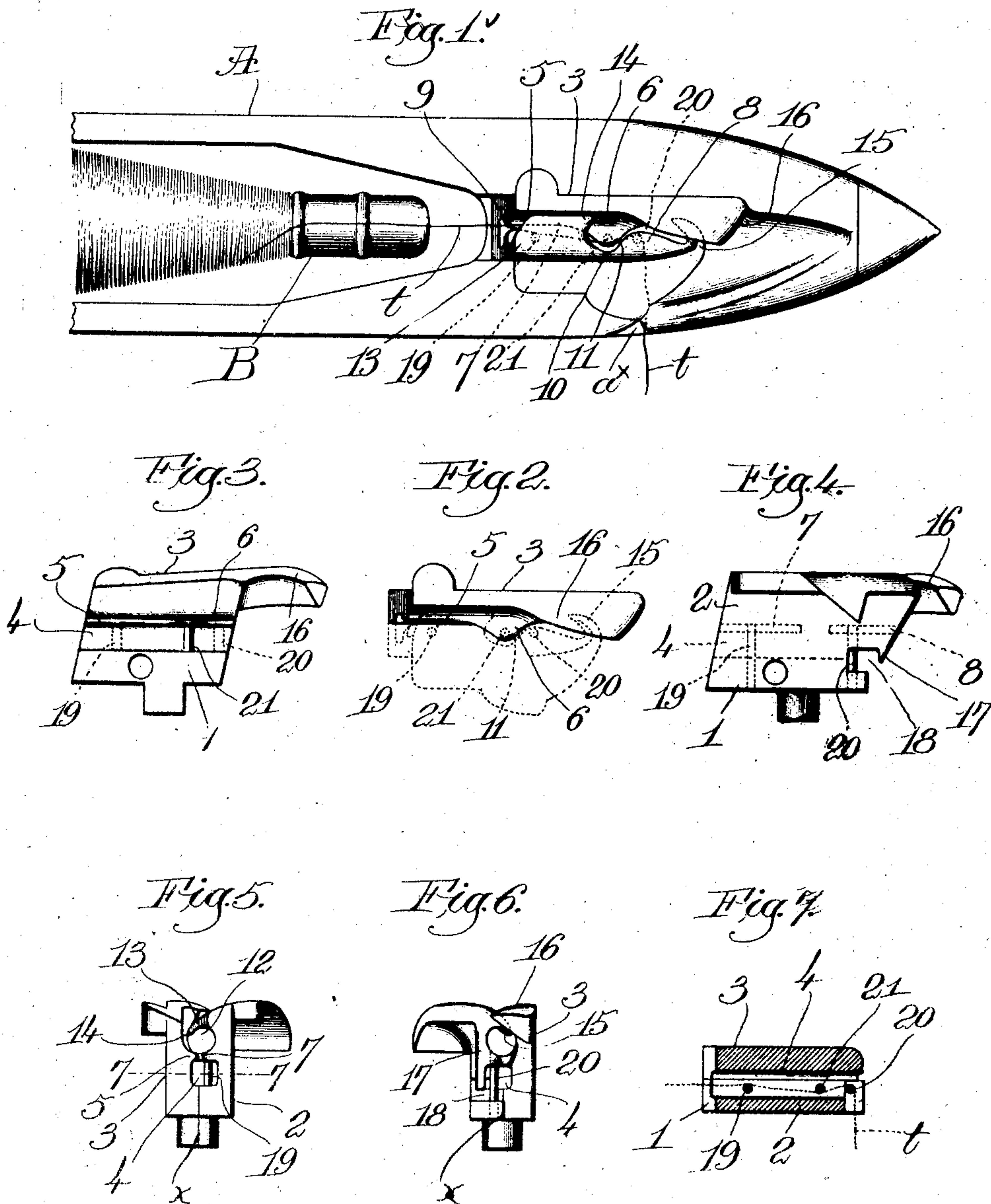


No. 835,044.

PATENTED NOV. 6, 1906.

E. S. STIMPSON.  
FILLING TENSION MEANS FOR LOOMS.  
APPLICATION FILED NOV. 15, 1905.



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# UNITED STATES PATENT OFFICE.

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## FILLING TENSION MEANS FOR LOOMS.

No. 835,044.

Specification of Letters Patent.

Patented Nov. 6, 1906.

Application filed November 15, 1905. Serial No. 287,397.

*To all whom it may concern:*

Be it known that I, EDWARD S. STIMPSON, a citizen of the United States, and a resident of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Filling Tension Means for Loom-Shuttles, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of novel means for exerting tension upon the filling-thread in a loom-shuttle, dispensing with the use of felt, flannel, spring-acting devices, or the like, all of which have heretofore been employed to exert a drag on the filling-thread as it draws through the thread-passage leading to the delivery-eye of the shuttle.

My invention is particularly adapted for use in automatically self-threading shuttles wherein the filling is changed automatically, as in the Northrop type of loom, one example of which is found in United States Patent No. 529,940. Such shuttles are provided with a self-threading device or block which is so constructed and arranged as to automatically direct the fresh filling-thread into a longitudinal thread-passage and thence to the delivery-eye of the shuttle, provision being made to prevent accidental unthreading while the shuttle is in use.

For convenience of illustration and also because of its ready adaptation thereto I have herein shown my invention embodied in a loom-shuttle having a self-threading device substantially like that forming the subject-matter of United States Patent to Northrop, No. 769,914, dated September 13, 1904.

In accordance with my invention I have provided means to frictionally engage and deflect the filling-thread from a straight path as it draws through the thread-passage, the irregular and substantially zigzag course thus imparted to the thread exerting the requisite drag or tension thereupon.

The various novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a top plan view of a sufficient

portion of a loom-shuttle and the self-threading device to be understood with one practical embodiment of my invention applied thereto. Fig. 2 is an enlarged top plan view in full lines of one-half of the threading device, the opposite side and the tension members being shown in dotted lines. Fig. 3 is an inner side view of the half of the threading device shown in full lines, Fig. 2. Fig. 4 is a side elevation of the threading device, showing the outer face of the side illustrated in dotted lines, Fig. 2. Fig. 5 is a rear end elevation of the threading device. Fig. 6 is a front end elevation thereof, and Fig. 7 is a longitudinal horizontal section on the line 7-7, Fig. 5.

The shuttle-body A, open at top and bottom to receive the filling-carrier B and having a side delivery-eye  $a^x$ , is provided at its opposite end with suitable means (not shown) to grasp and hold in proper position the head of the filling-carrier, all substantially as in said Patent No. 769,914, the front end of the shuttle-body being cut out beyond the tip of the filling-carrier to receive the threading device or block. The latter, made of metal, comprises a base portion 1, upturned sides 2 3, and a tubular longitudinal thread-passage 4, and on the inner face of the side 3 I form a longitudinal rib or ledge 5, which at its front end is broadened to present a convexed and downwardly-sloping shelf 6, overhanging the thread-passage.

A ledge 7 is formed on the inner face of the side 2 above the thread-passage, (see Figs. 1, 4, and 5), and at the front end of the thread-passage a convexed and sloping shelf 8 is provided, the two ledges 5 and 7 closely approaching each other to present a narrow straight clearance 9, forming a part of the inlet to the thread-passage. The two shelves 6 and 8 are adjacent each other, and the shelf 6 approaches a concave portion 10 in the side 2, so as to form an irregular clearance 11, which completes the inlet.

Above the ledges 5 and 7 the sides 2 and 3 are longitudinally concaved to form a species of vestibule 12, Fig. 5, above the inner end of the thread-passage, and an elongated guard 13 overhangs the straight part 9 of the inlet substantially as in Patent No. 769,914.



the front edge of the guard being shown in Fig. 1 as concaved and terminating in a forwardly-prolonged finger 14. Said finger lies very close to the sloping top of the shelf 6 and, as in the patent referred to, acts, in connection with the concaved edge of the guard, as a leader to enable the filling-thread to be properly delivered independently of the delivery-eye of the shuttle upon failure of the device to promptly thread the shuttle.

The beak 15 and shield 16 are substantially as in said patent, and the horn 17, Figs. 4 and 6, guides the thread downward into the notch 18 back of the point of the horn, when the threading is properly accomplished.

I have provided means to exert drag or tension upon the filling-thread as it draws through the thread-passage 4, said means herein comprising three upright friction members, which engage the filling-thread and deflect it from a straight path, the friction so produced causing the requisite degree of tension. To this end a pin 19 is driven upward through the base 1 into the ledge 7, and a second pin 20 is similarly driven through the base and up into the shelf 8, both of said pins being on the same side of the inlet 9 11 and at or near the ends of the thread-passage. The latter is thus reduced in width, as shown in Figs. 5 and 6, the member or pin 20 crossing the notch 18 and guiding the filling-thread as it passes out through the delivery-eye  $\alpha^x$  of the shuttle, the thread turning around the pin 20 substantially at right angle. (See Fig. 1.)

The third friction member is formed by a bar-like extension 21, depending from the shelf 6 and extending to the bottom of the thread-passage, and preferably made integral with said parts, the friction face of said member 21 being overhung by the edge of the shelf, (see Fig. 2,) so that an additional guard is provided to prevent accidental removal of the thread. Said member 21 is on the opposite side of the inlet 9 11 from the members 19 and 20, so that the filling-thread is deflected from a straight path (see Figs. 1 and 7,) as it draws through the thread-passage and travels in a zigzag manner, as shown, the friction exerted on the thread by this deflection effecting the desired tension.

When the shuttle is to be threaded, the filling-thread is normally drawn down under the guard 13 and finger 14 and, passing between the shield 16 and beak 15, enters the vestibule 12, the thread thence slipping through the straight part 9 of the inlet. The sloping shelves 6 and 8 direct the thread downward and, in connection with the horn 17, direct the thread through the irregularly-curved part 11 of the inlet into the thread-passage. As the thread passes through the inlet part 9 it is frictionally engaged by the pin 19, and when the thread passes through

the part 11 of the inlet the members 20 and 21 frictionally engage the same and complete the deflection. (Shown by dotted lines, Figs. 1 and 7.)

I prefer to make the threading device or block in two parts, separated along the line  $x$ , Figs. 5 and 6, in order to properly insert the pins 19 and 20 and to form the extension 21 of the shelf 6, thereafter uniting the parts by soldering, brazing, or in other suitable manner.

So far as my invention is concerned it is not restricted to the particular form of threading device or block herein illustrated, as other forms may be used, or the finger 14 may be omitted, thereby dispensing with the "leader" feature without interfering with the operation of my present invention.

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

1. In a loom-shuttle having a delivery-eye and adapted to contain a supply of filling, a self-threading device provided with a longitudinal thread-passage, having a narrow, irregular inlet, means to automatically direct the filling-thread through the inlet into the thread-passage and thence to the delivery-eye, upright friction members at one side of the inlet in and near the ends of the thread-passage, an intermediate member on the opposite side of the inlet and having its acting face out of alinement with the acting faces of the other two members, and a guard overhanging said intermediate member, the three members deflecting the filling-thread into a zigzag path as it draws through the said passage.

2. In a loom-shuttle having a delivery-eye and adapted to contain a supply of filling, a self-threading device provided with a longitudinal thread-passage, having a narrow inlet, and means to direct the filling-thread through the inlet into the thread-passage and thence to the delivery-eye, said means including a fixed guard overhanging the inner end of the inlet and terminating in a forwardly-extended, elongated finger crossing the inlet, and sloping shelves projecting from opposite walls of the thread-passage and forming at their adjacent edges a portion of the inlet, combined with friction members depending into the thread-passage from said guard and shoulders, to act from opposite sides upon the filling-thread when introduced into the passage and deflect the thread from a straight path, whereby said thread is subjected to tension as it draws through the thread-passage.

3. In a loom-shuttle having a delivery-eye and adapted to contain a supply of filling, a self-threading device provided with a longitudinal thread-passage, a longitudinal ledge and a sloping convex shelf on each side wall

of the passage, the ledges closely approach-  
ing each other and the shelves being stag-  
gered, whereby the clearance between said  
ledges and shelves forms a narrow and irreg-  
5 ular inlet for the thread-passage, and three  
upright friction members, extending from  
the bottom of the passage to the shelves and  
to one of the ledges, said members being lo-  
cated on opposite sides of the inlet, to engage

the filling-thread and deflect it from a straight 10  
path as it draws through the thread-passage.

In testimony whereof I have signed my  
name to this specification in the presence of  
two subscribing witnesses.

EDWARD S. STIMPSON.

Witnesses:

GEORGE OTIS DRAPER,  
ERNEST W. WOOD.