No. 676,321. Patented June 11, 1901.

J. JORDAN.

SHUTTLE PROTECTOR.

(Application filed Nov. 20, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

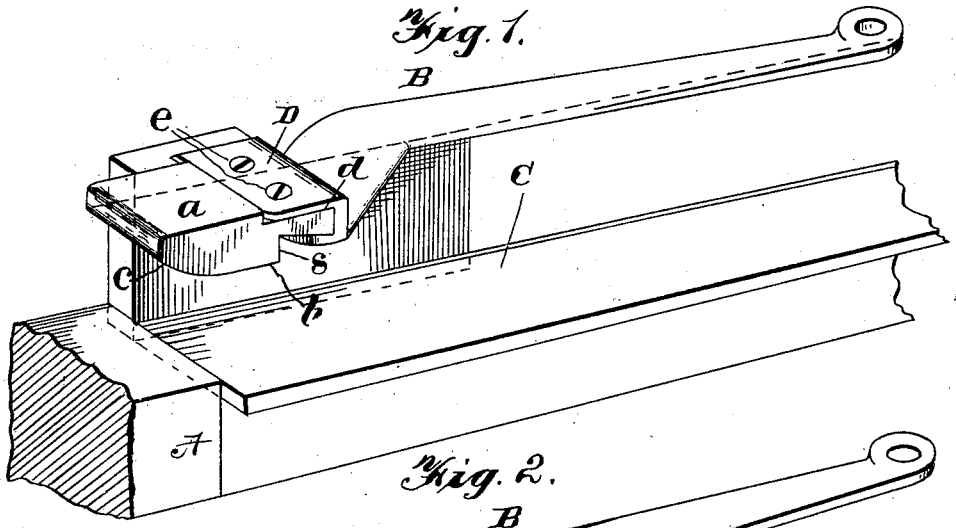


Fig. 2.

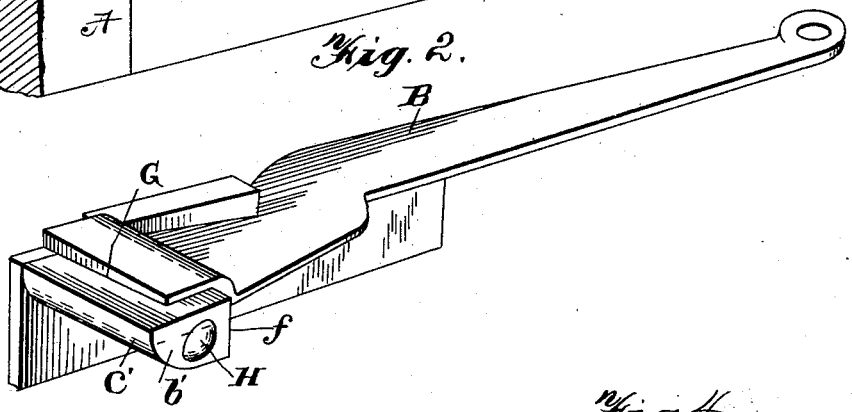


Fig. 3.

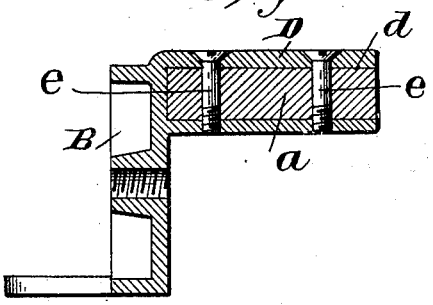
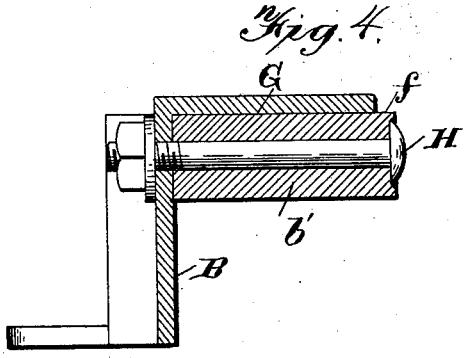


Fig. 4.



Witnesses

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(No Model.) 2 Sheets—Sheet 2.

Fig. 5.

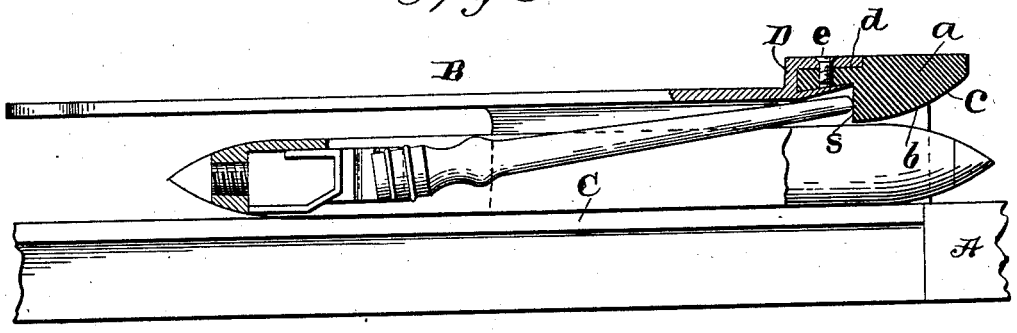
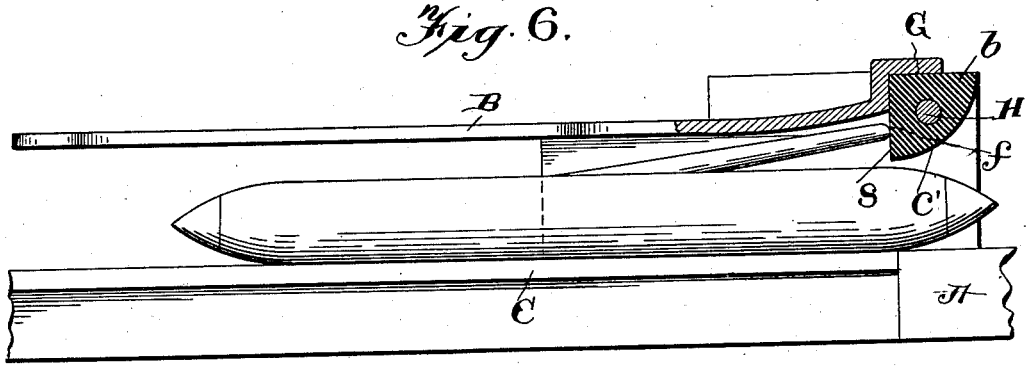


Fig. 6.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES JORDAN, OF BURLINGTON, VERMONT.

SHUTTLE-PROTECTOR.

SPECIFICATION forming part of Letters Patent No. 676,321, dated June 11, 1901.

Application filed November 20, 1900. Serial No. 37,162. (No model.)

To all whom it may concern:

Be it known that I, JAMES JORDAN, a citizen of the United States, residing at Burlington, in the county of Chittenden and State of Vermont, have invented certain new and useful Improvements in Shuttle-Protectors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in shuttle-box backs; and it pertains to a particular construction of the end of the back, whereby the wear and frequent destruction of the shuttle are prevented and the erratic movement of loose spindles is controlled.

My invention is particularly intended for use in connection with the "Northrop loom," which uses a shuttle with a self-threader at one end thereof. Owing to the shape of the end of the shuttle-box back in this loom it is found in practice that when the shuttle in its movements along the race-plate catches in a dropped or loose thread or for any other reason is directed out of its course the point of the shuttle strikes the metallic end of the box-back, with the result that the point of the shuttle is frequently broken or smashed, which absolutely destroys the shuttle for further use. When the shuttle is not directed sufficiently from its course to cause the above result, the self-threader is liable to be worn by friction with the metal, and in a short time the shuttle must be put aside. In addition to this should the bobbin in the shuttle become loosened by not being properly pressed into its place or by the breaking of its spring it is liable to fly upward in its transfer and catch in and break the warp, so that in the actual running of said loom the life of the shuttle is very short and the warp is seriously injured.

The object of my invention is to overcome the above-noted objectionable results in the use of the said loom by providing an improved back for the shuttle-box, whereby the breaking off of the point of the shuttle is prevented and the wear thereon so decreased that in actual practice I find that the life of the shuttle is trebled, and at the same time the warp is guarded against the injurious effects of a flying bobbin, all of which, as will be readily understood, is a great saving in the use of a loom.

In the accompanying drawings, Figure 1 is a perspective view of my improved shuttle-box back. Fig. 2 is a similar view of a modification thereof. Fig. 3 is a sectional view of Fig. 1. Fig. 4 is a sectional view of Fig. 2. Fig. 5 is a sectional view showing the bobbin in connection with the construction shown in Fig. 1. Fig. 6 is a similar view showing the bobbin in connection with the construction in Fig. 2.

Referring now to the drawings, A is a portion of the race-plate of the loom, B my improved back for the shuttle-box, and C the shuttle-box plate.

My improvement consists in providing the end of the shuttle-box back with a yielding protector *a*, which is attached to the end of the top D of the shuttle-box back B and has its end *b* projecting downward below the inner face of the said top D and its end *c* curved, as shown, for the purpose of directing the shuttle downward or toward the bottom of the box-plate C. Its bottom extends down sufficiently far to form a shoulder S to catch the end of the bobbin should it fly upward from the shuttle in its transfer from not being properly pressed down in its place in the shuttle or by reason of the breaking of its springs, so as to prevent its breaking through and materially injuring the warp.

This protector is composed of leather, rubber, or wood and may be attached in several ways to the end of the top D; but in either event it is made detachable, so that should it become injured by the contact therewith of the metallic end of the shuttle or become worn it can be readily detached and another substituted therefor. By this construction of the top of the shuttle-box back the injury and wear are mostly upon the protector, which is very cheap, as compared to the shuttle, and easily replaced by another. In actual practice it is found to avoid entirely the destruction of the end of the shuttle and consequent incapacitation of the shuttle, and to greatly in-

crease the life of the shuttle because of the decrease in the wear upon the top of the metallic self-threader, as well as to stop the flight of a loose bobbin before it can penetrate and injure the warp.

In Figs. 1 and 3 I show my preferred manner of attaching the protector, which is accomplished by providing the extremity of the top of the shuttle-box with a longitudinally-extending slot or groove *d*, which is adapted to receive a tenon or projection upon the end of the protector. In this construction it will be noted that the protector projects below the inner face of the top of the shuttle-box to form the shoulder S to catch a flying bobbin and has its end curved for directing the shuttle down upon the box-plate C. The protector is preferably held within the slot *d* through the medium of screws *e*, which pass through the wall of the slot and into the protector.

In Figs. 2 and 4 I show a slight modification in the shape of the protector and the manner of securing it to the top of the shuttle-box. In this instance the protector consists of a block *b'*, having right-angle end and top *f* to fit into the L-shaped recess G, formed across the end of the top of the shuttle-box, while the outer or other end *c'* is curved similar to the corresponding end of the protector *a*, (shown in Figs. 1 and 3,) and it is also similar to said protector in that it has its under side projecting or extending down below the inner face of the top of the shuttle-box to form the shoulder S. The protector in this instance serves the same purpose as the protector in Fig. 1 and operates the same way to direct the shuttle down on the box-plate and to protect the shuttle from injury and wear and to catch the loose bobbin. The protector *b'* is attached through the medium of the bolt H, which passes through the rear wall of the back of the box and through the block, as illustrated, and by means of which the protector is readily and quickly removable therefrom in case of injury or wear to be substituted by a new one.

It will be noted that in both constructions the end of the top of the shuttle-box is cut out and the protector inserted in the recess or groove and projects below its inner face, whereby it is adapted to accomplish the purposes herein fully explained.

I prefer to have the yielding member or block to extend outward beyond the upper wall of the top, as shown, whereby it is more yielding than it would be if the metallic top extended entirely over the block or member.

While I have described my invention as intended particularly for use in connection with one form of loom, it will be readily understood that it is capable of use in any other form or make of loom where it would be advantageous for the purposes herein described.

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

1. A shuttle-box back having its top provided at the entrance end with a yielding block projecting downward below the inner face thereof and having its outer extremity curved upward at its under side, substantially as described.

2. A shuttle-box back having its top provided with a transversely-arranged recess, a yielding block detachably secured within the said recess, the under side of the block projecting downward below the face of the top and having its outer face curved upward, substantially as described.

3. A shuttle-box back having at one end a yielding block, the said block having its outer end extending beyond the outer end of the said top, substantially as described.

4. A shuttle-box back having its top provided at one end with a yielding shuttle-protecting block, the said block having at its inner end a shoulder adapted to engage the end of the displaced bobbin, substantially as and for the purpose described.

5. A shuttle-box back having its top provided at one end with a yielding shuttle-protecting block projecting downward below the inner face thereof, the inner end of the block having a downwardly-projecting shoulder for the purpose of engaging the end of a displaced bobbin, substantially as described.

6. A shuttle-box back having its top provided at one end with a yielding shuttle-protecting block, the outer end of the said block being curved upward and the inner end of the said block having a downwardly-projecting shoulder for the purpose of engaging the end of a displaced bobbin, substantially as described.

In testimony whereof I do affix my signature in presence of two witnesses.

JAMES JORDAN.

Witnesses:
GILBERT A. DOW,
SHERMAN P. ALLEN.