(No Model.)

H. E. HAMILTON.

SHUTTLE BINDER FOR LOOMS.

No. 504,349. Patented Sept. 5, 1893.

Fig: 1.

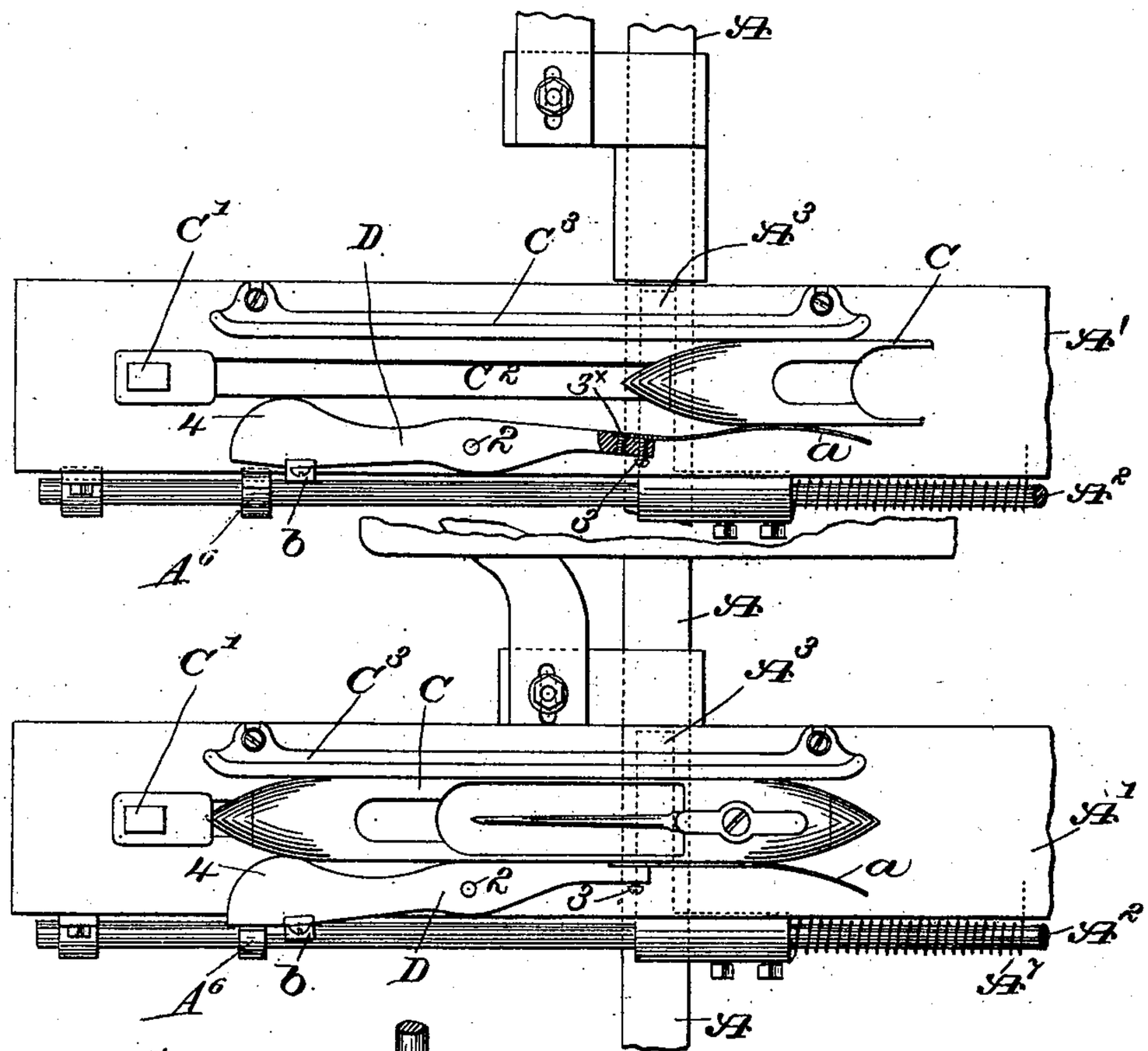


Fig: 2.

Fig: 3.

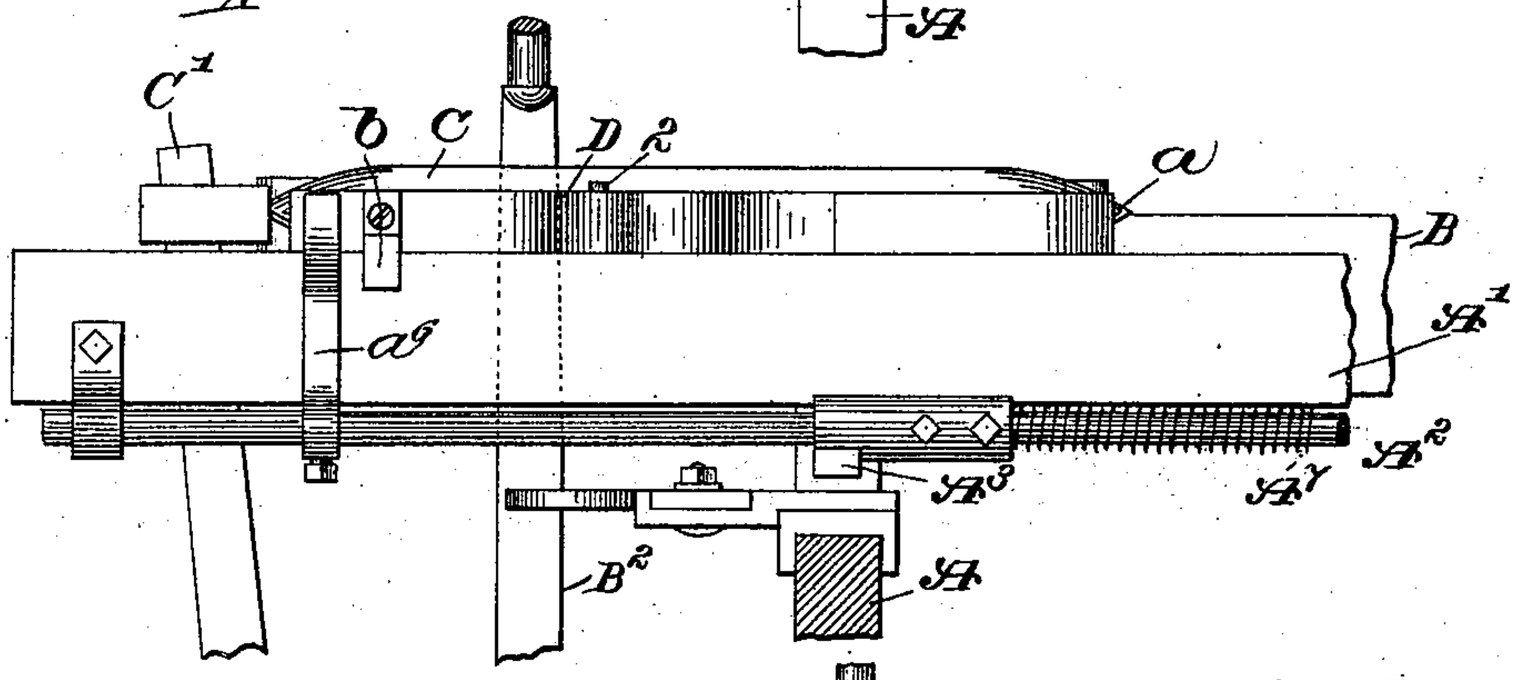


Fig: 4.

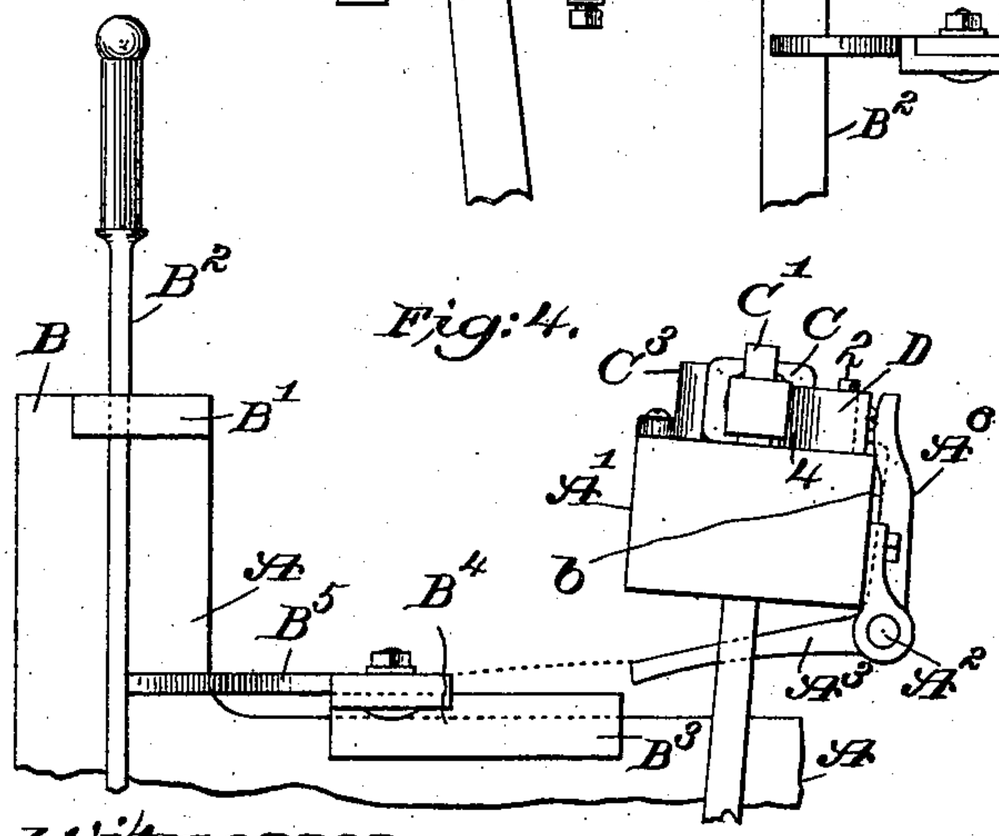
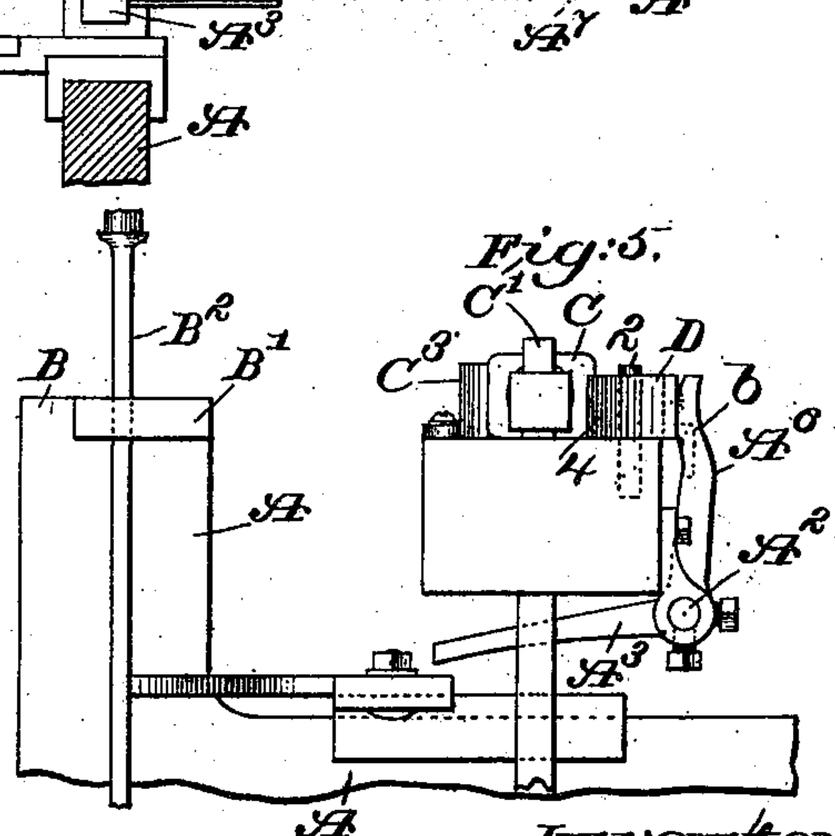


Fig: 5.



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HERBERT E. HAMILTON, OF SALMON FALLS, NEW HAMPSHIRE.

SHUTTLE-BINDER FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 504,349, dated September 5, 1893.

Application filed September 24, 1892. Serial No. 446,787. (No model.)

To all whom it may concern:

Be it known that I, HERBERT E. HAMILTON, of Salmon Falls, county of Strafford, State of New Hampshire, 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 and figures on the drawings representing like parts.

This invention relates to improvements in what is called "the stop motion mechanism." In ordinary looms, the shuttle as it comes into the shuttle-box is acted upon by a binder, the latter serving to check the movement of the shuttle and prevent its rebound. The binder is customarily acted upon by a binder finger connected to a protector-rod having a dagger, which, if the shuttle is properly in the shuttle-box is lifted so as not to effect the release of the usual shipper handle, but in case the shuttle fails to come properly into the shuttle-box, then the binder, not being moved out against the finger to lift the dagger enables the dagger to effect the release of the shipper handle and the loom is stopped. In this invention the binder has been so constructed that its inner end or the end nearest the reed acts as a friction check for the shuttle as the latter enters the shuttle-box, and when the shuttle has fully entered the box, as it must do in practice, to prevent breaking the warps, the shuttle gives an extra movement to the binder to turn the protector-rod and prevent the stopping of the loom. The binder, when acting as a check for the shuttle, is moved by the shuttle in one direction, but having served its purpose of a shuttle check, the shuttle, as the latter farther enters the shuttle-box, acts on and turns the binder in the opposite direction. If the shuttle fails to enter the box fully and put the picker stick into the outer end of the slot in the bottom of the shuttle-box, the binder is not moved outwardly at its outer end, the protector-rod is not turned, and the dagger remaining down causes the stopping of the loom.

One part of my invention consists in a lay having a protector, of a shuttle-binder pivoted between its ends, and means to move the protector by the movement of that portion of the binder between the pivot of the binder and the end of the lay.

Other features of my invention will be hereinafter described and pointed out in the claims at the end of this specification.

Figure 1 is an enlarged plan view of one end of the lay and part of its frame, the binder being shown as acting as a shuttle check; Fig. 2, a similar view with the shuttle farther in the box so as to turn the binder and protector-rod and lift the dagger; Fig. 3, a side view of the parts shown in Fig. 2, with the shipper handle added; Fig. 4, a left-hand end view viewing Fig. 1; and Fig. 5, a similar view of the parts shown in Fig. 2.

In the drawings, A represents the framework; A′ the lay; A^2 a protector shaft having a dagger A^3; B the breast-beam; B′ the usual notched plate to hold the shipper handle B^2; B^3 a slide block mounted on the loom side and having a shoulder B^4 and a finger B^5; C′ a picker-stick; C^2 a slot in the lay, and C^3 the stationary side of the shuttle-box.

On the protector-shaft A^2, is secured its attached binder finger A^6 and A^7 is a spring surrounding and acting normally to keep the said finger pressed against the binder D to be described.

The parts so far referred to by letter are and may be all of usual construction, so need not be herein further described. The finger B^5 of the block B^3 normally stands close to the shipper handle when held in its notch, and in practice the block B^3 will have a spring, not shown, to pull it back into the position shown in Figs. 4 and 5.

The binder D is novel, both as to its construction and method of operation, as will now be described. The binder D is mounted or pivoted between its ends, as at 2, to the lay. This binder, shown, constitutes one side of the shuttle-box, and is so shaped that its inner end may act against and check the movement of the incoming shuttle without operating the protector-rod, but as the shuttle fully enters the box, it acts against the binder at or near its outer end and causes said outer end to be moved out, thus acting on the finger A^6 sufficiently to turn the protector-shaft and lift the dagger A^3 so as not to strike and move the block B^3. The inner end of the binder is shown as composed of an elastic spring blade *a* securely fastened by suitable screws $3^{\times}$, see Fig. 1, to one end of

the main body of the binder, another screw, herein marked 3, serving to adjust said blade as desired, in order that it may be put in the desired normal relation to the path of the shuttle, and thus cause the binder to act with more or less force against the incoming shuttle. At the outer end of the binder is a limiting stop *b*, it being shown as a finger secured to and depending from the binder, said finger normally standing substantially in contact with the lay so that the spring *a*, can act with the desired friction. The outer end of the binder has, as shown, a swell 4 against which the shuttle, having arrived properly into the box, as shown in Figs. 3 and 4, acts and pushes that end of the binder out, moving the binder finger and lifting the dagger. Should the shuttle not enter the shuttle-box far enough to move the outer end of the binder outwardly, then the dagger A^3 would not be lifted and the loom would be stopped in the usual way. By the employment of a binder such as described, it is possible to adjust the degree of friction on the shuttle without in any way affecting the operation of the protector-rod, whereas, as in ordinary looms where the binder is made to bear against the shuttle to check the shuttle by a force due to the strength of the spring A^7 on the protector shaft, much trouble is often experienced in adjusting the binder to its work at opposite ends of the lay. If the shuttle should but partially enter the box, as in Fig. 1, the dagger would not be lifted, but would be left down, as in Fig. 4, and stop the loom.

This invention is not limited to the precise shape or form of devices between the dagger and shipper handle, the particular devices so interposed between the shipper and shipper handle being supposed to be substantially such as represented in United States Patent No. 454,810.

Having described this invention, what is claimed, and desired to secure by Letters Patent, is—

1. A lay; a protector-rod; a shuttle binder pivoted between its ends and movable with the lay; and means to move the protector-rod, said means being located between the pivot of the binder and the end of the lay, substantially as described.

2. A lay; a protector rod; a shuttle binder pivoted between its ends and movable with the lay, and provided at its end nearest the reed with an elastic spring blade; and means to move the protector rod, said means being located between the pivot of the binder and the end of the lay, substantially as described.

3. A lay and a shuttle binder pivoted thereon between its ends whereby the shuttle on entering the box will tend to turn the binder about its pivot, in combination with a stop or catch applied to the outer end of the binder to limit its range of inward movement, substantially as described.

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

HERBERT E. HAMILTON.

Witnesses:

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