

May 4, 1937.

W. A. TEBO
SHUTTLE FOR LOOMS
Filed May 1, 1936

2,079,535

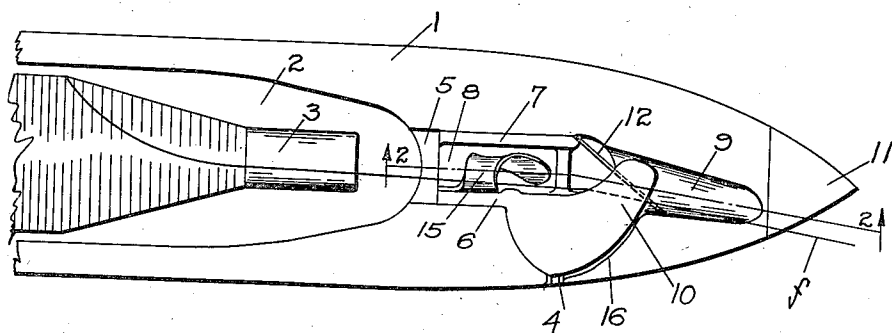


Fig. 1.

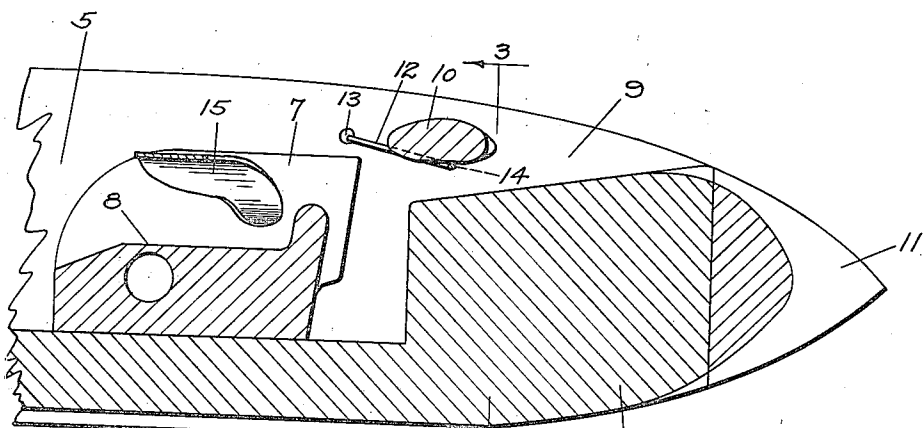


Fig. 2.

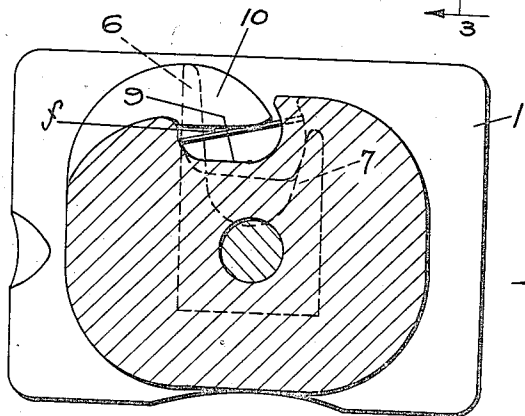


Fig. 3.

INVENTOR.
WILLIAM A. TEBO.
BY *Claude F. Snider*
ATTORNEY.

UNITED STATES PATENT OFFICE

2,079,535

SHUTTLE FOR LOOMS

William A. Tebo, Anthony, R. I., assignor to
Draper Corporation, Hopedale, Mass., a corpo-
ration of Maine

Application May 1, 1936, Serial No. 77,393

5 Claims. (Cl. 139—220)

The present invention pertains to loom shuttles, and has more particular reference to the thread delivery means of such shuttles.

Shuttles of the type mentioned are comprised of a shuttle body having a cavity for reception of a filling carrier, and thread delivery means including a delivery eye and tensioning means, in a thread passage leading from the cavity, for tensioning the running filling before it emerges from the delivery eye. Prior tensioning means have included pads, and the like, of friction material suitably placed in the thread passage for frictionally engaging the running filling. Such pads, even though possessed of a measure of resiliency, are sufficiently rigid that they cannot yield in conformity to the lateral movements of the filling thread in the thread passage, wherefore they not only wear out quite rapidly but also impart irregular or uneven tension to the filling.

It is an object of the present invention to provide, in a shuttle of the type mentioned, an improved tensioning means which shall be comprised of an elastic filament extending across the thread passage in position to support the running filling and tension the same by frictional engagement therewith, such tensioning means being inherently yieldable in conformity to the lateral movements of the filling thread.

I further propose to so adapt such an elastic filament tensioning means to an automatically threading loom shuttle in such manner as to cause the filament to tension the running filling only during the first pick of the shuttle after the transfer of a filling carrier thereto.

The aforementioned and other objects of the invention are accomplished by the construction illustrated on the accompanying drawing, of which:

Fig. 1 is a plan view of the thread delivery end of a shuttle comprising the preferred embodiment of the invention;

Fig. 2 is a view in cross-section taken approximately on line 2—2 of Fig. 1, but to a larger scale; and

Fig. 3 is a view in cross-section, taken approximately on line 3—3 of Fig. 2.

The shuttle shown on the drawing is of the automatically threading type, for use in automatic bobbin changing looms. It is comprised of a shuttle body 1 having a longitudinally extending cavity 2 for the reception of a filling carrier such as bobbin 3, and certain thread delivery means to be hereinafter described in detail. The shuttle body is provided with any con-

ventional means (not shown) by which the filling carrier is releasably held in the cavity and which permits the filling carrier to be automatically replaced by a new one whenever the filling supply becomes substantially exhausted.

The thread delivery means include a side delivery eye 4, which is formed in the front wall of the shuttle body in the usual manner, and a suitable threading block fixed in a recess 5 in the shuttle body. The particular shuttle shown being of the automatically threading type, it has a thread passage which extends from the cavity 2 longitudinally outwardly. The thread passage is delineated in part by the front and rear walls 6 and 7 and floor 8 of the threading block, and in part by the groove 9 which is formed in the shuttle body and extends longitudinally outwardly from the recess 5. The threading block is provided with a horn 10 which projects from the front of the threading block outwardly and rearwardly over the thread passage.

It may be here noted that expressions denoting direction, as herein employed, are applicable to the shuttle when the latter is considered to be positioned in a loom and boxed at the side of the loom toward which the tip 11 of the shuttle points. Thus, "forwardly" is in a direction from the top of the sheet of drawings toward the bottom thereof on Fig. 1, and "outwardly" is in a direction from the cavity 2 toward the tip 11 of the shuttle.

The shuttle shown on the drawing is provided with a tension device constructed in accordance with the present invention, the same being comprised of an elastic filament 12 which extends across the thread passage. The filament 12 is made of rubber, and may be of any suitable form in cross-section. The ends of the filament may be secured in the shuttle by being inserted into a hole into which a plug is afterwards driven, as shown at 13, Fig. 2. It will be noted that the filament 13 extends diagonally across the thread passage, i. e., from the plug 13 in the rear wall of the recess 5 outwardly and forwardly to the front wall of the groove 9. The filament is positioned above the bottom of the thread passage and passes beneath the horn 9 in proximity to the underneath surface thereof, the filament actually touching the horn at 14.

The thread passage in the shuttle extends longitudinally outwardly of the shuttle beyond the delivery eye 4 but communicates laterally therewith in the usual manner. The filament 12 is positioned above and outwardly of the shuttle from the delivery eye, wherefore the particular

filament shown acts to tension the filling only during the first pick after transfer.

In the operation of the shuttle in an automatic bobbin changing loom, a filling carrier is transferred to the shuttle when the latter is boxed as above described. The filling end *f* from the newly transferred filling carrier extends longitudinally outwardly, over the threading block to the usual fixed holder (not shown). Then, the shuttle is moved bodily rearwardly and picked in a direction toward the left, Fig. 1. As the shuttle is thus picked the filling unwinds from the filling carrier and in so unwinding swirls or balloons about. The filling will swirl rearwardly and downwardly about the rearward free end of the horn 9 and onto the elastic filament. Since the filament is inclined outwardly and forwardly, the filling running thereover will be led forwardly in the thread passage to the front thereof. Substantially simultaneously, the filling threads into the scroll 15 which is fixed in the thread passage in the threading block.

The filling as the result of the action just described has assumed its partially threaded position, that is, it extends from the filling carrier outwardly through the scroll 15 close to the front wall 6 of the threading block, and beneath the horn 10 but above the filament 12, as shown by Figs. 1 and 3. The filling assumes this partially threaded position very early in the first pick after transfer, and continues to run therein throughout the remainder of the pick. The scroll and the horn serve as guide means for holding the filling in contact with the elastic filament so that the filament tensions the filling by frictional engagement therewith. The elastic filament is stretched when it is inserted in the shuttle and is accordingly under sufficient tension to support the filling well above the bottom of the thread passage. However, the filament is sufficiently yieldable that it will permit the filling to move laterally of itself (vertically in this instance) thereby providing a very even tension.

When the shuttle has reached the end of its first flight after transfer, it is moved bodily forwardly and rearwardly and then picked in the opposite direction. Such movements of the shuttle serve to slacken the running filling, and tend to cause it to sway or twist in a manner to unthread about the rearward free end of the horn 10. In the shuttle shown on the drawing, the filling, at the end of the first pick after transfer, is positioned forwardly of the point 14 of contact between the filament 12 and the underneath surface of the horn. The filling is thereby prevented from unthreading about the horn and thus its movement through the opening 16 into the delivery eye 4 is assured.

Having fully disclosed the preferred embodiment of my invention, I claim:

1. An automatically threading loom shuttle comprising a shuttle body having a cavity for receiving a filling carrier, a threading block fixed in a recess in said shuttle body, said shuttle having a thread passage extending longitudinally through said threading block and communicating with said cavity, a filling tension device comprised of an elastic filament stretched across said thread passage above the bottom thereof, and guide means in said threading block for holding the running filling down onto said filament whereby the latter tensions the filling by frictional engagement therewith.

2. An automatically threading loom shuttle

comprising a shuttle body having a cavity for receiving a filling carrier, said shuttle body having a side delivery eye in the front wall thereof, a threading block fixed in a recess in said shuttle body, said shuttle having a thread passage extending from said cavity longitudinally through said thread passage and outwardly beyond said delivery eye, said thread passage communicating laterally with said delivery eye, and a filling tension device comprised of an elastic filament stretched across said thread passage, said filament being above said delivery eye and outwardly of the shuttle therefrom in position to support and tension the running filling only during the first pick after transfer.

3. An automatically threading loom shuttle comprising a shuttle body having a cavity for receiving a filling carrier, said shuttle body having a side delivery eye in the front wall thereof, a threading block fixed in a recess in said shuttle body, said shuttle having a thread passage extending from said cavity longitudinally through said thread passage and outwardly beyond said delivery eye, said thread passage communicating laterally with said delivery eye, said threading block having a horn which projects from the front of the threading block outwardly and rearwardly over said thread passage, and an elastic filament extending diagonally across said thread passage beneath said horn, said filament being positioned outwardly of the shuttle from said delivery eye and above the bottom of said thread passage in position to engage and tension the running filling during the first pick after transfer.

4. An automatically threading loom shuttle comprising a shuttle body having a cavity for receiving a filling carrier, a threading block fixed in a recess in said shuttle body, said shuttle having a thread passage extending longitudinally through said threading block and communicating with said cavity, said threading block having a horn which projects from the front of the threading block outwardly and rearwardly over said thread passage, and an elastic filament extending diagonally outwardly and forwardly across said thread passage beneath said horn in proximity to the underneath side of the latter, said filament supporting and tensioning the running filling during the first pick after transfer and thereafter preventing the filling from unthreading about the rearward end of said horn.

5. An automatically threading loom shuttle comprising a shuttle body having a cavity for receiving a filling carrier, a threading block fixed in a recess in said shuttle body, said shuttle having a thread passage extending from said cavity longitudinally outwardly through said threading block, said threading block having a horn which projects from the front of the threading block outwardly and rearwardly over said thread passage, and an elastic filament extending from the rear wall of said thread passage diagonally outwardly and forwardly beneath said horn to the front wall of the thread passage to thereby lead the filling thread forwardly to the front of the thread passage, said filament contacting the underneath surface of said horn to thereby prevent a filling thread positioned beneath the horn forwardly of the point of contact from unthreading about the rearward end of said horn.

WILLIAM A. TEBO.