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SHUTTLE CHECK AND BINDER

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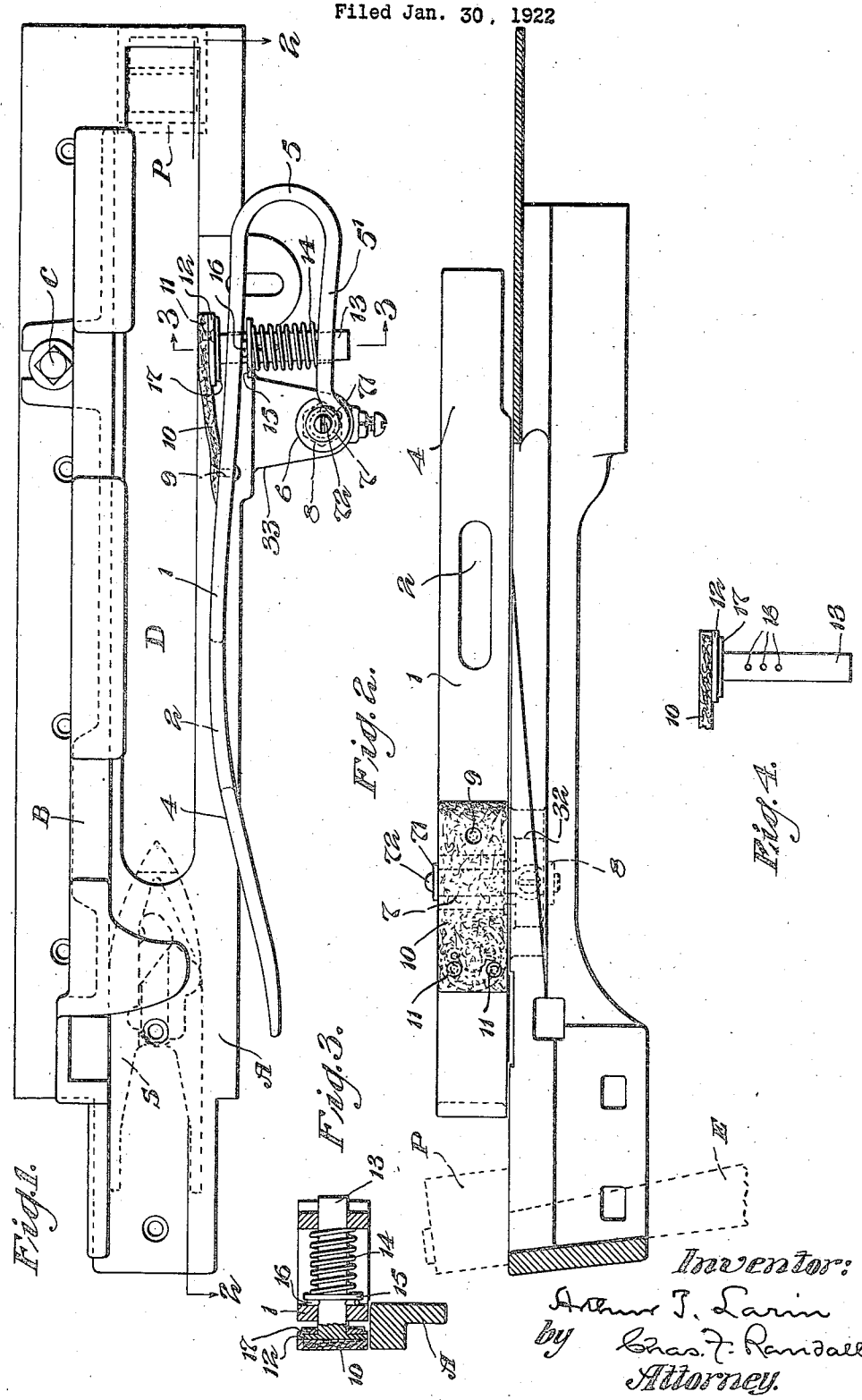


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE.

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SHUTTLE CHECK AND BINDER.

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To all whom it may concern:

Be it known that I, ARTHUR T. LARIN, a citizen of the United States, residing at Waltham, county of Middlesex, Commonwealth of Massachusetts, have invented certain new and useful Improvements in Shuttle Checks and Binders, of which the following is a specification.

This invention relates to shuttle checks and binders for looms. So far as I am aware, such devices of this class as have been adopted in practice heretofore for stopping the flying shuttle as it enters the shuttle box of a loom have all been open to the objection that they permit the shuttle to rebound partially out of the shuttle box after entering the latter.

To the end of providing a check and binder which will prevent rebound of the shuttle, I have devised my present invention. By the latter, the shuttle is initially slowed down as it enters the box and finally stopped and is releasably clamped within the box against rebound until actuated by the picker stick. My invention, moreover, provides for adjustment so as to secure effective action with shuttles of varying size.

A selected embodiment of the invention which well illustrates the principles involved, is described and shown in the accompanying specification and drawings, and the characteristic features of novelty are particularly pointed out in the appended claims. Throughout the specification and drawings like reference characters are correspondingly employed, and in the drawings:

Fig. 1 is a plan view showing a shuttle check constructed in accordance with my invention in applied position in connection with a loom shuttle-box.

Fig. 2 is a view in section on line 2, 2, of Fig. 1, looking in the direction indicated by the arrows at the ends of such line.

Fig. 3 is a detail view in section on line 3, 3, of Fig. 1.

Fig. 4 shows the sliding pin detached.

Figs. 1 and 2 illustrate the invention applied in connection with a casting of well known character such as is applied in practice to an end of a loom lay, such casting being shaped to form a shuttle-box bottom A and having a shuttle-box back B detachably bolted to it at C. At D is the slot in which works the picker-stick E carrying the picker P. A shuttle is represented at S. A lug 33 projecting forward from the casting receives the pivotal mounting of the shuttle-check, the latter being constituted by the binder-bar 1 and its appurtenances. The said binder-bar is convexed at 4, to bear against the front side of the shuttle S as the latter passes into the shuttle-box, between the binder-bar in front and the box-back B in the rear, to partially check the shuttle. It is shown formed with the usual slot at 2 for the admission of the weft or filling-feeler which commonly is employed in looms.

The outer portion of the binder-bar 1 is reversely bent, as shown in Fig. 1, and formed at its inwardly extending extremity with a bearing-eye 6 which is fitted upon the upstanding stem of a stud 7 constituting the pivotal mounting aforesaid and having its lower portion seated in a slot in lug 33 of the casting. The said stud is fastened to the lug 33 by a nut 8 applied to the screw-threaded lower end of the stud below the lug, as usual. The binder-bar is prevented from rising from the stud by means of a washer 71 placed between the top of the eye 6 and the head of a screw 7 entering the upper end of the stud 7.

A yieldable friction strip 10 is attached to the inner face of the binder-bar 1 at a point somewhat nearer the mouth of the shuttle-box than the point at which the binder-bar is pivotally mounted, and extends outward beyond the said point. This strip 10 is bent to lie at an angle to the bar and constitutes a checking surface for stopping the flying shuttle, and a binder for releasably clamping said shuttle against rebound out of the shuttle box. The binding surface 10 has its free end attached to the head 12 of a pin 13 which is slidable through registering holes in the looped end 5 of the bar. Confined about the pin 13 is a coil spring 14, the normal tendency of which is to force the free end of the friction strip 10 outwardly away from the bar into the path of the shuttle S as the latter enters the shuttle-box at the end of its flight across the loom from the opposite shuttle-box. At one end, the spring abuts the arm 5^1 and at its opposite end bears against a washer 15 which is pinned at 16 to the stud 13

In order to adapt the device for use with shuttles of varying sizes, washers of different thicknesses may be mounted on the pin 13 between the head 12 and the adjacent

portion of the bar 1 to vary the degree of movement of the strip 10 relative to the bar 1 according to the size of the shuttle. One of such washers is indicated at 17, Fig. 3. The pin 13 may also be provided with a series of spaced holes 18 through which the cotter pin 16 may be selectively set to change the tension of the spring 14.

In use, the shuttle S traveling in the direction indicated by the arrow in Fig. 2 initially contacts the check surface 4 which slows down the flight of the shuttle and subsequently comes upon the inclined friction strip 10 which yields inwardly towards the bar 1, as indicated in dotted lines, Fig. 2, against the resistance offered by the coil spring 14, to finally check the flight of the shuttle and to bind the shuttle against rebound out of the shuttle box.

When the picker P throws the shuttle in the opposite direction, the spring 14 projects the friction strip 10 back to its original position as the pressure on said strip is released by the withdrawal of the shuttle.

Various modifications in the construction and operation of my device may obviously be resorted to without departing from the spirit of my invention if within the limits of the appended claims.

What I therefore claim and desire to secure by Letters Patent is:

1. The improved shuttle-check comprising, in combination with a binder-bar having its outer portion reversely bent and formed at its inwardly-extending extremity with a bearing-eye 6 by which said bar may be mounted pivotally upon a loom-lay, a yieldable strip 10 fastened to the said bar, extending outward beyond the position of said bearing-eye for coaction with the shoulder of a shuttle, and adapted to swing away from and toward the bar, a pin slidably mounted in holes in the two branches of the bar and engaging by its rear end with said yieldable strip, and a spring engaging with said slidable pin and acting with a tendency to project the pin and the strip rearwardly.

2. The improved shuttle-check comprising, in combination with a binder-bar having its outer portion reversely bent and formed at its inwardly-extending extremity with a bearing-eye 6 by which said bar may be mounted pivotally upon a loom-lay, a yieldable strip 10 fastened to the said bar, extending outward beyond the position of said bearing-eye for coaction with the shoulder of a shuttle, and adapted to swing away from and toward the bar, a pin slidably mounted in holes in the two branches of the bar and engaging by its rear end with said yieldable strip, and a spring engaging with said slidable pin between the said branches and acting with a tendency to project the pin and the strip rearwardly.

3. The improved shuttle-check comprising, in combination with a binder-bar having its outer portion reversely bent and formed at its inwardly-extending extremity with a bearing-eye 6 by which said bar may be mounted pivotally upon a loom-lay, a yieldable strip 10 fastened to the said bar, extending outward beyond the position of said bearing-eye for coaction with the shoulder of a shuttle, and adapted to swing away from and toward the bar, a pin slidably mounted in holes in the two branches of the bar and engaging by its rear end with said yieldable strip, a spring engaging with said slidable pin between the said branches and acting with a tendency to project the pin and the strip rearwardly, and means to vary the effect of the spring.

4. The improved shuttle-check comprising, in combination with a binder-bar having its outer portion reversely bent and formed at its inwardly-extending extremity with a bearing-eye 6 by which said bar may be mounted pivotally upon a loom-lay, a yieldable strip 10 fastened to the said bar, extending outward beyond the position of said bearing-eye for coaction with the shoulder of a shuttle, and adapted to swing away from and toward the bar, a pin slidably mounted in holes in the two branches of the bar, engaging by its rear end with said yieldable strip, and having a plurality of holes, a spring-abutment pin occupying one of said holes, and a spring between the said branches engaging with the spring-abutment pin to project the slidably mounted pin and the strip rearwardly, shift of said spring-abutment pin from one hole to another serving to vary the effective tension of the spring.

5. The improved shuttle-check comprising, in combination with a binder-bar having its outer portion reversely bent and formed at its inwardly-extending extremity with a bearing-eye 6 by which said bar may be mounted pivotally upon a loom-lay, a yieldable strip 10 fastened to the said bar, extending outward beyond the position of the said bearing-eye for coaction with the shoulder of a shuttle, and adapted to swing away from and toward the bar, a pin slidably mounted in holes in the two branches of the bar and engaged by its rear end with said yieldable strip, a spring engaging said slidable pin between said branches and acting with a tendency to project the pin and the strip rearwardly, and means for varying the extent of the movement of the strip toward the bar under the pressure of a shuttle.

6. The improved shuttle-check comprising, in combination with a binder-bar having its outer portion reversely bent and formed at its inwardly-extending extremity with a bearing-eye 6 by which said bar may be mounted pivotally upon a loom-lay, a yieldable strip 10 fastened to the said bar, extending outward beyond the position of the

said bearing-eye for coaction with the shoulder of a shuttle, and adapted to swing away from and toward the bar, a pin slidably mounted in holes in the two branches of the bar and engaged by its rear end with said yieldable strip, a spring engaging said slidable pin to project the pin and the strip rearwardly, and an exchangeable washer on said pin between the strip and the bar by which the extent of the movement of the strip toward the bar under the pressure of a shuttle is adjustably limited.

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

ARTHUR T. LARIN.

Witnesses:
GYLES J. MCKENNA,
PATRICK S. BRODERICK.