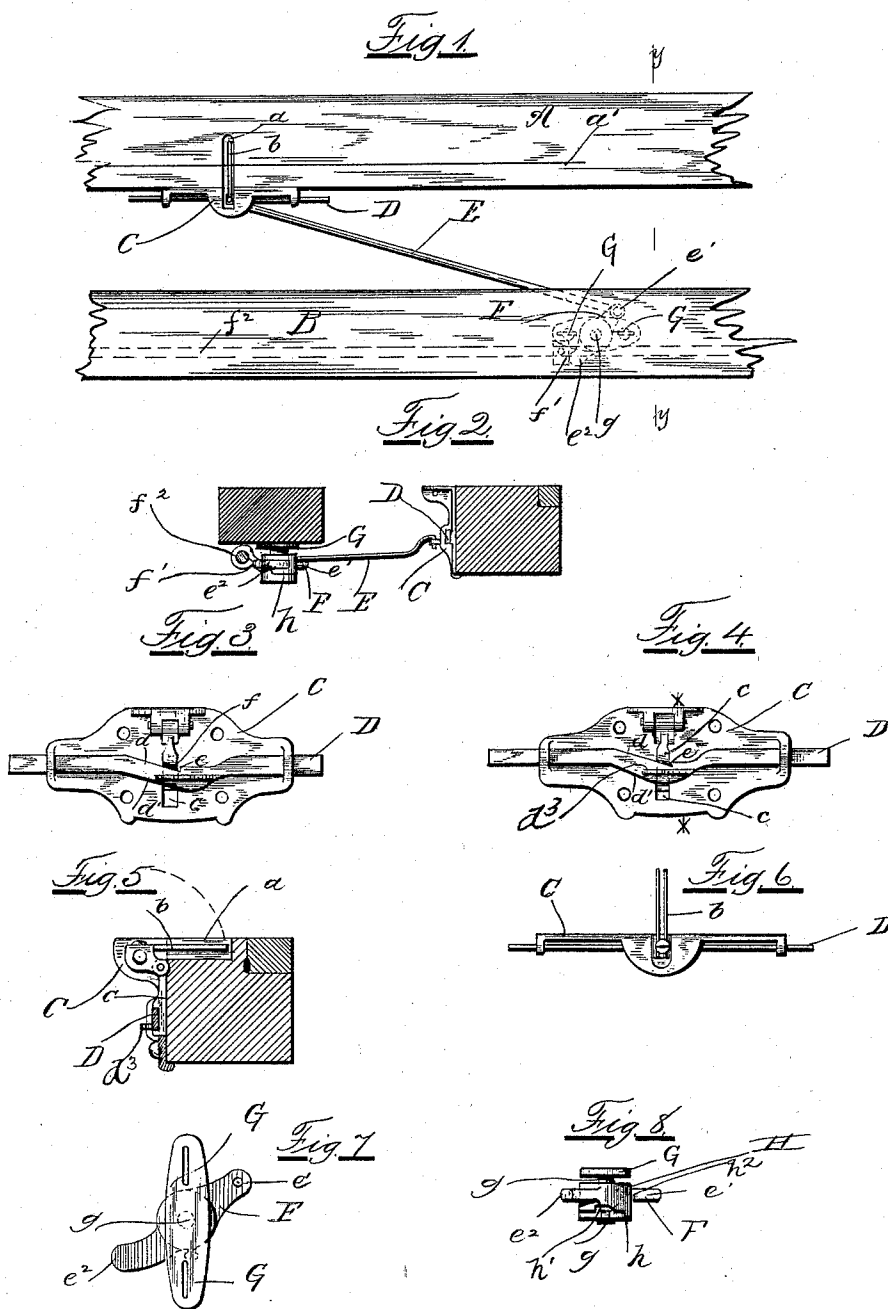


(No Model.)

H. WYMAN & J. A. CLARK.
WEFT STOP MOTION FOR LOOMS.

No. 477,731.

Patented June 28, 1892.



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UNITED STATES PATENT OFFICE.

HORACE WYMAN AND JOHN A. CLARK, OF WORCESTER, MASSACHUSETTS,
ASSIGNORS TO THE CROMPTON LOOM WORKS, OF SAME PLACE.

WEFT STOP-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 477,731, dated June 28, 1892.

Application filed June 19, 1890. Serial No. 355,988. (No model.)

To all whom it may concern:

Be it known that we, HORACE WYMAN and JOHN A. CLARK, citizens of the United States, residing at Worcester, county of Worcester, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Weft Stop-Motions for Looms, of which the following is a specification in such full, clear, concise, and exact terms as to enable any person skilled in the art to which the invention appertains and with which it is most nearly connected to make, construct, and use the same.

Our invention relates to improvements in stop-motions for looms where a feeler-fork, a vertically-sliding bar, and a horizontally-sliding bar attached to and carried on the lay by means of a connecting-rod operate in conjunction with a two-armed lever on the breast-beam, so arranged that one end of said lever comes in contact with a dog on the shipping-rod to automatically stop the loom whenever there is a break in the filling-thread.

The object of our invention is to provide a ready, sure, and efficient means of automatically stopping the loom whenever for any cause there shall be a break in the filling-thread last laid in the shed.

Our invention consists of a feeler-fork pivoted on a plate attached to and carried by the lay, a vertically-sliding bar pivoted to the feeler-fork, a horizontally-moving bar provided with one cam-surface to raise the vertically-sliding bar and feeler-fork, so that the shuttle may freely pass under it, and another cam-surface to assist in returning the vertically-sliding bar to its position and a notch to be engaged by the vertically-sliding bar when in its lowest position, thereby preventing the further movement horizontally of the sliding bar, and a rod connected at one end to said horizontal bar and at its other end to one end of a two-armed lever pivoted under the breast-beam, provided with inclined surfaces on a supporting-stand attached to the under side of the breast-beam, the inclined surfaces acting to hold the arm in position to move the horizontally-sliding bar as the lay moves forward and back, except when the sliding bar is arrested by the vertically-sliding bar when in its lowest position, in which case the arm will be rotated about its axis, raising it up on the

inclined surface of the supporting-stand. During the movement the opposite arm of the lever comes in contact with a dog on the usual shipping-rod and in the usual way detaches the shipping-lever from its detaining-clutch and stops the loom. In case in the process of weaving there is a thread laid under the feeler-fork the vertical bar will be held above the notch in the horizontal bar and no movement of the lever under the breast-beam will take place. The movement of the lever under the breast-beam is such that after detaching the shipper-handle from its clutch it will continue to move and be elevated by the incline of the supporting-stand above and out of the path of the dog on the shipping-rod, when said shipping-rod is returned to its place, which it would be prevented from doing if the lever was not so elevated.

In the drawings which accompany this specification and make a part thereof, Figure 1 is a plan view showing our invention attached to the lay and breast-beam of the loom. Fig. 2 is an end view on the line *yy*. Fig. 3 is a detail showing the vertically-sliding bar and the horizontally-sliding bar, with the vertically-sliding bar raised. Fig. 4 is a detail similar to Fig. 3, only the vertically-sliding bar is in its lowest position and in engagement with the notch in the horizontally-sliding bar. Fig. 5 is a cross-section of the lay on the line *xx*, Fig. 4. Fig. 6 is a detail showing the feeler-fork. Fig. 7 is a plan detail of the two-armed lever and plate. Fig. 8 is a detail of the two-armed lever and plate.

In the drawings like letters refer to similar parts.

In the drawings, A is the lay and B the breast-beam of the loom. Transversely the lay is a slot *a*, into which the feeler-fork falls when the filling-thread breaks or does not pass through the warp. On the front of the lay is attached a plate C, having pivoted to it the feeler-fork *b*, composed of one or more light prongs and jointed to the vertically-sliding bar *c*.

D is the horizontal sliding bar and is provided with an upper cam-surface *d*, which raises the vertical bar *c* to a point sufficiently high to permit the shuttle to pass freely under the feeler-fork, and a lower cam-surface *d'*, which assists in returning the vertically-sliding

ing bar to its lowest position when there is a break in the filling-thread. This horizontally-sliding bar is also provided with the notch *e*, which is engaged by the shoulder *f* on the vertically-sliding bar *c*. The horizontal bar slides back and forth in a recess in the vertical bar *c*.

E is the connecting-rod, one end of which is attached to an ear *d*³ on the horizontally-sliding rod D and the other end to one end *e*¹ of the two-armed lever F. Under the breast-beam is attached by means of a plate G a pivotal pin *g*, having on its lower end a plate *h*, provided with inclined surfaces *h*¹. Turning on the pivotal pin *g* is the two-armed lever F, its hub H also provided with inclined surfaces *h*² to fit the plate rigidly attached to the lower end of the pin *g*. The end *e*² of the two-armed lever F when the loom is in operation and there is no break in the filling-thread rests within reaching distance as it turns on the supporting-plate of a dog *f*¹, fast on the shipping-bar *f*². As the lay beats up, with the feeler-fork resting on the filling-thread *a*³, the horizontally-sliding bar D passes easily to and fro, the upper cam-surface *d* raising the vertical bar *c*, thereby elevating the feeler-fork for the passage of the shuttle. When from any cause the filling-thread breaks or fails to pass through the warp, the feeler-fork, assisted in its descent by the lower cam-surfaces, falls into the slot *a* and causes the shoulder *f* on the vertically-sliding bar *c* to come into contact with the notch *e* in the bar D, thus preventing any further movement of the bar D in that direction. The lay still beating up, the connecting-rod E turns the lever F. This lever turning is forced against the dog *f*¹ on the shipping-bar *f*² and detaches the latter from its detaining-clutch and moves it in a reverse direction from that of the connecting-rod. The lever still revolves a little and is raised on the inclined surfaces of the supporting-stand until the end *e*² is carried by and above the pathway of the dog on the shipping-bar and the loom stops. When the filling-thread is rearranged, the loom is started, the lever assumes its normal position, and so remains until another break in the thread causes the vertically-sliding bar to come into contact with the notch *e* to arrest the motion of the horizontally-sliding bar.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the feeler-fork attached to and carried by the lay, the vertically-sliding bar pivoted to the feeler-fork, the horizontally-sliding bar provided with cam-surfaces and the notch *e*, the rod connecting the horizontally-sliding bar with the two-armed lever, and the two-armed lever provided with a hub having inclined surfaces supported by a plate attached to the breast-beam, substantially as and for the purposes described.

2. The combination of a feeler-fork attached to and carried by the lay with the vertically-sliding bar, the horizontally-sliding bar having cam-surfaces and provided with means of engagement with the vertically-sliding bar, the connecting-rod, the two-armed lever having a hub provided with inclined surfaces to fit the supporting-plate, the supporting-plate, and the shipping-rod provided with a dog, whereby the shipping-rod may be moved by the lever upon the engagement of the vertical bar and horizontal bar, substantially as and for the purposes described.

3. The combination, with the lay of the loom, having a transverse slot to receive the feeler-fork, of a vertically-sliding bar pivoted to the feeler-fork, the feeler-fork pivoted to a plate on the lay and adapted to be supported by the filling-thread, the horizontally-sliding bar provided with a notch to be engaged by the vertical bar, the connecting-rod, the two-armed lever, and the supporting-plate, the lever and plate each provided with correspondingly-inclined surfaces, and the shipping-rod having a dog mounted thereon, substantially as and for the purposes described.

4. The weft stop-motion device comprising a feeler-fork, a vertically-sliding bar connected to said fork, and a horizontally-sliding bar provided with an upper and a lower cam-surface and with means to be engaged by the vertically-sliding bar, all these parts carried by the lay, a lever pivoted on the breast-beam, and a rod connecting the sliding bar on the lay with the lever on the breast-beam, substantially as and for the purposes described.

5. In a stop-motion for looms, the combination of a two-armed lever having a hub provided with inclined surfaces with a supporting-plate provided with correspondingly-inclined surfaces attached to the breast-beam by a pivot-pin passing through the hub of the lever, the shipping-rod having a dog, with which one end of the lever is arranged to contact, and weft-detecting mechanism carried by the lay of the loom in operative connection with the other end of said lever, substantially as and for the purposes set forth.

6. In a stop-motion for looms, the combination of the shipping-rod provided with a dog with the two-armed lever having a hub with inclined surfaces, a supporting-plate attached to the breast-beam by a pivot-pin and having correspondingly-inclined surfaces, a feeler-fork arrangement on and carried by the lay, and a connection between said lever and said arrangement, substantially as and for the purposes set forth.

In testimony whereof we hereunto set our names this 2d day of June, A. D. 1890.

HORACE WYMAN.
JOHN A. CLARK.

Witnesses:

JUSTIN A. WARE,
SAMUEL B. SCHOFIELD.