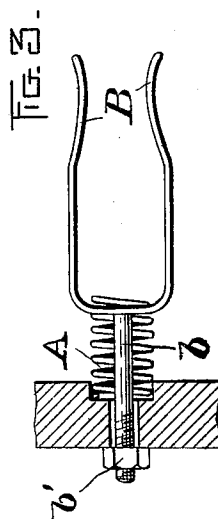
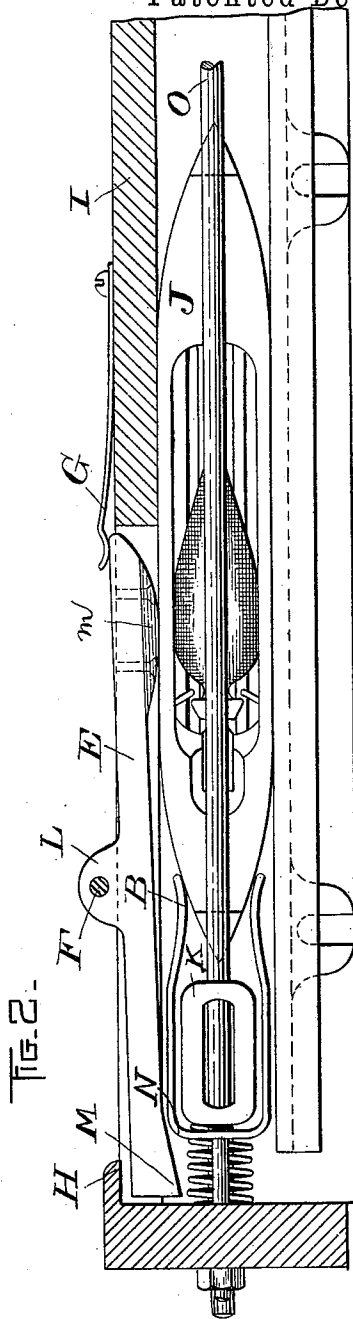
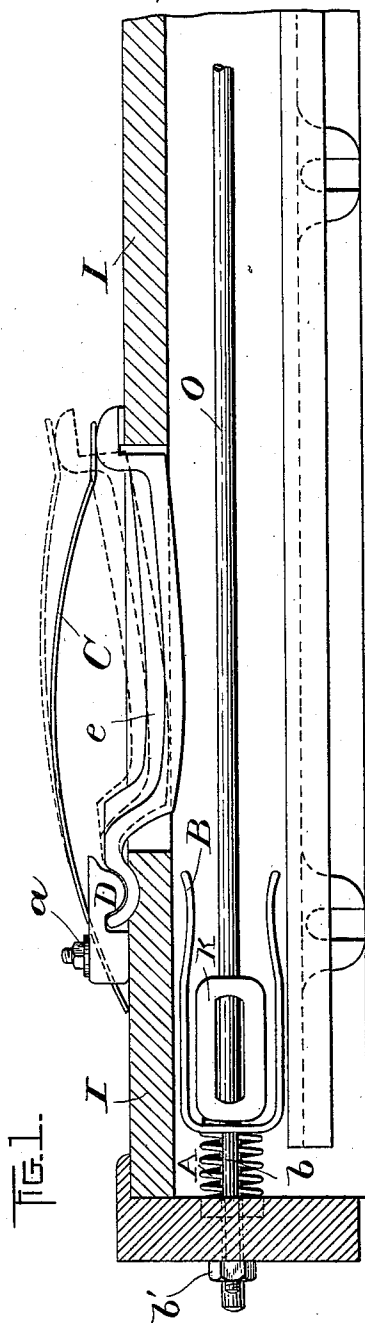


(No Model.)

J. BANNISTER.
SHUTTLE CHECK FOR LOOMS.

No. 596,315.

Patented Dec. 28, 1897.



WITNESSES:

A. D. Harrison.
E. B. Schell

INVENTOR:

John Bannister
by night Brown & Dumbley
Atty.

UNITED STATES PATENT OFFICE.

JOHN BANNISTER, OF MEXICO, MEXICO.

SHUTTLE-CHECK FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 596,315, dated December 28, 1897.

Application filed February 26, 1897. Serial No. 625,106. (No model.)

To all whom it may concern:

Be it known that I, JOHN BANNISTER, of the city of Mexico and Republic of Mexico, have invented certain new and useful Improvements in Loom Shuttle Checks or Binders, of which the following is a specification.

This invention relates to improvements in devices used in connection with loom shuttle-boxes for the purpose of checking the shuttle to prevent contact with the picker when entering the box at either end of the lay and to prevent its rebound therefrom. A common form of device heretofore used for this purpose consists of a swell of cast-iron which projects into the shuttle-box, one end of said swell being pivotally connected with the outside of the back of the shuttle-box and the other end being acted upon by a steel spring to press the swell inward, so that the slightly-convex face of the swell or binder will press against the shuttle on its entering the box and hold it until forcibly expelled by the next pick.

Referring to Figure 1 of the drawings, in which I have illustrated the form of swell or binder above referred to, it will be understood that the shuttle on entering the box forces the swell outward, the dotted lines in said figure indicating the positions taken by the binder and spring when the shuttle is in the box. In this form the binder continues to press with considerable force against the side of the shuttle, thus opposing great resistance to the release of the shuttle when it is to be driven to the other end of the lay. It is clear, therefore, that a power sufficient to overcome that resistance must be employed—in other words, that the pick-stroke must be delivered with great force against the end of the shuttle. The heaviness of the work thus laid on the pickers causes considerable wear and tear of those parts and their accessories, (picking-staffs, straps, &c.,) necessitating frequent renewals of pickers, a heavy item of expense in all weaving establishments.

Since the spring employed in this form of device must be of such strength as to prevent the shuttle from striking the picker, the said spring causes the swell to bind against the shuttle with more than sufficient friction to prevent its leaving the box until forced to do

so. Hence the excessive force above referred to is necessary to release and return the shuttle to the other end of the lay.

The object of this invention is to provide means whereby the spring above referred to is relieved of much if not all of the duty of checking the shuttle on its entry into the box, and may therefore be made light enough so as to furnish only sufficient pressure to cause the swell to frictionally retain the shuttle in the box. The said means may also be employed in connection with other specific forms of binders.

To these ends my invention consists in the construction and combination of parts substantially as hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Fig. 1 represents a sectional view of the shuttle-box of a loom embodying my improvement in connection with the old form of swell-check above referred to. Fig. 2 represents a similar view showing my said improvement in connection with other improvements in the check or binder, the mechanism shown in this figure being for some purposes preferable to that shown in Fig. 1. Fig. 3 represents a detail plan of the combined buffer and fork springs shown in Figs. 1 and 2.

Similar reference-characters indicate similar parts in all the figures.

Referring first to Fig. 1, O represents the rod on which the picker K slides, the back of the shuttle-box being indicated at I and having the block or lug D secured thereto by a pin and nut *a*, said lug forming the fulcrum for the swell or binder *e*, which is pressed inward by the bow-spring C. As so far described the parts referred to are substantially the same as in the well-known form hereinbefore described; but with my improvements, as presently set forth, the spring C will in practice be much lighter than heretofore, in order to give to the swell *e* only sufficient pressure against the shuttle when in the box to prevent said shuttle from leaving the box under the influence of any rebound which it might have.

B indicates a fork-spring the prongs of which are preferably curved inward and then outward at their ends and extend sufficiently

beyond the picker when the latter is at rest to be engaged by the shuttle before the latter could strike the picker. These prongs are also sufficiently stiff not to be spread by the shuttle to an extent that would permit such contact. The stem *b* of the fork-spring extends through the end of the box and is threaded and provided with a nut *b'*, a spiral spring A being coiled about the stem *b*, between the end of the box and the rear of the fork. Said spring acts as a buffer to prevent the fork B from being forced back to such extent as would permit contact of the shuttle with the picker, and the nut *b'* enables the normal position of the fork to be adjusted and limits its forward position, while permitting it to be moved slightly toward the end of the box under the impact of the shuttle against its prongs. It will thus be seen that the bow-spring C is not relied upon to cause the swell *e* to prevent contact of the shuttle with the picker, the combined fork and buffer springs B and A serving this purpose. Therefore the said spring C may be made quite light, since the swell *e* is employed only to prevent the shuttle from rebounding from the prongs of the fork-spring B.

Referring to Fig. 2, it will be seen that the bow-spring C and swell *e* are replaced by a lever-binder E, fulcrumed at F in bearing blocks or lugs L, attached to the back I of the shuttle-box. The inner end of the lever (the end toward the center of the loom) is preferably provided with a strip of leather or other suitable material, as at *m*, and the other or outer end of the lever is provided with an inclined portion or shoulder M, adapted to be engaged by the shoulder N of the fork B when the latter is moved backward by the shuttle J. A stop-lug H is employed to limit the outward movement of the outer end of lever E, and I may employ a light spring, as at G, to keep the inner end of the lever normally in position with its inner face about flush with the interior surface of the shuttle-box. With this form of construction when the shuttle J enters the box its end is caught by the projecting prongs of spring B, which lightly hold the shuttle and prevent its point from striking the picker K, which, being of less width than the opening between the prongs, enters the fork without resistance. At the same time the prongs do their part in preventing the rebound of the shuttle; but in doing this they are aided by the lever E, for when the shuttle engages between the prongs the spring B is pushed backward, compressing at the same time the spiral spring A, and the shoulder N of the fork-spring B engages the inclined end

M of the lever E and causes the other or inner part of said lever to press against the side of the shuttle J. On the other hand, neither the pressure of said lever nor the retentive force of the prongs of spring B is sufficient to oppose a serious obstacle to the release of the shuttle J on receiving its next blow from the picker.

Having now described my invention, I claim—

1. A shuttle-check for looms, comprising in its construction a fork-spring adapted to permit the passage of the picker between its prongs, said fork having a longitudinal movement in the shuttle-box, and a spring to cushion the movement of said fork in one direction.

2. A shuttle-check for looms, comprising in its construction the fork B having spring-prongs adapted to permit the passage of the picker between them, and a spiral spring located between the back of the fork and the end of the shuttle-box.

3. A shuttle-check for looms, comprising in its construction the fork B having spring-prongs projecting beyond the picker when the latter is at rest and having the stem *b* extending through the end of the shuttle-box and provided with nut *b'*, and the spiral spring A coiled about said stem *b* and adapted to cushion the fork B.

4. The combination with the shuttle-box of a loom, of a lever the inner end of which is adapted to engage the side of the shuttle to prevent its rebound, and the other end having an inclined portion, of a fork-shaped slide having its prongs adapted to be engaged by the shuttle and movable along said box and adapted to engage the inclined portion of the lever, and a spring-buffer for said fork-shaped slide.

5. The combination with the shuttle-box of a loom, of the lever E having its inner end adapted to engage the side of the shuttle and its other end provided with the inclined portion M, the fork B having shoulder N and the spring-prongs adapted to be engaged by the shuttle and movable longitudinally of said box, and the spiral spring A between said fork and the end of the box, substantially as and for the purpose specified.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 13th day of February, A. D. 1897.

JOHN BANNISTER.

Witnesses:

DAVID S. SAMUEL,
A. GREENWOOD.