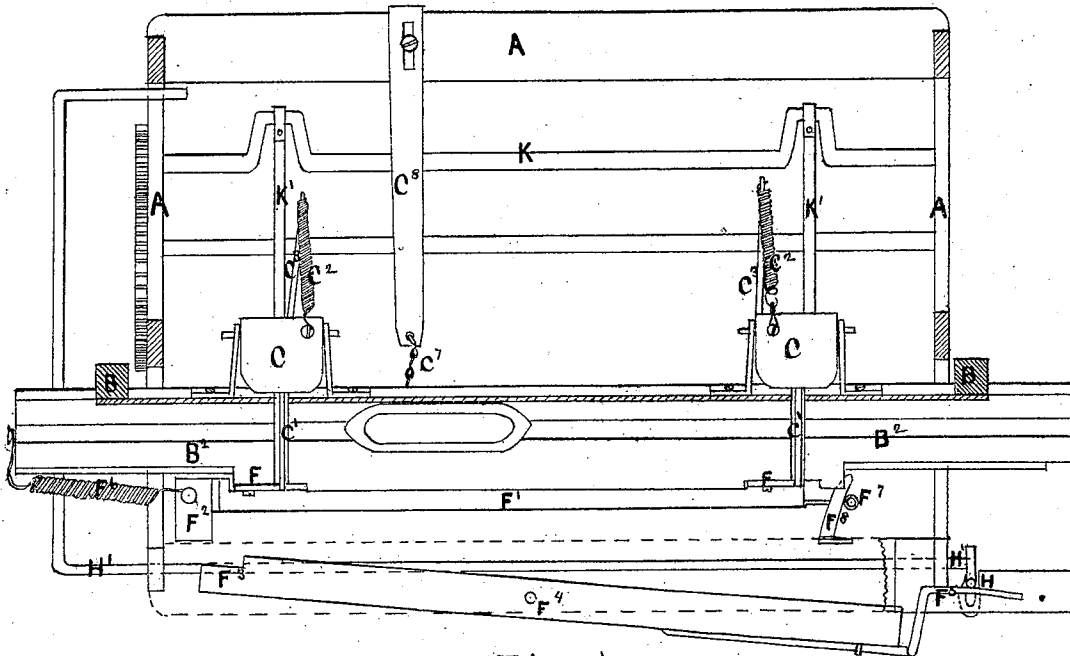


Switzer Stop Motion for Looms
No. 119,798.

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Patented Oct. 10, 1871.



Switzer's Stop Motion for Loom

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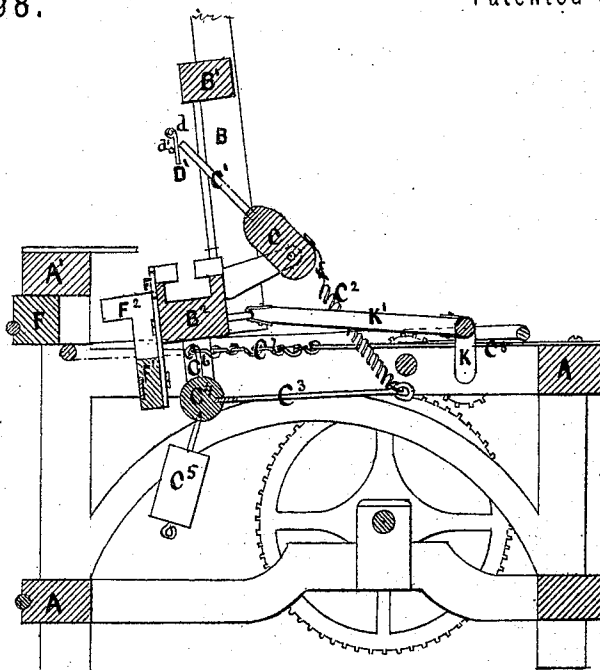


Fig. 3.

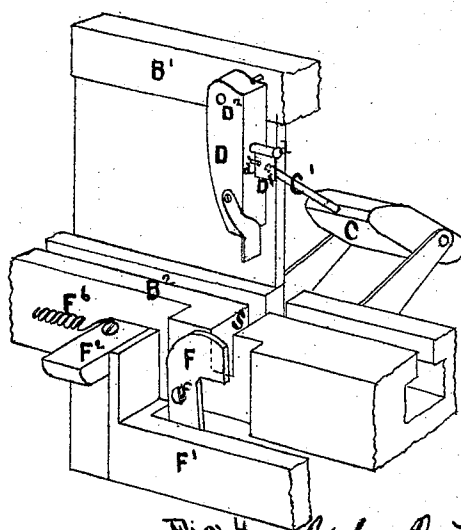


Fig. 4

Witnesses

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Fig. 4 John J. Switzer
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By William Edson Atty.

UNITED STATES PATENT OFFICE.

JOHN J. SWITZER, OF BOSTON, ASSIGNOR TO HIMSELF, EDWIN H. FITTZ, OF NORTHBOROUGH, WILLARD COMEY, OF WESTBOROUGH, AND EDWARD B. PENDLETON, OF WESTERLY, MASSACHUSETTS.

IMPROVEMENT IN WEFT-STOP MECHANISM FOR LOOMS.

Specification forming part of Letters Patent No. 119,798, dated October 10, 1871; antedated September 25, 1871.

To all whom it may concern:

Be it known that I, JOHN J. SWITZER, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Stop-Motions for Looms, of which the following is a specification:

The nature of my invention consists in combining, with the lay of a loom, light levers and suitable adjuncts, and so arranging the same that at each motion of the lay the levers will fall upon the weft-thread if the weft-thread be unbroken, but if the weft-thread is broken then the levers will fall below the line of the weft into a position in which they, acting through a certain mechanical device, serve to throw off the belt from the driving-pulley and thus stop the machine, the object being to stop the action of the loom whenever the weft-thread breaks.

Figure 1 is a plan, showing parts of a loom with my invention attached. Fig. 2 is an elevation of the same. Fig. 3 is a cross vertical section of the same. Fig. 4 is a perspective view, showing the essential features of my invention.

A A represent the frame of a loom, to which the lay B B¹ B² and other parts are attached. K is the crank-shaft, which, acting through the pitman K¹, actuates the lay. B² is a shuttle-race, formed in the ordinary manner, except that it has, near each end, a slot, S, cut across it. F F are two levers, attached to the shuttle-race by screws f f, about which they swing. The lower ends of these levers are attached to the bar F¹ in such a manner that the bar F¹ may swing longitudinally. This bar is drawn to the left by the spring F⁶, and to the right, as the lay makes its back stroke, by the fixed guide F⁸, Fig. 1, which presses a standard, F⁷, attached to the bar F¹. This bar F¹ has upon its end a boss, F², which, as the lay advances, will come in contact with the end F³ of the lever F⁴ whenever the bar F¹ is not drawn back by the spring F⁶. When it is drawn back by the spring F⁶ then the boss F² will pass by the end of the lever F³ F⁴ without moving it. The lever F³ F⁴ swings on a pivot near its center, and serves to release the spring-lever H and allow it to draw the belt-shipper H¹ back, so as to shift the belt from the fixed to the loose pulley—not shown in the drawing—and thus stop the ma-

chine. C C¹ is a light lever or weft-detector, pivoted, as shown, to the back of the lay. At each stroke of the lay the lever C¹ is drawn up. This is effected by the spring C², which is connected to an arm, C³, of the rock-shaft C⁴. This rocker-shaft is hung under the lay, and is operated by an arm, C⁶, which is connected by a strap, C⁷ C⁸, to the rear part of the frame A. By inspection of Fig. 3 it will be seen that as the lay advances, carrying with it the rocker-shaft C⁴, this rocker-shaft will be made to make a partial revolution; from the fact that the strap C⁷ C⁸ will hold back the arm C⁶, thus causing the shaft to revolve, carrying down the arm C³ and spring C², which action will throw up the lever C C¹. As the lay begins its return stroke the counter-balance C⁵, acting through the rock-shaft C⁴ and arm C³, allows the lever C C¹ to drop, unless held up by the latch D¹. D is a hanger, attached to the bar B¹, and so arranged that it may swing toward the end of the lay but not toward the center. D¹ is a small latch, hung to the side of the hanger D, as shown in Fig. 4. This latch has a stop-pin, d', and is so arranged as to allow the lever C¹ in its upward motion to swing it back, and thus pass beyond it; but as the lever C¹ falls back the latch D¹ holds it, as shown in Figs. 3 and 4. D³ is a latch, attached to the lower end of the hanger D, and hangs so low that the shuttle in its passage will hit it. The shuttle in its passage out of the box will hit the latch D³, and swing it forward without moving the hanger D; but in the passage of the shuttle into the box it will hit the latch D³ and carry it, with the hanger D, backward so far as to move the small latch D¹ away from the lever C¹, and thus to allow it to drop upon the weft-thread; or, in case the weft-thread is broken, to fall into the slot S.

The operation of my invention is as follows: As the shuttle passes backward and forward it causes one of the hangers D to swing back, and thus allow the corresponding lever C¹ to drop upon the weft-thread. Each motion of the lay throws back these levers or weft-detectors C¹, as has been explained. Now, in case the weft-thread is broken, the lever C¹, which is released by the passage of the shuttle, will drop into the slot S, as shown in Fig. 1; and, as its end projects beyond the face

of the race-way, it will come in contact with the end of lever F, as shown in Fig. 1, and thus preventing F from swinging, and as the bar F¹ is connected with the lever F it cannot be drawn back by the spring F⁶; in which case, as the lay advances, the boss F² will come in contact with the end F³ of the lever F⁴ F⁵, and cause it to swing so as to release the belt-shifting lever H and thus stop the motion of the loom. The operator can then reattach the weft-thread to the shuttle, and, after raising the lever C¹ so it may rest on the latch D¹, again start the loom.

I claim as my invention—

1. The combination of the weft-detectors C¹ C¹ with the levers F, sliding bar F¹, and swinging bar F⁴ of the stop motion, all arranged and operating as set forth.

2. The hanger D, latch D¹, and latch D³, in combination with the weft-detector C¹, operating substantially as described and for the purpose set forth.

JOHN J. SWITZER.

Witnesses:

JAS. S. CONANT,

FRANK G. PARKER.