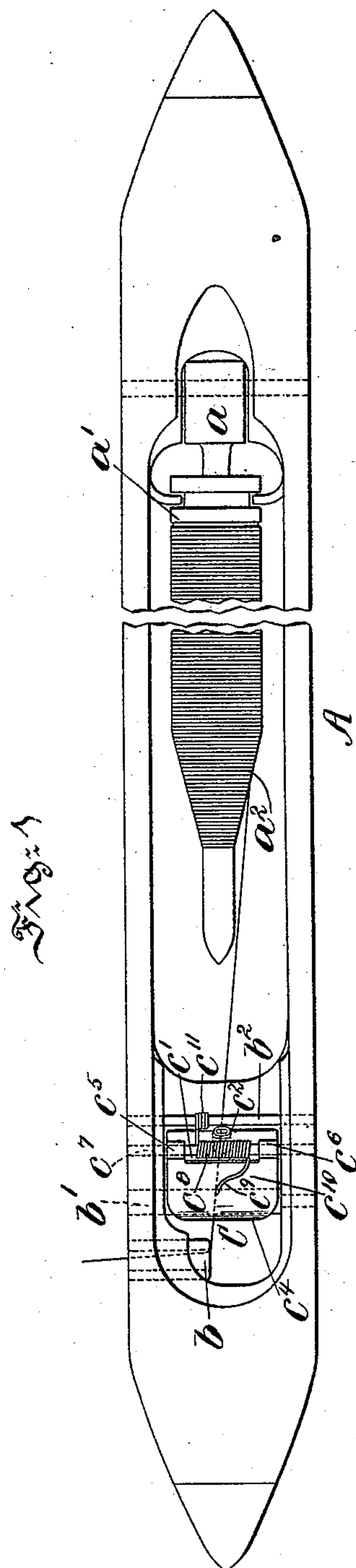


(No Model.)

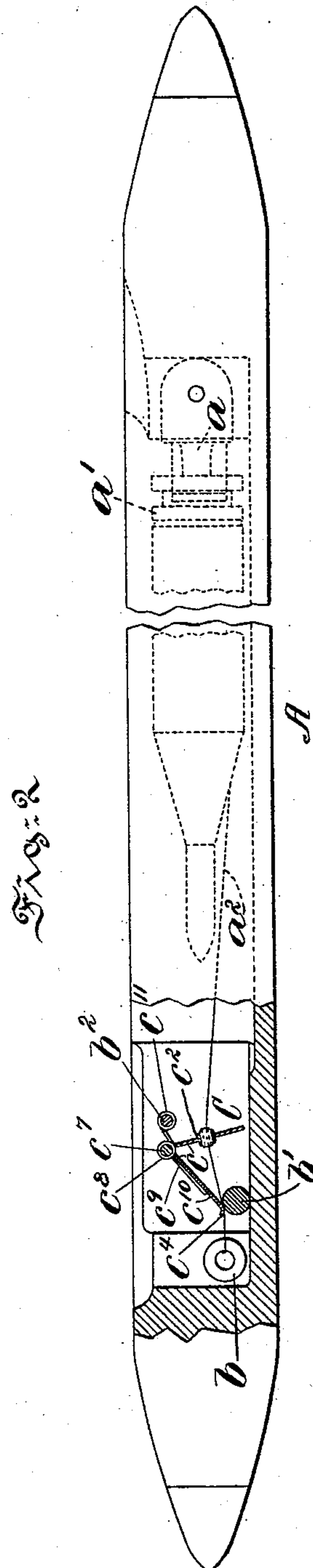
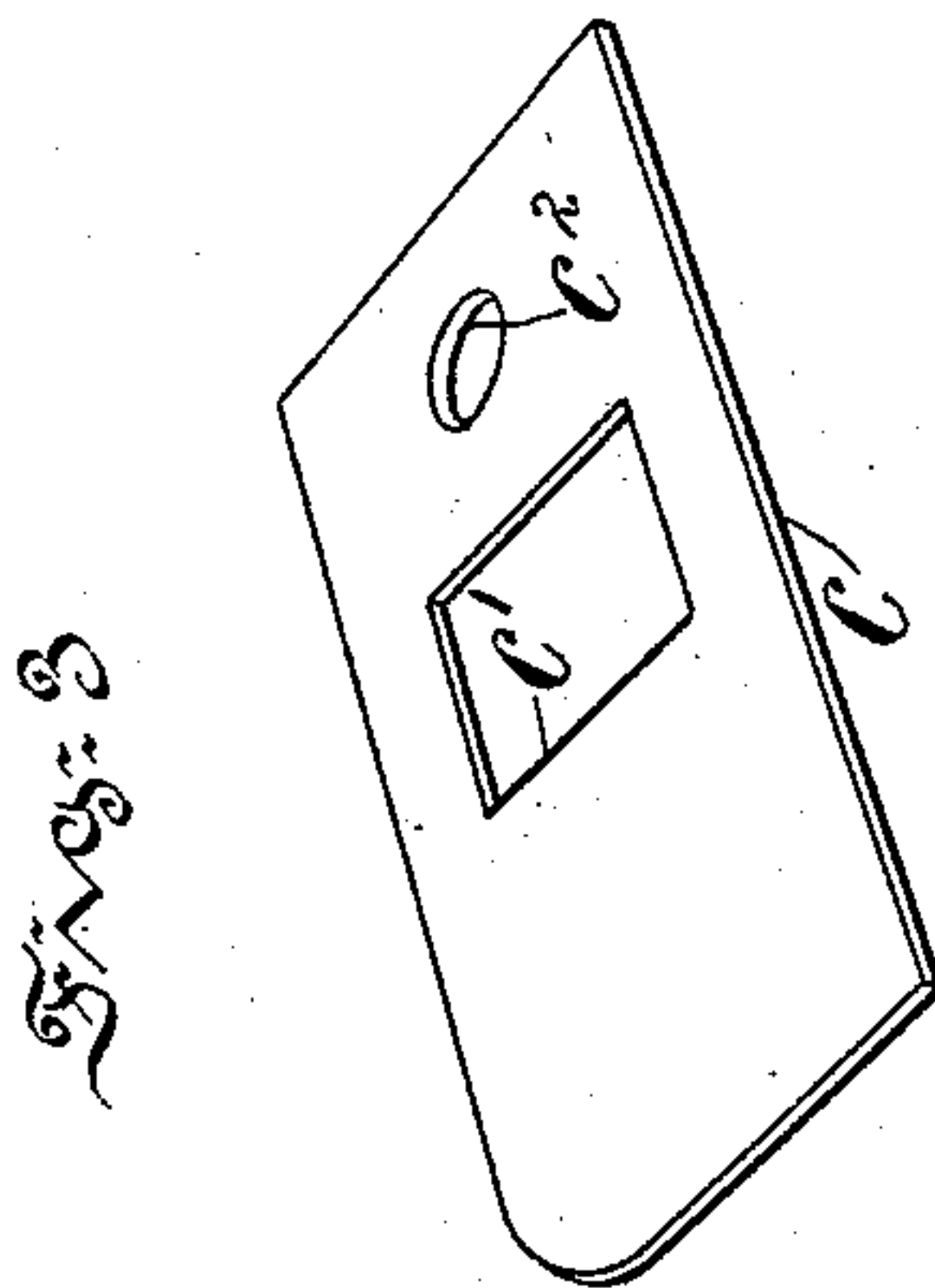
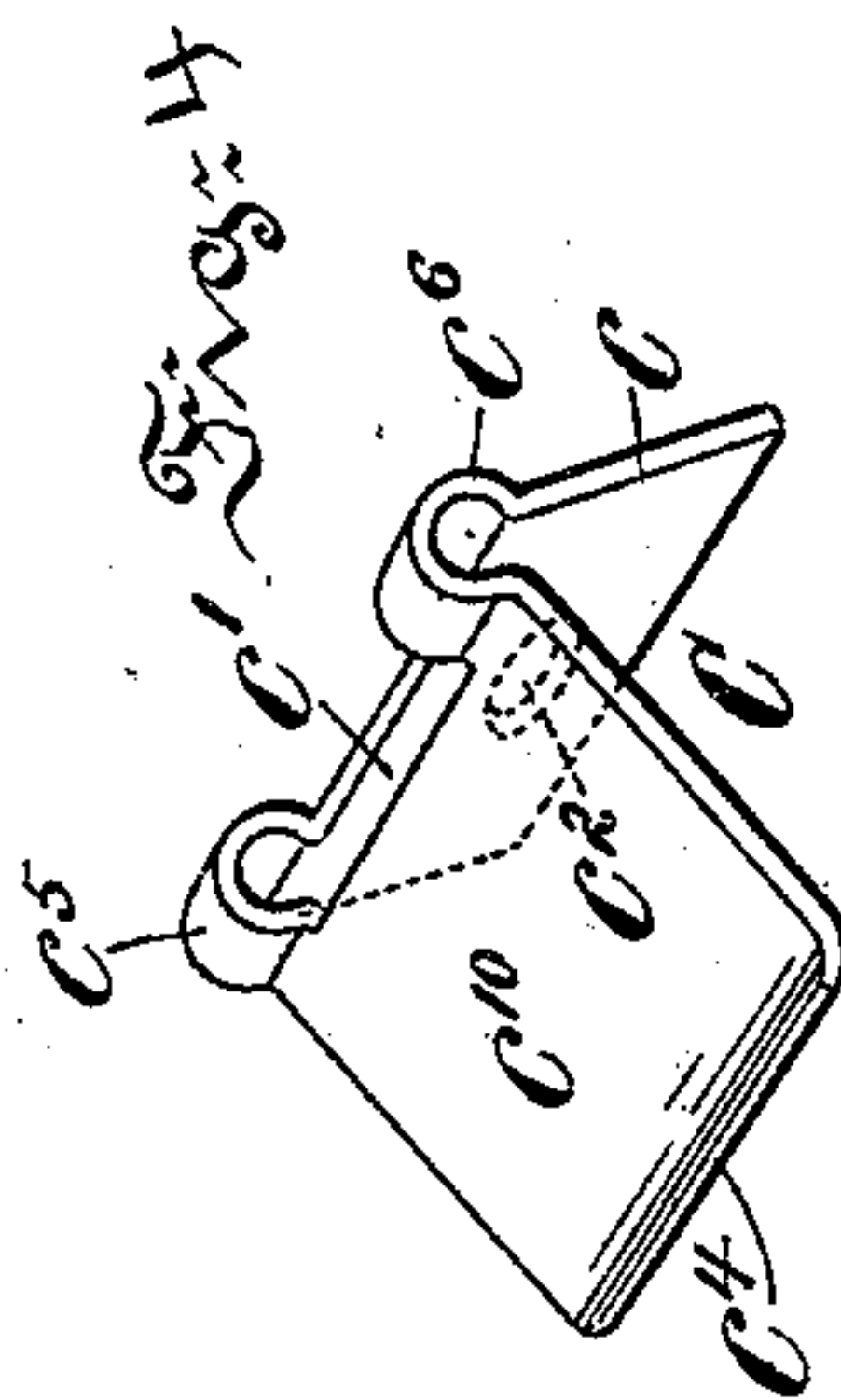
J. WILLIAMS.
GUIDE AND TENSION FOR LOOM SHUTTLES.

No. 532,512.

Patented Jan. 15, 1895.



Witnesses:
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UNITED STATES PATENT OFFICE.

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GUIDE AND TENSION FOR LOOM-SHUTTLES.

SPECIFICATION forming part of Letters Patent No. 532,512, dated January 15, 1895.

Application filed September 4, 1894. Serial No. 522,003. (No model.)

To all whom it may concern:

Be it known that I, JOHN WILLIAMS, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Thread Guides and Tensions for Loom-Shuttles, of which the following is a specification.

My invention has relation to a guide and spring controlled tension device for the thread or yarn of the quills of shuttles employed in the weaving of cotton, woolen or worsted goods; and in such connection it relates more particularly to the construction and arrangement of such a device within the body of the shuttle.

The principal objects of my invention are, first, to provide a simple, durable and effective thread or yarn guide and spring controlled tension device for employment in the body of a shuttle such as used in looms for the making of cotton, woolen and worsted goods, to prevent entanglement of the weft in its passage through the shuttle delivered thereby and afforded an ease of movement by reason thereof, so that a better weft is presented to the warp in the weaving of the fabric; second, to provide a guide and tension under the control of a spring for controlling the position thereof in the body of the shuttle and regulating and directing the thread or yarn from the quill of the shuttle in the travel of the latter and preventing jamming and entanglement as well as breaking of ends prior to the liberation thereof from the range of the shuttle; and third, to provide a guide and spring controlled tension device made from a blank piece of metal stamped or punched so as to assume the required form for the passage therethrough of the thread or yarn from the movable quill mounted in the body of the shuttle, whereby a weft is presented to the warp of the loom in such condition as to insure more even work being done and far less entanglement of the thread or yarn in the travel of the shuttle therewith for the delivery of the same to the warp of the loom for the fabrication of an article.

My invention stated in general terms, consists of a thread or yarn guide and a spring controlled tension device, constructed and ar-

ranged in substantially the manner herein-after described and claimed.

The nature and characteristic features of my invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof; and in which—

Figure 1, is a top or plan view of an ordinary shuttle such as generally employed in looms for making cotton, woolen and worsted goods, with my improved guide and spring controlled tension, shown in application thereto. Fig. 2, is a view partly in side elevation and partly in section of a shuttle, with my invention mounted therein and showing the construction and arrangement thereof. Fig. 3, is a perspective view of the blank from which is stamped or punched out the guide and tension device of my invention; and Fig. 4, is a similar view of the device detached from the shuttle.

Referring to the drawings A, is the shuttle of the ordinary construction having a spring controlled stem or staff *a*, secured in one end thereof and having mounted thereon, a quill *a'*, containing thread or yarn *a*².

b, is an eye or tube formed in the left hand end side wall of the shuttle, through which the thread or yarn is lead from the shuttle.

b', is a cross-rod secured to the walls of the shuttle, for a purpose to be presently explained. *b*², is a similar rod or pin secured in the shuttle at the end of the left hand portion of the shuttle, as clearly illustrated in Figs. 1 and 2.

C, is the guide and tension device of my invention, comprising a single strip or piece of metal recessed to form a slot *c'*, and then bent to form inclined wings *c* and *c*¹⁰, and provided with arched shoulders forming bearings *c*⁵ and *c*⁶, wherewith engages a cross-pin *c*⁷, which is secured to the side walls of the shuttle A, as clearly illustrated in Figs. 1 and 2.

The rear wing *c*, of the device is preferably made of a less length than the wing *c*¹⁰. The wing *c*, is provided with an eye *c*², for the passage of the thread or yarn therethrough. The lower extremity of the wing *c*¹⁰, is bent upward forming a lip *c*⁴, as clearly illustrated in Figs. 1, 2 and 4, adapted to bear with a friction against the thread or yarn in its pas-

sage from the quill a' , over the cross-rod b' , and preparatory to being drawn from the shuttle through the delivery eye b , thereof, as shown in Figs. 1 and 2.

5 In the recessed portion c' , of the device and around the cross-pin c^7 , is coiled a spring c^8 , one end of which c^9 , engages the surface of the wing c^{10} , as shown in Figs. 1, 2 and 4, while the other end c^{11} , engages the cross-bar
10 b^2 , whereby is obtained the required bearing pressure of the device C, on the thread or yarn a^2 , in its passage from the quill a' , after it has left the eye c^2 , and during its travel over the cross-bar b' , by frictional contact
15 of the lip c^4 , of the inclined wing c^{10} , of the device with the same. As the speed of delivery of the thread or yarn is increased by being drawn through the device, the pressure of the wing c^{10} , on the traveling thread will
20 be lessened and consequently it will be seen that a variable pressure must be presented to the thread at said point according to the speed of delivery of the same from the device.

The above pointed out function of the device
25 vice is due to the particular construction and arrangement of the parts of the same in the shuttle A, as hereinbefore fully explained.

In use the thread or yarn a^2 , is laid from the quill a' , to and through the opening c^2 ,
30 of the device C, having the inclined portion c^{10} of the same bearing on the thread previous to its passage to and through the eye b , in the side wall of the shuttle A. The opening c^2 , in the device C, serves to guide
35 the thread or yarn without entanglement

from the quill to and between the bar b' , and the lip c^4 , of the device C, which latter bears with a spring pressure upon the thread or yarn at that point in its travel and with sufficient tension so that no entanglement in
40 fact of the thread or yarn can occur in any portion of the device between the quill a' , and the delivery tube b , of the shuttle, which will be readily understood from Figs. 1 and 2 of the drawings.

45 Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination, with a shuttle provided with a thread or yarn quill and a delivery eye,
50 of a guide and spring tension device, comprising a piece of metal provided with a slot and said piece being so bent as to form inclined wings with arched bearings, whereof
55 one wing is provided with a lip and the other with a thread eye, a cross-pin secured in the shuttle and engaging said bearings, a spring coiled around said pin and having one end thereof in engagement with a wing of the device and a second cross-pin secured into the
60 shuttle and engaging the other end of said spring, substantially as and for the purposes described.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses. 65

JOHN WILLIAMS.

Witnesses:

GEO. W. REED,

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