Jan. 2, 1923. 1,440,505.

F. H. STETSON.

FRICTION FOR SHUTTLES.

FILED MAY 25, 1921. 2 SHEETS—SHEET 1.

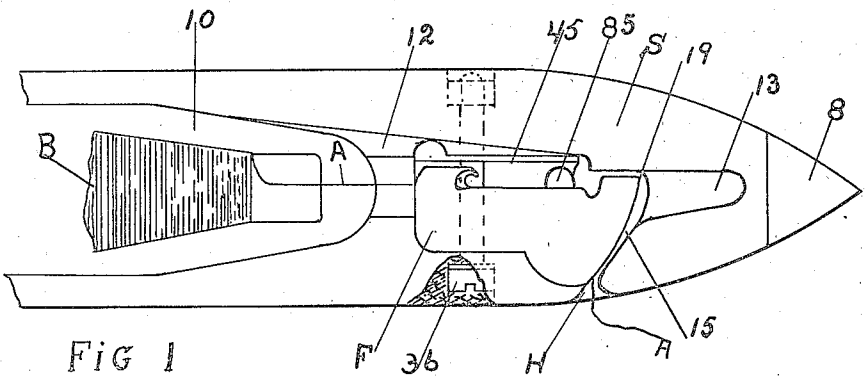

FIG 1

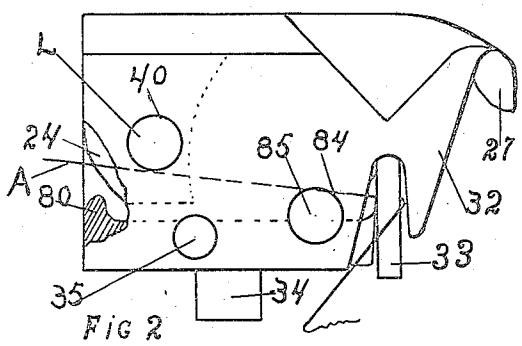

FIG 2

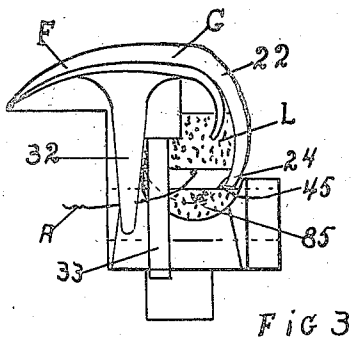

FIG 3

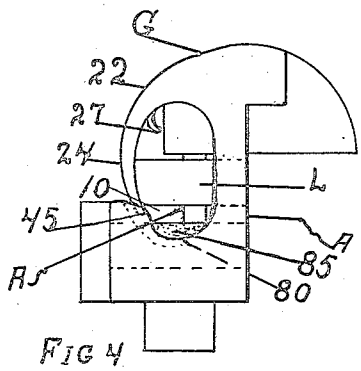

FIG 4

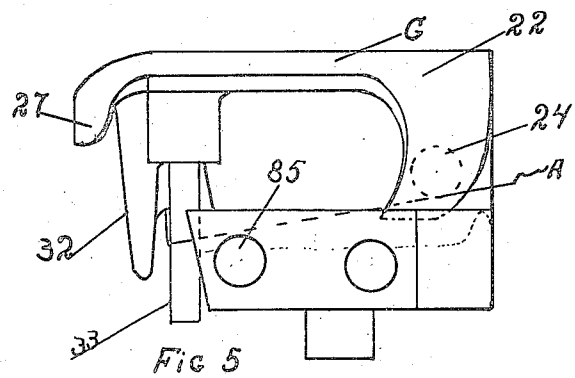

FIG 5

Frank H. Stetson INVENTOR.

BY

Gardner W. Pearson ATTORNEY.

Jan. 2, 1923. 1,440,505.

F. H. STETSON.

FRICTION FOR SHUTTLES.

FILED MAY 25, 1921. 2 SHEETS—SHEET 2.

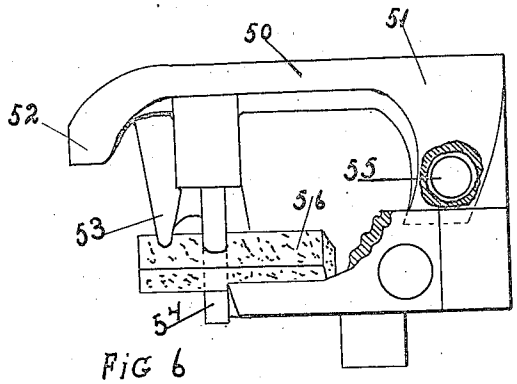

Fig 6

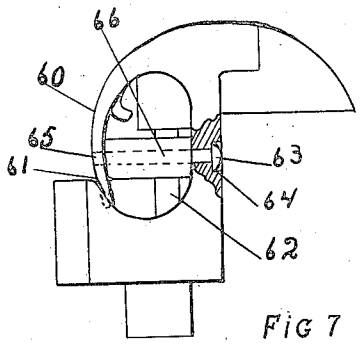

Fig 7

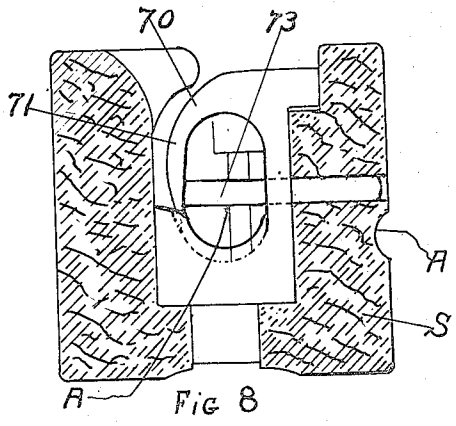

Fig 8

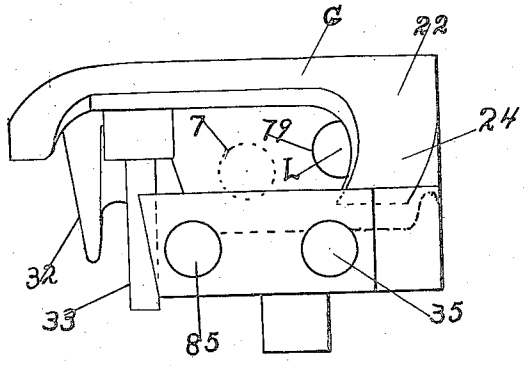

Fig 9

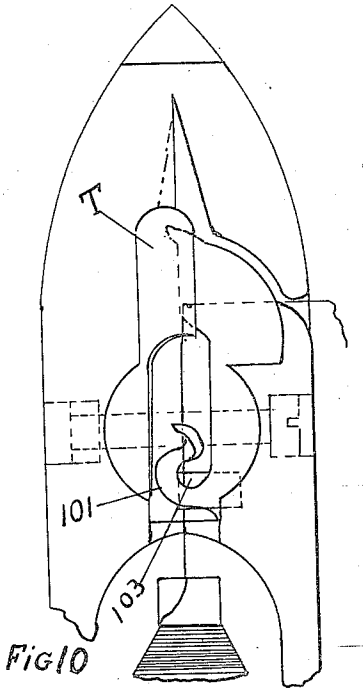

Fig 10

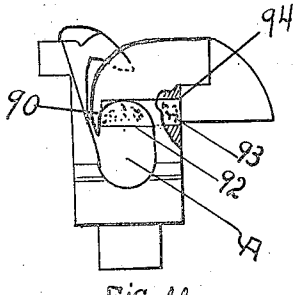

Fig 11

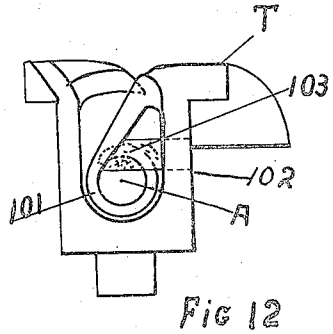

Fig 12

Frank A. Stetson INVENTOR.

BY

Gardner A. Pearson ATTORNEY.

Patented Jan. 2, 1923. 1,440,505

UNITED STATES PATENT OFFICE.

FRANK H. STETSON, OF METHUEN, MASSACHUSETTS, ASSIGNOR TO U. S. BOBBIN & SHUTTLE CO., OF PROVIDENCE, RHODE ISLAND, A CORPORATION OF RHODE ISLAND.

FRICTION FOR SHUTTLES.

Application filed May 25, 1921. Serial No. 472,364.

To all whom it may concern:

Be it known that I, FRANK H. STETSON, a citizen of the United States, residing at Methuen, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Friction for Shuttles, of which the following is a specification.

My invention is an improvement in shuttles, particularly of the self-threading type for weft replenishing looms. It is particularly adapted for those having a thread directing guide plate which extends from the top in a sloping direction into the threading chamber, and which terminates at the back in a thread retaining guide hook similar to those shown in patents to Snow, of June 29, 1920, No. 1,344,734, and of February 22, 1921, No. 1,369,306.

My invention relates particularly to a friction, preferably of felt, fibre or similar material, but which may be of wood or metal and which is preferably renewable.

This friction is located so that the yarn runs under it instead of over it, and preferably at the back of the shuttle block in position to hold the yarn down at the back.

Its purpose is not only to serve as a friction to retard the yarn as it runs from the bobbin, but it also serves to reduce the ballooning of the yarn.

In my preferred form of device there is an overhead friction at the back of the shuttle block and a friction underneath at the front thereof.

I find that my overhead friction can be most conveniently used in, and as part of, an eye block or threading block made of metal, which can be inserted and fixed in a suitable recess in a wooden shuttle in a well known manner, but I may use my overhead friction with any type of shuttle.

In the drawings, Fig. 1 is a plan view of a shuttle of the self-threading type for automatic looms with my preferred form of shuttle threader or shuttle eye block in position therein.

Figs. 2, 3, 4 and 5 are views of my preferred form of shuttle block or eye block removed from the shuttle and on a larger scale than Fig. 1, being as follows.

Fig. 2 is from the left.

Fig. 3 is from the front.

Fig. 4 is from the back.

Fig. 5 is from the right.

Fig. 6 is a view from the right, partly in section, of a slightly modified threading block with a different type of front friction.

Fig. 7 is a view from the back of a slight modification of my friction applied to my preferred form of threading block.

Fig. 8 is a sectional view as from the back showing my friction applied to a slightly modified form of threading block.

Fig. 9 is a view from the right of the threading block with a friction of my preferred type in a different location.

Fig. 10 is a plan view of a shuttle with another type of eye or threader, showing my friction applied thereto.

Fig. 11 is a view from the back showing my friction applied to still another type of threader.

Fig. 12 is a view from the back of a threading block, of the same type shown in Fig. 10, with my friction in place.

S is a shuttle of the self-threading type for automatic looms having the usual bobbin chamber 10 for the bobbin B from which the thread A is unwound, and 12 is the threading chamber which extends forward in continuation of bobbin chamber 10. 13 is the delivery passage which extends still farther forward from the threading chamber. H represents the shuttle eye in the wood, and this connects with the threading chamber 12 through the slot 15 cut away from the delivery passage 13. 8 represents the metal tip of the shuttle.

F represents a metallic threading block which is set into a recess in the wood of the shuttle and is shown as fixed therein by means of a screw 36 which passes through a hole in the wood of the shuttle and a hole 35 in the block in a well known manner. Preferably, there is also at the bottom of block F the projection 34 which fits into a recess in the wood of the shuttle.

My device is more particularly useful in connection with a certain type of threading block, such as shown at F in Figs. 1 to 9, in which there is a thread directing guide plate G which extends from the top thereof and from the top side of the shuttle, down and out at 22 into the threading chamber 12, or that part of the threading chamber, indi-

cated in Fig. 4 at 10, which is inclosed in threading block F. This threading block, preferably, has a nose 19 which extends forward of the shuttle eye outlet H and has a trapping rim 27 at the front and a thread retaining guide hook 24 at the back, together with a portion 80 which overlaps the bottom part of the guide hook 24. The metal at 45 also extends upward to a point somewhat outside the guide hook to form a locking guide. There is also a horn 32 and a front thread pin 33 of well known form.

The special novel feature of my device is the friction member L, which extends into the threading chamber at a point above the lower end of guide hook 24. This friction member L is passed through a hole 40 in the wall of threading block F, and is shown as extending to and resting against the inner side of guide hook 24, as clearly shown in Fig. 4.

This friction L is preferably of felt or fibre but may be of wood or any other material, even metal, provided it is in a position so that the yarn will run under it and, preferably, provided it is at the back part proximate the thread directing guide hook.

As shown in Fig. 2, I prefer to use another friction below and in front of plug L, shown as a similar plug 85 of felt, fibre, or other suitable material, which is passed through a hole 84 in block F. The yarn A will therefore pass under friction L and over friction 85.

As shown in Fig. 6, I may use a sloping guide plate 50 having a front thread trapping rim 52, and a back thread retaining guide hook 51 at the back, having the usual pin 54 and a horn 53 which has its bottom end slightly cut off, in connection with an overhead friction 55 at the back, similar in all respects to L, but at the front a flat pad of felt or other similar material 56 through which pin 54 passes to hold it in place. Where a very substantial drag or friction is required, it can be accomplished by using a felt plug 55 and a flat felt friction 56, between both of which the yarn A must pass.

In Fig. 7, I show an eye block 60 having a portion 65 which extends down and over into the threading chamber at 61 and having the usual thread pin 62. Through the side wall of the block is a hole 64, and through this hole is passed a headed pin 63, the end of which also enters a hole 65 in hook 61. This pin 63 passes through a core for a friction 66 which may be of felt or similar more or less unstable material.

As shown in Fig. 8, I may use an eye block 70 having a portion 71 which extends down and over into the threading chamber, with a friction member 73, shown as a steel pin, which passes through the wall of the eye block at a point opposite to said portion 71 and preferably above the lower end thereof, and also passes through the wood of the shuttle.

In Fig. 9, I show a block similar in all respects to that shown in Fig. 2 and Fig. 5 except that the hole 79 for overhead friction L is bored through the wall of the eye block at a point which is farther forward with reference to guide hook 24. The friction L and hook 24 barely touch and, in fact, as shown by the dotted circle 7, the friction plug L might be located even farther forward, although I do not consider this desirable.

As shown in Fig. 11, the eye block may have a portion 90 which extends down and over into the threading chamber to a much less degree than shown in the other views, and a friction member 92 passed through a hole 93 in a wall 94 in such position as to be over the yarn A as it passes through.

As shown in Figs. 10 and 12, I can apply my overhead friction to a shuttle eye block, such as shown at T in Figs. 10 and 12, which has at the back a helical thread guide 101. In this case I pass a friction member 103 through a suitable hole in the wall 102 of block T, so that it will strike a point on guide 101 which will be over the yarn but will not prevent the yarn from slipping around under the guide to the position shown at A in Fig. 12 where the friction will be in operation and overhead.

It is obvious that my friction may be glued in position instead of being passed through a hole in the wall of the threading block.

I claim:

1. The combination with a shuttle threader, having a longitudinal threading chamber and a thread directing guide plate which extends down and out from the top into such threading chamber, a thread directing guide hook which extends from and under the back part of the thread directing guide plate, and a locking guide which extends into the threading chamber so as to overlap the guide hook, of a friction member which extends horizontally into the threading chamber in front of the back edge and above the lower end of said guide hook to the inner surface of said guide hook.

2. The combination with a shuttle threader, having a longitudinal threading chamber, a thread directing guide plate which extends down and out from the top into such threading chamber, and a thread retaining guide hook which extends from and under the back part of the thread directing guide plate, of a friction member which extends horizontally into the threading chamber in front of the back edge and above the lower end of said guide hook to the inner surface of said guide hook.

3. The combination with a shuttle threader,

having a longitudinal threading chamber, a thread directing guide plate which extends down and out from the top into said threading chamber, and a thread retaining guide hook which extends from and under the back part of the thread directing guide plate, of a friction member which extends into the threading chamber at a point above the lower end of said guide hook and above the yarn as it unwinds from the bobbin to the inner surface of said guide hook.

4. In a shuttle, the combination of an eye block having at the back a portion which extends down and over into a threading chamber, with a friction member which passes through the wall of said eye block at a point opposite to said portion and above the lower end thereof to the inner surface of said portion which extends down and over into said threading chamber.

5. In a shuttle, the combination of an eye block having a portion which extends down and over into a threading chamber, with a friction member which passes through the wall of said eye block at a point above the lower end thereof and above the yarn as it passes through the threading chamber to the inner surface of said portion which extends down and over into said threading chamber.

6. In a shuttle of the self-threading type for automatic looms, the combination of a portion which extends down and over into a threading chamber, with a friction member located thereunder and above the yarn as it unwinds from the bobbin.

7. In a shuttle of the self-threading type for automatic looms, the combination of a portion which extends down and over into a threading chamber, with a friction member located above the yarn as it unwinds from the bobbin, said friction member extending to the inner surface of the said portion which extends down and over into said threading chamber.

FRANK H. STETSON.