No. 763,122. PATENTED JUNE 21, 1904.

I. SNOW.

SHUTTLE CHECKING MEANS FOR LOOMS.

APPLICATION FILED APR. 2 1904.

NO MODEL.

Fig: 1.

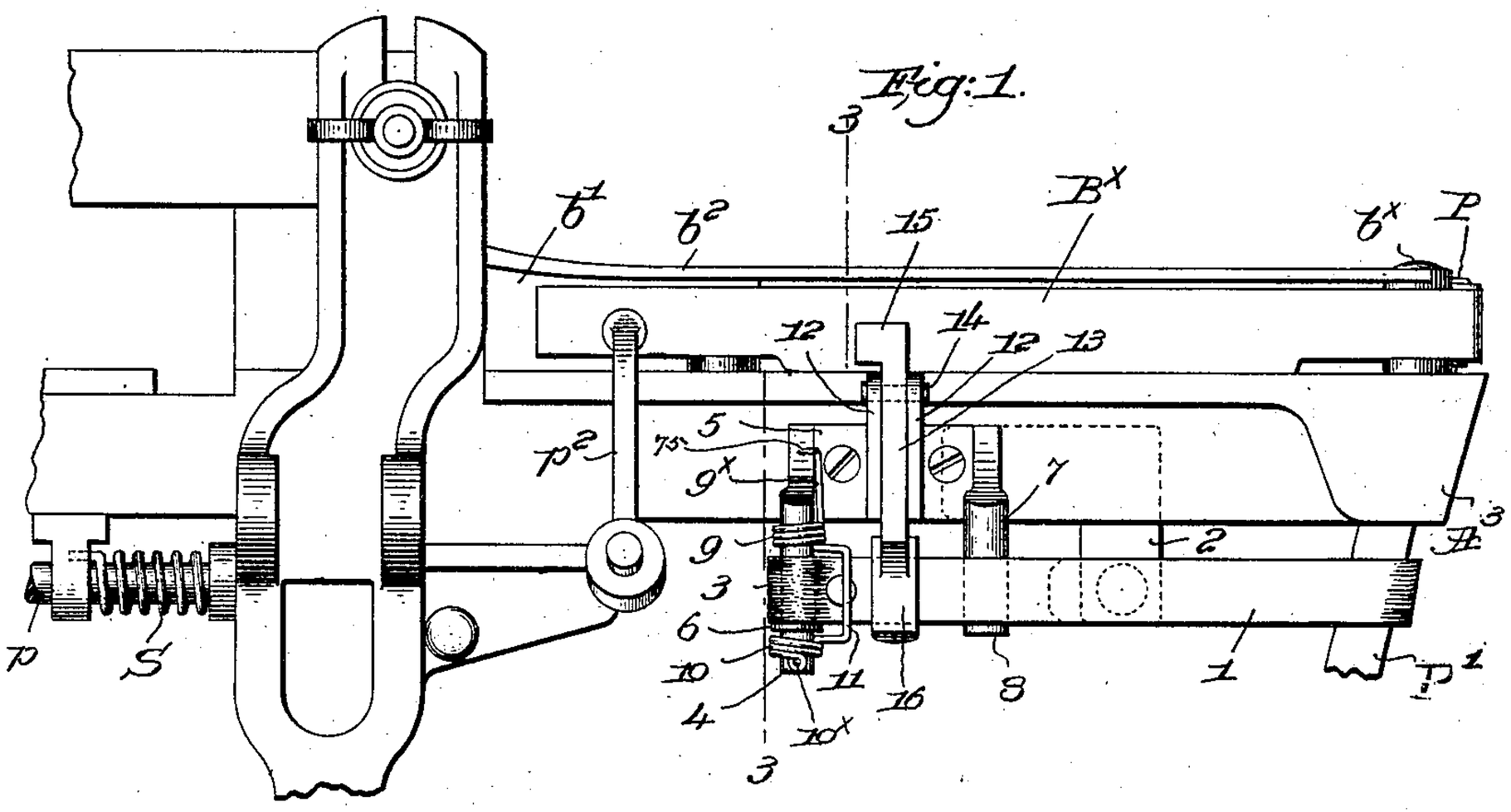


Fig: 2.

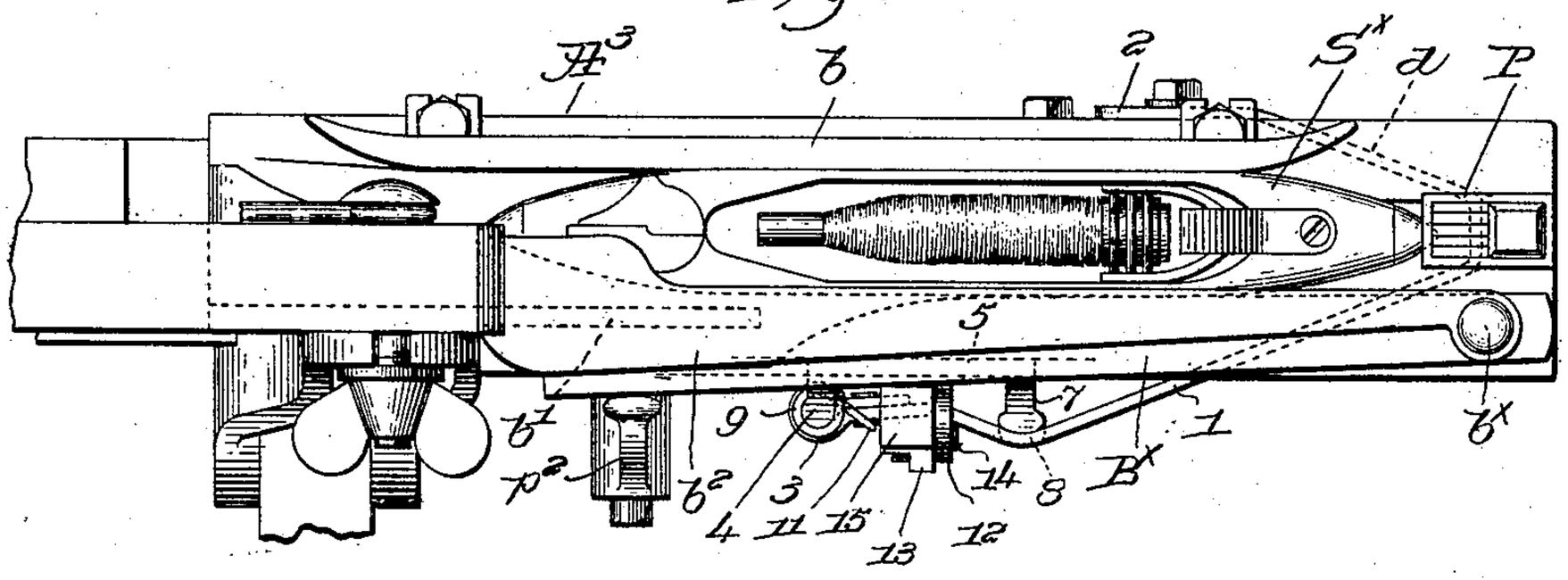
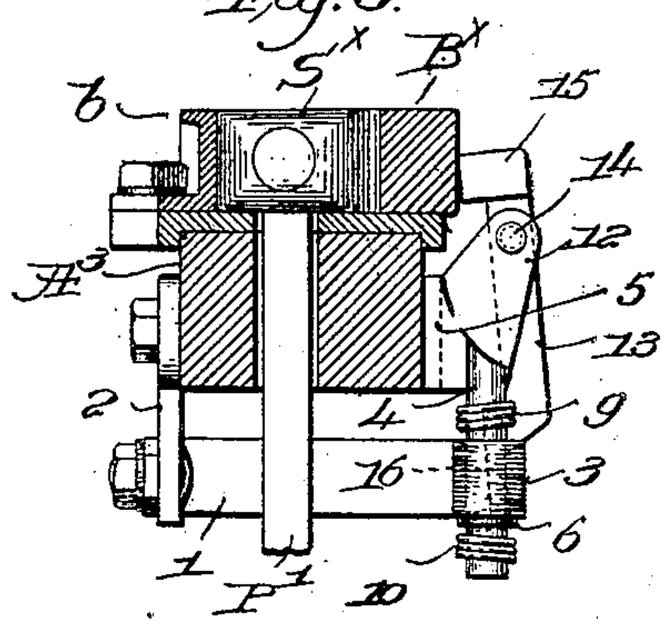


Fig: 3.



Witnesses,
Edward H. Allen,
Warren D. Owen.

Inventor;
Isaac Snow,
by Crosby & Gregory
attys.

No. 763,122. Patented June 21, 1904.

UNITED STATES PATENT OFFICE.

ISAAC SNOW, OF LAWRENCE, MASSACHUSETTS, ASSIGNOR TO DRAPER COMPANY, OF HOPEDALE, MASSACHUSETTS, A CORPORATION OF MAINE.

SHUTTLE-CHECKING MEANS FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 763,122, dated June 21, 1904.

Application filed April 2, 1904. Serial No. 201,233. (No model.)

To all whom it may concern:

Be it known that I, ISAAC SNOW, a citizen of the United States, and a resident of Lawrence, county of Essex, State of Massachusetts, have invented an Improvement in Shuttle-Checking Means for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of novel and effective means for preventing rebound of the shuttle when it enters the shuttle-box of a loom. When the shuttle strikes the binder, the latter is thrown outward, and if the loom is running at high speed the shuttle will often hit the picker before the binder can return to properly engage and hold the shuttle, and frequently the latter rebounds. Herein I have provided means governed by the impact of the shuttle upon the picker to instantly return and press the binder firmly against the shuttle before the latter can rebound.

The novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the appended claims.

Figure 1 is a rear elevation of the end of a loom-lay and shuttle-box thereon with one embodiment of my invention applied thereto and illustrated at the instant the full checking action is applied to the shuttle. Fig. 2 is a top or plan view thereof; and Fig. 3 is a transverse section on the line 3 3, Fig. 1, looking toward the right.

The lay A^3, shuttle-box thereon comprising a front plate b, back wall b', and top plate b^2, a binder $B^\times$, pivotally mounted at its outer end on the lay at $b^\times$, the picker P, and its stick or staff P′ may be and are of usual or well-known construction.

The protector rock-shaft p, its controlling-spring S, Fig. 1, and the upturned binder-finger p^2 to bear against the free end of the binder are of well-known construction and operate in usual manner.

In the embodiment of my invention herein illustrated a strap 1 is suspended below the lay and passed around the picker-stick, one end of the strap being fixed to and supported by a hanger 2, bolted to the front of the lay. The other end of the strap is formed into a loop 3, through which is extended a depending leg 4, forming part of a bracket 5, rigidly attached to the back of the lay, a collar 6 on the leg supporting the strap vertically. A second leg 7 depends from the bracket at the outer end thereof and forms a fixed abutment for and over which the rear side of the strap draws longitudinally, the abutment having a rearwardly-projecting supporting-lug 8 at its lower end, on which the bottom edge of the strap rests.

The legs 4 and 7 are offset rearwardly from the face of the bracket, as shown in the drawings, so that the rear side of the strap is thereby held behind the plane of the rear side of the lay.

When the shuttle $S^\times$ engages the picker, the picker-stick P′ is thrown outward and the two sides of the strap are pulled taut, as shown in Fig. 2, tending to straighten the strap between the holding-leg 4 and the abutment 7 with a force proportional to the impact of the shuttle upon the picker.

I have provided means to draw in or slacken the rear side of the strap when the shuttle is picked from the box, and to this end a piece of spring-wire is coiled to form two spirals 9 and 10, connected by yoke 11, the leg 4 passing through the spirals, with the strap-loop 3 between them.

The free end $9^\times$ of the spiral 9 bears against the bracket 5 and is secured thereto by inserting it in a socket 75 (see Fig. 1) above the top of the leg 4, and the free end $10^\times$ of spiral 10 is pinned to the leg, while the yoke 11 bears against the outer face of the strap between the leg 4 and abutment 7, as clearly shown in Fig. 1.

The spirals are so wound that the tendency thereof is to throw the connecting-yoke 11 inward, thereby acting to form a bend in the

strap and draw its rear side over the abutment when the shuttle is picked.

When the strap is tightened, due to boxing of the shuttle, the spring-coils are flexed and the slack taken up, tending to flatten or straighten the strap between the abutment and the leg 4. Such part of the strap thus has an inward and outward movement every time the shuttle leaves and enters the box, and this outward forcible movement is utilized to press the binder against the shuttle to prevent rebound.

Two ears 12 are formed on the bracket 5 above and between the depending portions 4 and 7, and an upright lever 13 is fulcrumed between the ears on a pin 14, supported therein. At its upper end the lever is enlarged to form a head 15, which bears against the binder near its free end, while the depending end of the lever extends below the lay and is widened to form a foot 16, which crosses and rests against the outer face of the strap between the leg 4 and the abutment 7. As the fulcrum 14 is near the upper end of the lever and set out from the bracket, (see Fig. 3,) the foot 16 tends to swing forward against the strap when the box is empty, the springs 9 and 10 at such time slackening and bending the strap, as has been described, and at such time the foot 16 will be well forward of a straight line passing through the leg 4 and the abutment. When the incoming shuttle strikes the swell of the binder, the free end of the latter is thrown outward, swinging the head 15 of the lever outward; but as the outward swing of the picker-stick tightens the strap 1 the latter acts instantly upon the foot of and rocks the lever as the strap is drawn more nearly straight between the leg 4 and abutment 7. Such rocking of the lever 13 forces its head inward and quickly presses the binder against the shuttle, holding the same effectually against any tendency to rebound from its impact with the picker. The harder the blow of the shuttle on the picker the greater will be the force acting through the strap to rock the lever 13, and thereby press the binder against the shuttle.

My invention is not restricted to the precise construction and arrangement herein shown and described, as the same may be modified or rearranged in various particulars by those skilled in the art without departing from the spirit and scope of my invention.

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

1. A shuttle-box, a pivoted binder, a picker-stick, a strap passed around it and fixed at its ends, a fixed abutment adjacent one of the ends of the strap, a spring to form a bend in the strap therebetween, and a lever fulcrumed adjacent the shuttle-box and at one end coöperating with the binder, the other end of the lever crossing the bent part of the strap, tightening of the latter due to boxing of the shuttle flattening the bend and rocking said lever to force the binder inward.

2. A shuttle-box, a pivoted binder, a picker-stick, a strap passed around the same and having its ends fixed, a slackener for the strap, a fixed abutment over which one side of the strap draws, and a lever fulcrumed adjacent the shuttle-box and at one end coöperating with the binder, the other end of the lever crossing the strap between the abutment and the adjacent fixed end of the strap, tightening of the latter by the outward stroke of the picker-stick taking up the slack of the strap and acting to rock the lever and force the binder inward.

3. A shuttle-box, a pivoted binder, a picker-stick, a lever having a depending end and fulcrumed adjacent the shuttle-box and adapted to coöperate with the binder, a strap passed around the picker-stick and having its ends fixed, and a fixed abutment over which one side of the strap draws, the depending end of the lever crossing and coöperating with the strap between one of its fixed ends and the abutment and out of alinement therewith, whereby when the strap is tightened the lever will be rocked to transmit additional pressure to the binder.

4. A shuttle-box, a pivoted binder, a picker-stick, a strap looped around it and fixed at its ends, means to form a bend in one side of the strap when the shuttle is picked, and a lever fulcrumed adjacent the shuttle-box and at one end coöperating with the binder, the other end of said lever crossing the bent portion of the strap on its concave side, outward movement of the picker-stick due to boxing of the shuttle acting to straighten the bend in the strap and thereby rock the lever to force the binder inward against the shuttle.

5. A shuttle-box, a pivoted binder, a picker-stick, a strap looped around it and fixed at its ends, spring-controlled means to form a bend in one side of the strap when the shuttle is picked, and a lever fulcrumed adjacent the shuttle-box and at one end coöperating with the binder, the other end of said lever crossing the bent portion of the strap on its concave side, outward movement of the picker-stick due to boxing of the shuttle acting to straighten the bend in the strap and thereby rock the lever to force the binder inward against the shuttle.

6. In a loom, a lay having a shuttle-box thereon provided with a pivoted binder, a picker-stick, a strap looped around it and fixed at its ends, a bracket secured to the back of the lay and having two depending legs, to the inner one of which an end of the strap is secured, the other leg forming an abutment over which the strap draws, a spring-acting device to act upon and form a bend in the strap between said legs, and a lever fulcrumed on the bracket and at its upper end acting

upon the free end of the binder, the lower end of the lever crossing the bend of the strap on its concave side out of alinement with the legs, tightening of the strap by the incoming shuttle acting through the bend in said strap to rock said lever and press the top of the same inward against the binder.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ISAAC SNOW.

Witnesses:
CHRISTOPHER W. WILSON,
DUNCAN WOOD.