(No Model.)

C. H. KNAPP.

SHUTTLE BINDER FOR LOOMS.

No. 344,450. Patented June 29, 1886.

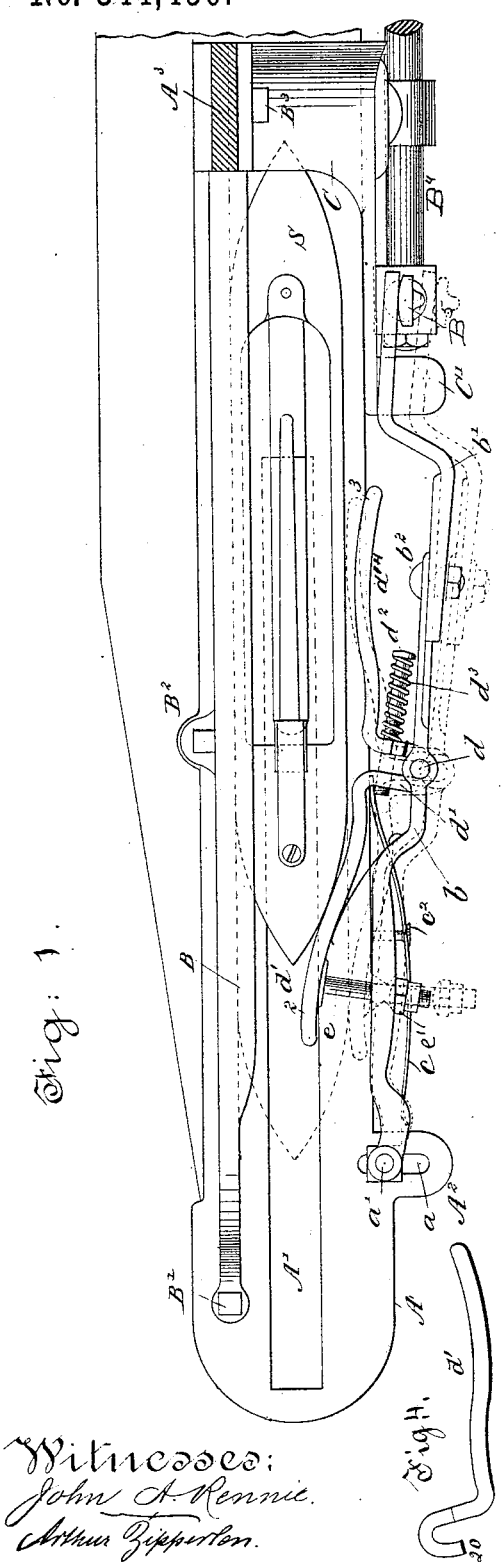

Fig. 1.

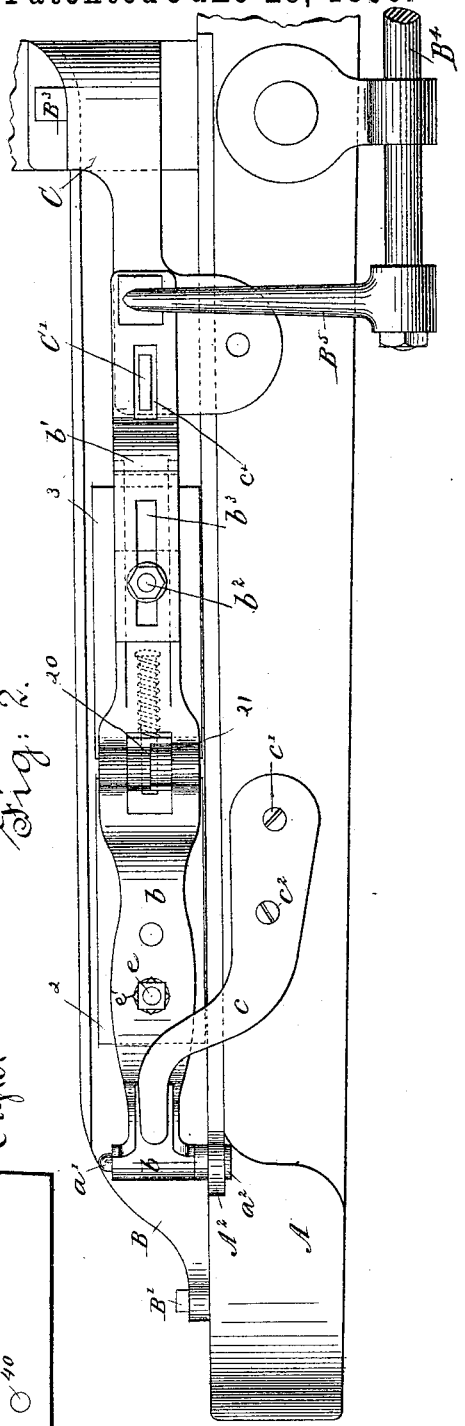

Fig. 2.

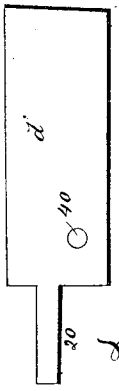

Fig. 3.

Fig. 4.

Witnesses:
John A. Rennie.
Arthur Zipperlen.

Inventor,
Charles H. Knapp,
Crosby & Gregory
his Attys.

UNITED STATES PATENT OFFICE.

CHARLES H. KNAPP, OF PATERSON, NEW JERSEY, ASSIGNOR OF ONE-HALF TO GEORGE DRAPER & SONS, OF HOPEDALE, MASSACHUSETTS.

SHUTTLE-BINDER FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 344,450, dated June 29, 1886.

Application filed November 2, 1885. Serial No. 181,569. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. KNAPP, of Paterson, county of Passaic, and State of New Jersey, have invented an Improvement in Shuttle-Binders 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, relating to looms, has for its object to improve the construction and operation of what is known as the "shuttle binder," causing it to act also as a check for the shuttle when moved in one direction, and to release the shuttle quickly after the initial or starting blow of the picker.

My invention consists in the combination, with a shuttle-binder, of a spring-controlled yoke-like check or presser, substantially as will be described, and pointed out in the claims.

Figure 1, in plan view, represents a portion of a shuttle-box with my improved binder and a shuttle. Fig. 2 is a side elevation thereof. Fig. 3 shows a blank from which one of the arms of the presser or check lever is made; and Fig. 4 is an edge view of the said blank bent into an operative position.

The arm A, supposed to be in the plane of the raceway of the lay, and preferably a projecting portion of the lay, and slitted at A′ for the passage of a picker-stick, is of usual construction. The arm A constitutes the bottom of the shuttle-box. The back B of the shuttle-box is attached by the bolts $B' B^2 B^3$. The protector-rod B^4 and the finger B^5 are common to many looms—as, for instance, United States Patent No. 8,984, June 1, 1852. The arm A has a lug, A^2, slotted at *a* for the reception of the stud *a′*, made adjustable in the said slot, where it is held by the nut a^2. The stud *a′* forms the fulcrum for the binder, herein shown as composed of two pieces, *b b′*, adjustably connected by a bolt, b^2, the latter being extended through a slot, b^3, the free end of the part *b′* being acted upon by the finger B^5. The bolt B^3, which connects the back B with the piece A^3, which is part of the lay, also serves to hold in place a bracket, C, having a guide, C′, which is extended through a slot, $c^\times$, in the part *b′* of the binder, preventing the binder from sagging at its free end. The binder is acted upon by a steel spring, *c*, connected at one end to the arm A by the screw *c′*, a second screw, c^2, inserted through the said spring, serving to adjust the inward pressure of the said binder. The binder, between its ends, has a stud, *d*, which forms the fulcrum for a presser or check lever, composed of two concavo-convex arms, *d′* d^{14}, a portion of each arm at one end being bent somewhat after the manner of a strap-hinge to form an open loop to hook over the stud *d*, the loop 20 (see Fig. 2) from the arm *d′* entering the open slot in the binder and resting upon the loop 21 of the arm d^{14}, the loop 21 also entering the said slot. The arm *d′*, at its broad part, has a threaded hole, 40, (see Fig. 3,) into which is screwed in an adjustable manner the screw d^2, the latter being extended through a spiral spring and a like hole in the arm d^{14} before being screwed into the hole 40 of the arm *d′*, so that the said spring acts normally to press the free ends, as 3, of the arms *d′* d^{14} into the shuttle-box, the pressure of the shuttle against both of the arms or their ends 2 3 tending to compress the spring d^3, and consequently put additional friction upon the shuttle to check its movement. Referring to Fig. 3, the narrow projection 20 at one end is that which is bent to form a loop to embrace the stud *d*. The arm *d′* has a guide-pin, *e*, fixed to it near one end, which pin is extended through a conical hole in the binder, after which it receives, as herein shown, a conical nut, *e′*, adjustment of which on the pin *e* determines the extent of inward movement of the end 2 of the arm *d′*; or the said pin may be provided with any head equivalent to the conical nut. The shuttle S, as it enters the shuttle-box, first strikes against the inner end, 3, of the arm d^{14}, and while passing from the full to the dotted line position, Fig. 1, the shuttle forces the arms d^{14} *d′* and the binder outward, as shown by dotted lines, such movement also turning the independent arms d^{14} and *d′* of the check-lever on the stud *d*, and compressing the spring d^3, thus causing the arms *d′* and d^{14} to exert greater pressure upon the side of the shuttle and gradually checking its motion. The shuttle, as it is thrown from the shuttle-box by the usual picker-stick, passes the end 2 of the arm *d′*, and thereafter the shuttle is

quickly released from pressure of the check-lever by reason of the latter turning upon the stud *d*.

I am aware that a binder has had pivoted upon it a check-block having a convexed face; but I am not aware that a presser or check lever which is free to yield or turn at a point between its ends has ever been employed composed of independent arms pivoted with relation to each other, substantially as described, and controlled by a spring, in order that the free ends of the presser or check lever may move independently, as herein set forth.

I claim—

1. The binder and the arm to support it combined with the yoke-like presser or check lever comprising two arms, d' d^{14}, and a spring and means to connect it with said arms to cause it to draw them toward each other, substantially as described.

2. The binder made in two parts, *b* *b'*, the supporting means therefor consisting of the fulcral stud *a*, the arm A, provided with a slotted projection, A^2, to receive said stud, and the bracket provided with the guide C', to engage a slot in the said binder, combined with the check-lever comprising two arms, d' d^{14}, movable toward and from one another and held together and to the binder by a spring and bolt or stud, substantially as described.

3. A supporting-arm, A, the binder arranged thereon and provided with a stud-receiving hole, combined with the yoke-like yielding presser or check lever composed of the two arms d' d^{14}, pivoted to the binder, and themselves connected by a spring and bolt which tend to draw the said arms toward each other, and the guide-stud *e*, extending from one of said arms through the stud-receiving hole in the binder and provided with a headed end to engage the binder, substantially as described.

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

CHAS. H. KNAPP. [L. S.]

Witnesses:
R. WILLIAMS,
S. J. SLAPER.