

Jan. 18, 1938.

S. J. MAJOR

2,105,816

LOOM SHUTTLE

Filed March 8, 1937

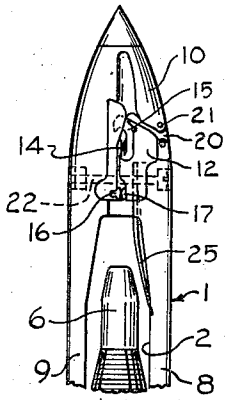


Fig. 1.

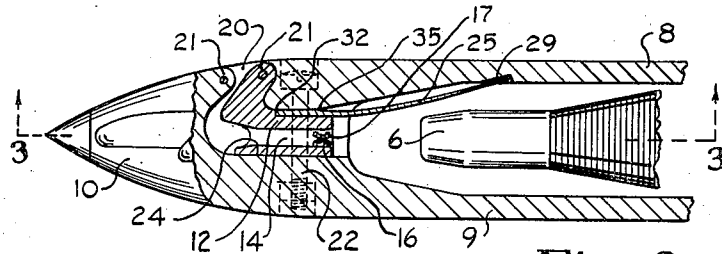


Fig. 2.

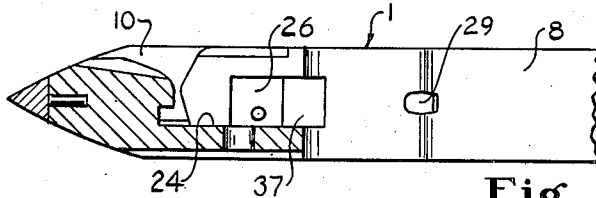
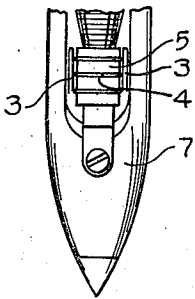


Fig. 3.

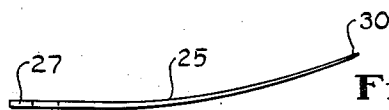


Fig. 4.

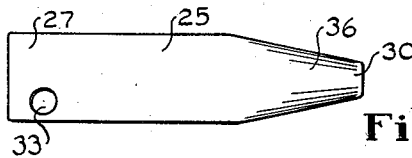


Fig. 5.

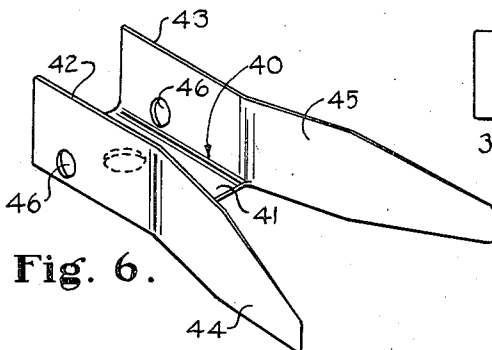


Fig. 6.

Inventor

Samuel J. Major

By

Perley H. Plant

Attorney

UNITED STATES PATENT OFFICE

2,105,816

LOOM SHUTTLE

Samuel J. Major, Providence, R. I., assignor to
Shambow Shuttle Company, Woonsocket, R. I.,
a corporation of Rhode Island

Application March 8, 1937, Serial No. 129,702

6 Claims. (Cl. 139—196)

This invention relates to loom shuttles and more particularly to a means for strengthening and reinforcing loom shuttles to prevent breakage of the shuttle body upon the failure of the replenishing means to accurately insert a bobbin when transfer takes place, or upon other defective transfer such as may be due to defects in the parts or failure of the mechanism to operate properly.

Improper transfer of the bobbin or defective bobbin or shuttle engaging means usually results in the bobbin being forced forwardly into the thread delivery end of the shuttle with considerable force on the first pick after transfer, and this wedges the bobbin between the lateral portions of the shuttle body located adjacent to the bobbin opening with such force as to break one of the lateral portions of the shuttle, generally upon that side upon which the thread delivery eye is located, and at a point adjacent to the thread delivery end portion of the shuttle.

The main object of the invention is to provide a reinforcing or supporting means for shuttles adapted to be located at the point where breakage is most likely to occur for reinforcing one or both lateral portions of the shuttle body in such a manner as to distribute the strain caused by forcing a bobbin into the thread delivery end of the shuttle and thus prevent breakage of the shuttle.

Another object of the invention is the provision of a reinforcing means for loom shuttles which is of simple construction and capable of being readily applied to shuttles now in use without substantial change or reconstruction of the shuttle.

A further object of the invention is the provision of a reinforcing means of this character adapted to be positioned within the shuttle body in such a manner as to provide a somewhat resilient reinforcement for the lateral portion of the shuttle body, which is of such a character that it will offer a certain degree of spring resistance to a bobbin forced towards the thread delivery end of the shuttle and thus cushion to some extent the shock and protect the shuttle from the shattering effect of a sudden blow of this character.

Another object of the invention is the provision of a reinforcing member of the character described comprising a portion adapted to be secured within the thread delivery end portion of a shuttle and having rearwardly extending divergent portions for protecting the spaced lateral portions of the shuttle from breakage.

Other objects and advantages of this invention relate to various improved details of construction and novel arrangements of the parts as will be more fully set forth in the detailed description to follow.

Referring to the drawing:

Fig. 1 is a top plan view of a loom shuttle showing the parts in operative position with a bobbin positioned within the usual bobbin opening in the shuttle, and illustrating the location and position of one form of reinforcing member such as may be used for the purpose of strengthening the lateral portions of the shuttle body,

Fig. 2 is a horizontal sectional view taken through a portion of the thread delivery end of the shuttle body, and showing one form of reinforcing means in its relation to the thread block and parts of the shuttle body,

Fig. 3 is a vertical sectional view taken through a portion of a shuttle as along the line 3—3 of Fig. 2, and showing the manner of shaping the reinforcing member receiving recess adjacent to the thread eye so as to provide a support for the reinforcing member and obtain a high degree of resiliency in the action of the reinforcing member when subjected to the strain of a bobbin driven into the bobbin opening adjacent to the thread delivery end of the shuttle.

Fig. 4 is an edge view of one form of reinforcing member such as may be employed,

Fig. 5 is a side elevational view of the reinforcing member shown in Fig. 4, and,

Fig. 6 is a perspective view of a modified form of reinforcing member such as may be employed, and which is adapted to provide a reinforcing means for each lateral portion of the shuttle body at points located adjacent to the thread delivery end of the shuttle body.

In the embodiment of the invention illustrated herewith 1 designates a loom shuttle of the type adapted for use in replenishing looms, provided with a bobbin receiving opening 2 extending therethrough, and having clamping jaws 3 located within one end of the opening 2 for gripping engagement with rings 4 or other suitable engaging means carried by the base 5 of a weft holder bobbin 6. The lateral portions 8 and 9 of the shuttle body located upon opposite sides of the bobbin receiving opening 2 are relatively thin to provide suitable space within the opening 2 for the bobbin 6 and the weft thread carried thereby, and connect the bobbin supporting end 7 of the shuttle body with the thread delivery end 10 of the shuttle.

Located within the thread delivery end 10 of

the shuttle is a thread block 12, usually in the form of a metal casting, provided with a vertical thread passage 14 extending throughout its length and having a suitable thread guiding surface 15 for directing the thread into position within the thread opening or passage 14 on the first pick after transfer. Suitable tensioning means 16 and 17 may be located within the thread passage 14, one or both of which may be resiliently controlled for the purpose of applying adequate tension to the weft thread. A thread delivery eye 20 may be formed in one side of the shuttle body adjacent to the thread block 12, and one or more guide pins 21 may be positioned within the shuttle body or carried by the thread block 12 for guiding the weft thread. A holding pin 22 is adapted to be passed through the shuttle body and through an opening formed in the thread block 12 to hold the thread block casting firmly in position within the recess 24 formed in the shuttle body for its reception.

The recess 24 is normally so formed that the thread block 12 fits closely therein when inserted from above, or from the top of the loom shuttle. To provide a suitable anchorage for the reinforcing member 25 a portion of the shuttle body may be cut away, as indicated at 25, to provide a seat for the forward end portion 27 of the reinforcing member 25, while a slight depression 29 may be formed in the inner face of the lateral portion 8 of the shuttle body to receive the end portion 30 of the reinforcing member.

The front end portion 27 of the reinforcing member 25 is fitted within the recess 26 formed in the shuttle body and is so positioned as to bear against one side of the thread block casting 12 while the end portion of the reinforcing member may abut against a shoulder 32 carried by the thread block 12. The holding pin 22 passes through an opening 33 formed in the reinforcing member and through a suitable opening formed in the thread block casting 12 to clamp the reinforcing member 25 firmly in position between the shuttle body and the thread block casting 12, and hold it securely against turning movement in any direction. The shape of the reinforcing member 25 is such that it is normally spaced from the shuttle body throughout a considerable portion of its extent, as from approximately the point 35 to the end portion 39 of the reinforcing member, which end portion is positioned within the slight recess or depression 29. This may be accomplished by giving the reinforcing member a slight curvature in the direction of its length and provides a considerable degree of resiliency in the reinforcing member so that when a bobbin is forced up towards the thread delivery end of the shuttle, through failure to properly engage the gripping jaws as it is brought into the shuttle, the shock of its striking and wedging between the lateral portions 8 and 9 of the shuttle located adjacent to the thread delivery end is absorbed or cushioned to a considerable extent and the strain upon the lateral portion is thereby more uniformly distributed.

The rearward part 37 of the cutaway portion 26 may be recessed somewhat deeper or inclined rearwardly from the remaining part of the cutaway portion, so that the portion of the reinforcing member located opposite thereto will be spaced slightly from the shuttle body and will not bear thereagainst to split the shuttle when a bobbin is forced into the thread delivery end of the shuttle. This also results in locating the

strain caused by pressure on the reinforcing member at the forward end of the reinforcing member 25 and closely adjacent to the holding pin 22. By reason of the holding pin 22 the forward end portion 27 of the reinforcing member 25 is clamped and held quite firmly against the thread block casting 12.

The positioning of the end 30 of the reinforcing member 25 within the slight depression 29 tends to avoid catching of the weft thread on the reinforcing member or its becoming engaged thereover as it leaves the bobbin, and the possibility of interference of the reinforcing member with the thread as it leaves the bobbin may be further minimized by beveling slightly the inner face of the reinforcing member 25 adjacent the end 30, as is indicated at 36 in Fig. 5 of the drawing.

In the form of the invention shown in Fig. 6 of the drawing there is provided a channel shaped portion 40 of metal construction comprising a base 41 and sides 42 and 43 having rearwardly extending outwardly flaring wings 44 and 45 extending therefrom and adapted to be positioned adjacent to the inner faces of the lateral portions 8 and 9 of the shuttle body when the channel shaped portion 40 is inserted in the end of the shuttle for receiving therein the base of the thread block casting 12. Openings 46 are formed in the channel shaped portion 40 for receiving the holding pin 22 passed through the shuttle and thread block casting 12 in order to hold the member 40 firmly in position and provide a support for each of the lateral side portions of the shuttle body at points adjacent to the thread delivery end of the shuttle. As is the case in the reinforcing member 25, the rearwardly extending wing portions 45 may be curved slightly throughout their lengths so as to provide means for cushioning the shock to the sides of the shuttle when a bobbin member is forced forwardly therebetween.

It is preferred that the portion or portions of the reinforcing members extending rearwardly from the thread block 12 be of a resilient metal construction in order that they may provide a cushioning effect when a bobbin becomes jammed into that portion of the shuttle opening located adjacent to the thread delivery end of the shuttle body, and a slight inwardly directed curvature of the rearwardly extending portion or portions of the reinforcing member tends to cushion somewhat the shock transmitted to the shuttle as well as to distribute the strain more uniformly.

What I claim is:

1. In a loom shuttle, the combination with a thread block secured within a recess formed in said loom shuttle, of a reinforcing member having a portion located between one side of the thread block and shuttle body and held in position therein and a portion extending rearwardly of the shuttle from said thread block and terminating in an end engaging one side of the shuttle body at a point spaced from said thread block to provide a reinforcement for that portion of the side of said shuttle body located adjacent to the thread block.

2. In a loom shuttle comprising a bobbin supporting end portion and a thread delivery end portion connected by spaced lateral portions, means for reinforcing one of said lateral portions comprising a metal plate member having one end portion secured within the thread delivery end of the shuttle and extending rearwardly therefrom in inwardly bowed relation with the interior face

of one of said lateral portions and terminating in a free end portion adapted to seat within a recess formed in the inner face of said lateral portion to provide a side reinforcement for said lateral portion at points adjacent to the thread delivery end of said shuttle.

3. A weft replenishing loom shuttle, comprising a bobbin supporting end portion and thread delivery end portion connected by spaced lateral portions, a thread block carried by said thread delivery end portion, a reinforcing plate member having one end portion engaging said thread block and a portion extending rearwardly from said thread block and terminating in a free end engageable with the interior face of one of the lateral portions of said shuttle, and securing means for retaining said thread block and the adjacent end of said reinforcing plate member firmly in position within the thread delivery end portion of said shuttle.

4. In a loom shuttle, a body comprising a thread delivery portion provided with a recess for receiving a thread block and spaced lateral portions extending rearwardly therefrom, and a reinforcing member having a channel shaped portion for receiving a portion of a thread block fitting within the thread block recess in the thread delivery portion of said shuttle body and having divergent arms extending rearwardly from the channel portion and located adjacent to the inner faces of the spaced lateral portions of said shuttle body.

5. In a loom shuttle comprising a thread delivery end portion provided with a thread block recess and having spaced side portions extending rearwardly therefrom, a thread block mounted in said recess, a separate reinforcing member having an end portion fitting within said recess and bearing against one side of said thread block and the opposite end portion of said reinforcing member extending rearwardly from said thread block and terminating in resilient engagement with one of the spaced side portions of said shuttle at a point located inwardly of the opposite end of said side portion, and means securing said thread block and the adjacent end portion of said reinforcing member in said recess.

6. In a loom shuttle comprising a thread delivery end portion provided with a thread block recess and having spaced side portions extending rearwardly therefrom, a thread block mounted in said recess, a separate reinforcing member having an end portion fitting within the said recess and bearing against said thread block and a rearwardly extending inwardly bowed portion spaced from one of the side portions of the shuttle and terminating in an end adapted to engage the inner surface of said side portion, and securing means retaining said thread block and the adjacent end portion of said reinforcing member in fixed position within said recess.

SAMUEL J. MAJOR.

30