No. 743,880. PATENTED NOV. 10, 1903.

J. P. JOHNSON.

SHUTTLE CHECKING MECHANISM FOR LOOMS.

APPLICATION FILED JUNE 22, 1903.

NO MODEL.

Fig. 1.

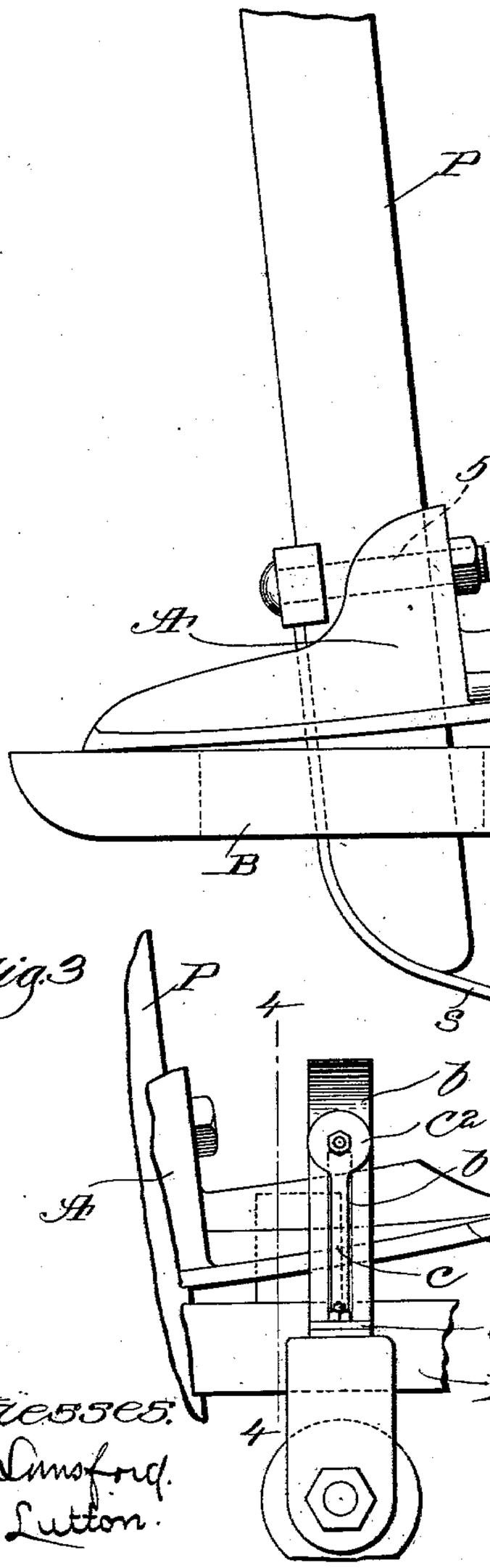


Fig. 2.

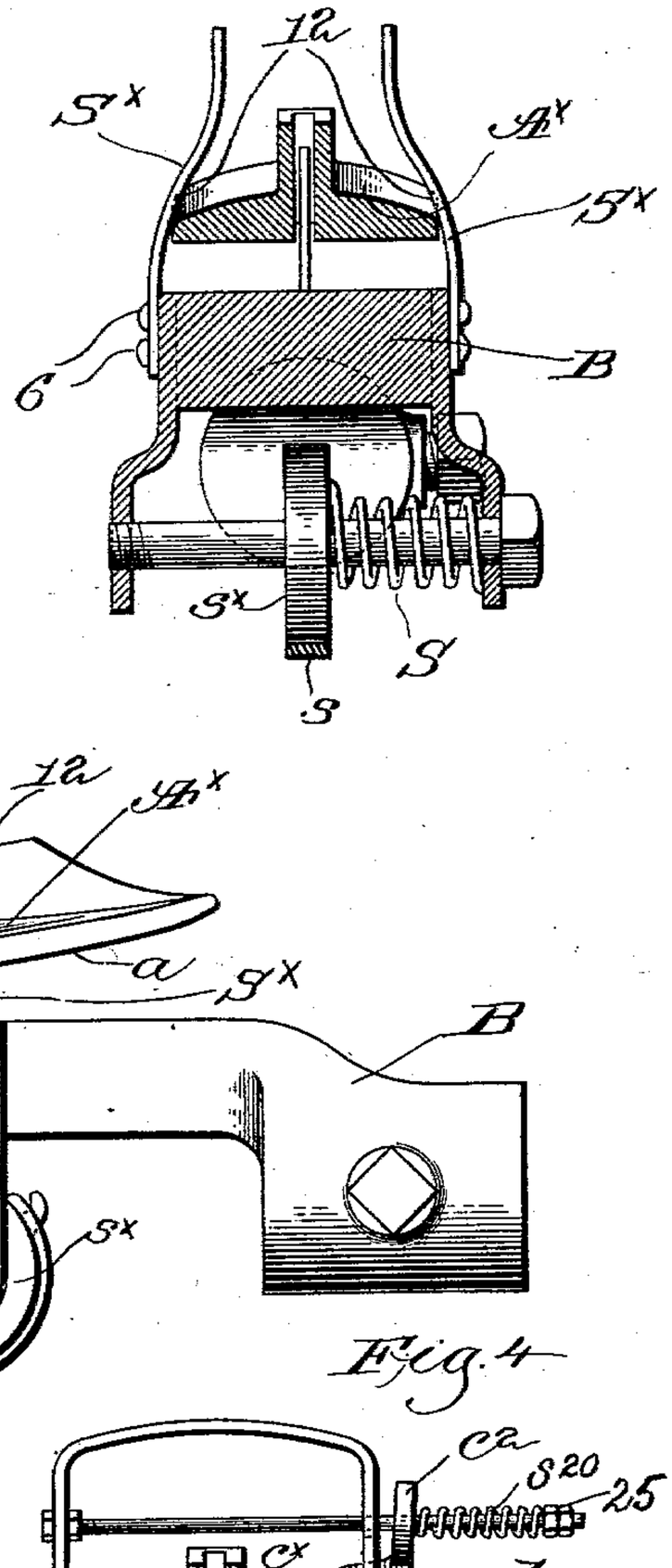
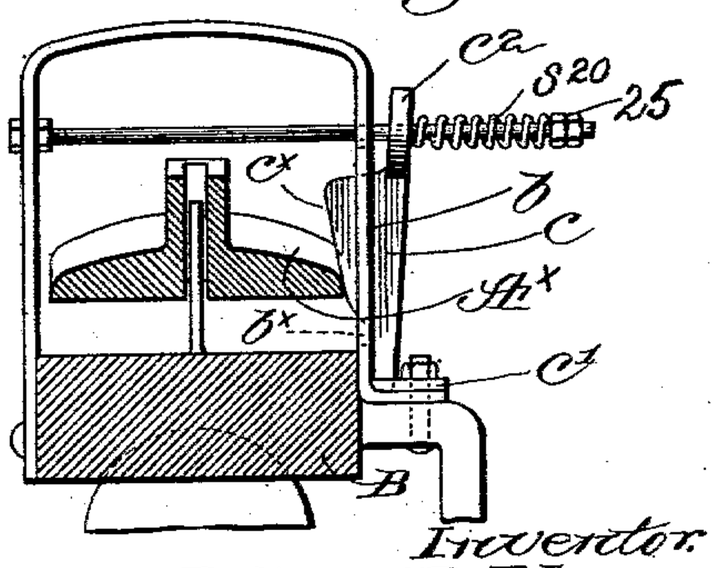


Fig. 3.

Fig. 4.



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No. 743,880. Patented November 10, 1903.

UNITED STATES PATENT OFFICE.

JOSHUA P. JOHNSON, OF BRUNSWICK, MAINE, ASSIGNOR TO DRAPER COMPANY, OF HOPEDALE, MASSACHUSETTS, A CORPORATION OF MAINE.

SHUTTLE-CHECKING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 743,880, dated November 10, 1903.

Application filed June 22, 1903. Serial No. 162,493. (No model.)

To all whom it may concern:

Be it known that I, JOSHUA P. JOHNSON, a citizen of the United States, and a resident of Brunswick, county of Cumberland, State of Maine, have invented an Improvement in Shuttle-Checking Mechanism for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention has for its object the production of novel, simple, and effective means for checking and bringing to a stop the shuttle when it enters the shuttle-box of a loom. When the shuttle enters the shuttle-box, it engages the binder, which is usually provided with a swell, and moves it outward against the action of a spring, thus retarding the speed of the shuttle, and the latter then engages and moves the picker-stick outward. The picker-stick is frequently arrested by a leather strap, cushion, or some similar device, and not infrequently the shuttle will rebound from the stick and become improperly positioned in the box, and the inward movement of the picker-stick will also impart a blow to the shuttle, which is objectionable.

In my present invention I do away with straps or cushions to arrest the picker-stick and instead employ a spring which acts continuously upon the toe of the shoe to which the stick is secured, the checking and final stoppage of the shuttle being thereby effected and preventing rebound of the shuttle.

The various novel features of my invention will be described hereinafter and particularly pointed out in the following claims.

Figure 1 is a side elevation of the lower end of a picker-stick, its attached shoe, and the support on which the latter rocks, with one embodiment of my present invention applied thereto. Fig. 2 is a transverse sectional detail on the line 2 2, Fig. 1, looking toward the right. Fig. 3 is a side elevation of a portion of the shoe and its support, illustrating another embodiment of my invention; and Fig. 4 is a transverse sectional detail thereof on the line 4 4, Fig. 3, looking toward the right.

Referring to Fig. 1, the picker-stick P is attached at its lower end to a shoe A by a bolt 5, the sole *a* of the shoe resting upon and rocking on the usual support or stand B, adapted to be secured to the lay rocker-shaft, all in usual manner and of well-known construction, the picker-stick being actuated by any usual means. (Not shown.) The depending end of the stick passes through the slotted end of the support B, and the latter carries a spring S, Fig. 2, one end of which is fast and its other end secured to a rotatably-mounted disk $s^{\times}$. A strap *s* is secured to the disk and passes thence around the end of the stick and up to the bolt 5, to which it is secured, the spring acting to return the picker-stick and shoe to normal position, as is usual.

Referring now to Figs. 1 and 2, I have shown strong upturned leaf-springs $S^{\times}$ rigidly secured to the sides of the support B by suitable bolts or rivets 6 on opposite sides of the tip $A^{\times}$ of the shoe, said springs being bent inward, as at 12, (see Fig. 2,) above the tip when the latter is in normal position. When the shuttle enters the shuttle-box, it engages the usual binder and is thereby checked in its speed, but continues onward until it engages the picker-stick and moves the latter outward. Such movement of the stick elevates the tip of the shoe, and it rises between the springs $S^{\times}$ and forces them apart, the tension of the springs increasing as the shoe-tip moves into the narrowing space between them due to the bends 12. The checking action of the springs is thus exerted directly upon the shoe and transmitted thence by the picker-stick to the shuttle, bringing both to rest simultaneously with the latter in proper position in the box. Rebounding of the shuttle is obviated, and the picker-stick is in proper relation thereto to throw the shuttle from the box on the next shot. By bending the springs more or less toward each other the checking action can be adjusted to correspond properly with the speed and weight of the shuttle.

In Figs. 3 and 4 I have shown another embodiment of my invention, a strong transverse arch *b* being erected on the support B,

the tip of the shoe passing therethrough. One side of the arch is longitudinally slotted at $b^{\times}$ to receive a friction-check c, having a cam face or swell $c^{\times}$ on its inner edge and pivotally supported at its lower end in a socket-plate c', secured to the foot of the arch. The check is provided with an enlarged lateral head c^2, having a hole to receive loosely through it a rod b', which is attached to and extends across the arch and beyond its slotted side. A spring s^{20} is interposed between the outer face of the head c^2 and check-nuts 25 on the outer end of the rod, the spring forcing the friction-check inward with its swell in the path of the side of the shoe-tip. When the latter is raised by the outer movement of the picker-stick, due to impact of the shuttle, the friction-check is forced outward against the spring s^{20}, and thereby checks the stick and shuttle. By means of the swell $c^{\times}$ the resistance gradually increases, and the tension of the spring can be regulated by means of the check-nuts 25.

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

1. In a loom, a picker-stick, an attached shoe, a support upon which the latter rocks, and a checking-spring in continuous coöperation with and to act upon the tip of the shoe throughout its movement and check the shuttle when the latter engages and moves the picker-stick outward.

2. In a loom, a picker-stick, an attached shoe, a support upon which the latter rocks, and an adjustable checking-spring to act continuously upon the tip of the shoe throughout its movement and check the shuttle when the latter effects outward movement of the picker-stick.

3. In a loom, a picker-stick, an attached shoe, a support upon which the latter rocks, and a spring mounted on said support and with the tip of the shoe in continuous coöperation throughout its movement to thereby check the shuttle when the latter effects outward movement of the picker-stick.

4. In a loom, a picker-stick, an attached shoe, a support upon which the latter rocks, a friction-check mounted on said support to continuously engage the tip of the shoe, and a spring to press the check against the shoe, to check the outward movement of the picker-stick.

5. In a loom, a picker-stick, an attached shoe, a support upon which the latter rocks, a friction-check movably mounted on said support and having a swell, and a spring to press the check against and maintain it in continuous engagement with the tip of the shoe, to check with gradually-increasing force the outward movement of the picker-stick.

6. In a loom, a picker-stick, an attached shoe, a support upon which the latter rocks, a friction-check movably mounted on said support and having a swell, a spring to press the check against and maintain it in continuous engagement with the tip of the shoe, and means to vary the pressure of the spring, to check the shuttle when the latter effects outward movement of the picker-stick.

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

JOSHUA P. JOHNSON.

Witnesses:
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