2 Sheets—Sheet 1.

J. J. SWITZER.

STOP MOTION FOR LOOMS.

No. 182,245. Patented Sept. 12, 1876.

Fig. 1.

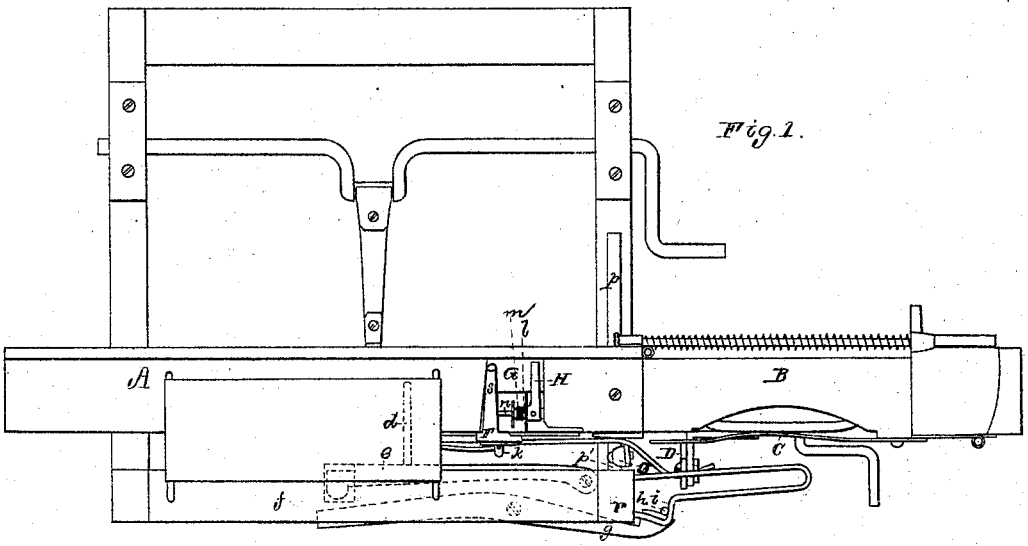


Fig. 2.

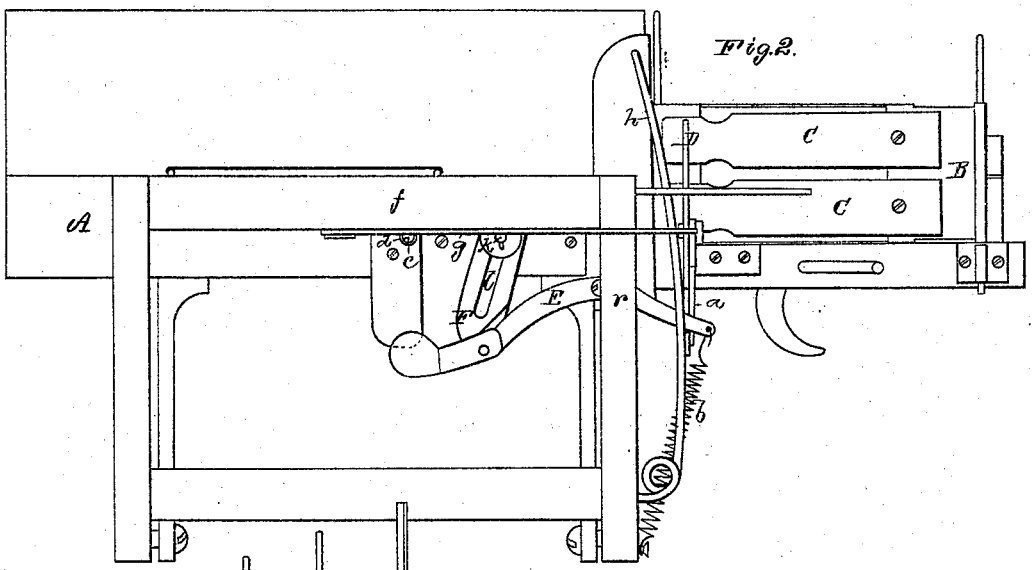
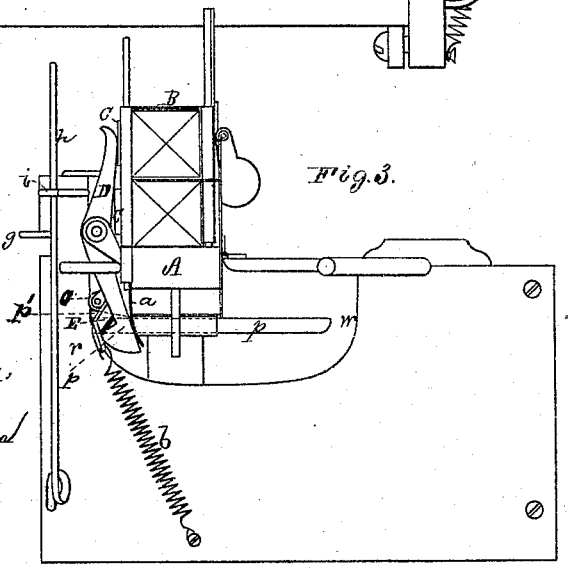


Fig. 3.



Witnesses.

S. N. Pipe.

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by his attorney.

R. H. Eddy

2 Sheets—Sheet 2.

J. J. SWITZER.

STOP MOTION FOR LOOMS.

No. 182,245. Patented Sept. 12, 1876.

Fig. 5.

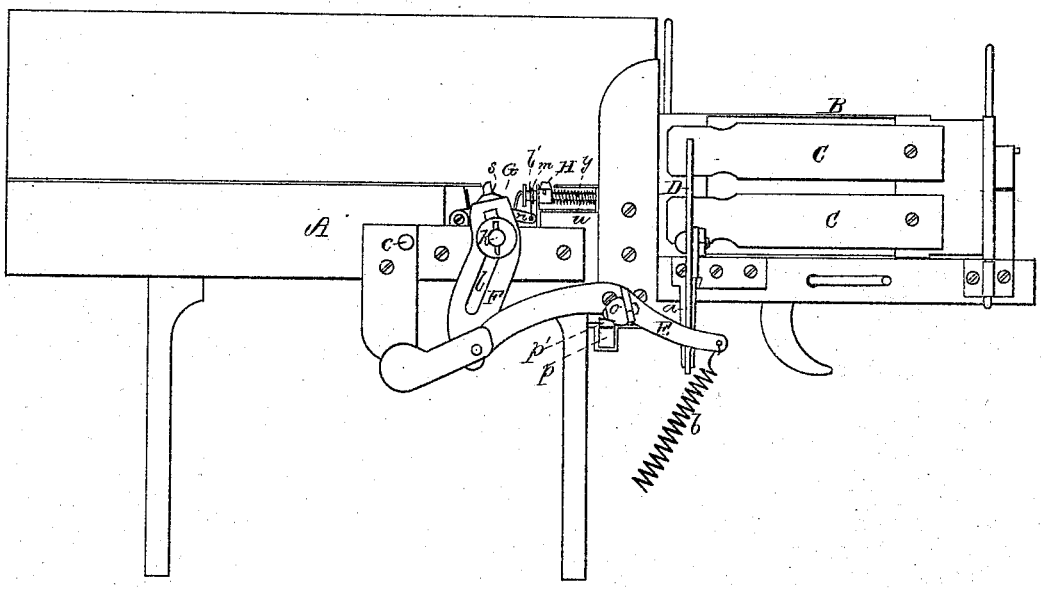
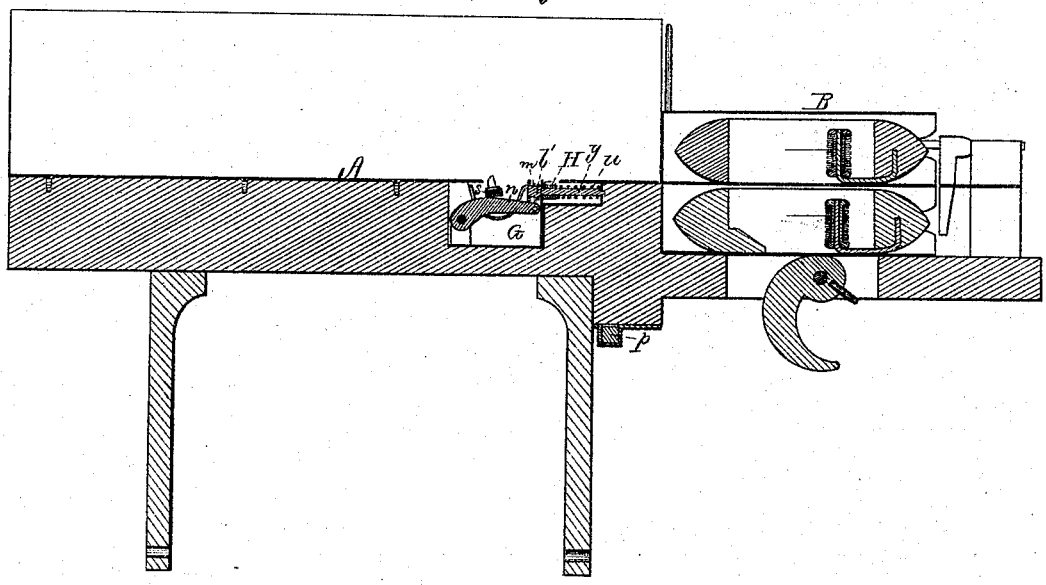


Fig. 4.



Witnesses.

S. N. Piper

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John J Switzer

by his attorney.

R. H. Eddy

UNITED STATES PATENT OFFICE.

JOHN J. SWITZER, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN STOP-MOTIONS FOR LOOMS.

Specification forming part of Letters Patent No. **182,245**, dated September 12, 1876; application filed December 29, 1875.

To all whom it may concern:

Be it known that I, JOHN J. SWITZER, of Boston, of the county of Suffolk and State of Massachusetts, have invented a new and useful Stop-Motion for Looms for Weaving Cloth; and do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a front elevation, and Fig. 3 an end view, of my invention as applied to the right half of the lay and frame of a loom, the left half of such lay and frame being also similarly provided with it for the loom to properly operate. Fig. 4 is a longitudinal section, and Fig. 5 a front elevation, of the lay.

The lay A is represented as provided with a changeable shuttle-box, B, to carry two shuttles for effecting fancy weaving by weft-yarns differing in color, my invention being applicable to such changeable box, as well as to stationary shuttle-boxes. There is to each shuttle-chamber of the said box a spring, C, which, when the shuttle passes into the box, is forced outwardly against the upper arm of a hooked lever, D, pivoted to the lay, and arranged as shown. A spring, *a*, fixed to the lay, and bearing against the hooked arm of the lever, serves, when the shuttle is out of its chamber, to force the said hooked arm forward, in order to cause it to catch the shorter arm of a stop-lever, E, also pivoted to the lay, and provided with a spring, *b*, to pull such arm downward. When the longer arm of the stop-lever is at its highest position, it covers a cavity-hole or passage, *c*, in the lay, and while the lay beats up and the said arm covers the said passage, the arm will be forced against the end of a long stud, *d*, extending from an arm, *e*, pivoted to the under side of the breast-beam *f*. This arm *e* is arranged in front of and against the tripper *g* of the belt-shipper *h*; and, consequently, when the stud and arm are forced backward, the arm will move the tripper *g*, so as to cause it to trip the shipper *h* out of its holding-notch *i*, in order that the loom may be stopped, as will be easily understood by weavers. While, however, the longer arm of the stop-lever E is below the passage *c* and the lay is beating up, the said passage will receive the stud *d*, which will remain at rest. There is pivoted to the longer arm of the lever E a slotted and bent arm, F, formed as shown. It extends up and over the lay, works in and out of a cavity, G, therein, and on a stud, *k*, extending from the lay through the slot *l* of said arm F. To co-operate with this arm F is another or secondary arm, H, arranged in the cavity G, as shown. This arm H is fixed to a short shaft, *y*, carrying a pulley or wheel, *l'*, to which is attached a cord, *m*. This cord, wound one or more times about the periphery of the wheel, extends down and is fixed to a short arm, *n*, arranged in the cavity G. Furthermore, the shorter arm of the stop-lever E carries a friction-wheel, *o*, arranged directly over a slide-bar, *p*, applied to the lay, so as to be capable of sliding transversely of it. Near its front end the bar *p* has a cam, *p'*, projecting up from it, as shown.

While the lay is beating up the bar *p* will be forced against the post *r* of the loom-frame, and, as a consequence, such bar will be moved rearward, so as to carry the cam *p'* against the friction-roller *o*, and force it upward, thereby causing the longer arm of the lever E to be depressed, so as to carry the part *s* of the bent and slotted arm F down wholly within the cavity G, and against the arm *n*, so as to force the latter down, and thereby cause the secondary arm H to be turned over horizontally and point toward the breast-beam. The shaft *y* of the arm *h* is provided with a helical spring, *u*, to revolve it back, in order to turn the arm H through an arc of a semicircle, or over, so as to point in an opposite direction, and down within the cavity G, or below the top of the race-beam of the lay. The arm H, during its backward movement, passes over and across the filling-thread which the shuttle throws through the warp while the lay is in retreat. During the backward movement of the lay the cammed slide-bar *p* will be pushed against an abutment, *w*, and will be moved forward, so as to force the cam *p'* from underneath the friction-roller *o*, in which case the portion *s* of the arm F will be free to act against the filling-thread when next thrown across it, which filling-thread, being held by the arm *h* and the cloth, will, while remaining unbroken, prevent the arm F from rising

higher under the draft of the spring *b* fixed to the shorter arm of the stop-lever E; but, should the filling-thread be broken, it will be unable to hold down the arm F, and, consequently, the aforesaid spring will cause the longer arm of the stop-lever E to be raised up in front of the passage *c*, whereby, when the lay next beats up, stoppage of the loom will be effected, as the lever E will be forced against the long stud *d*, so as to move the latter.

A shuttle having been thrown from one box across the race-beam into another box, it becomes necessary that the stop-motion next the empty box should not be thrown into operation to effect stoppage of the loom when the lay may next beat up. This is accomplished by the hooked lever D, which, having its hook advanced by its spring, will hook under and upon the shorter arm of the stop-lever E, and hold the said lever, so as to prevent it from rising and covering the hole or passage *c*. While the lay retreats the shuttle is thrown across the race-beam, but while the shuttle is out of a box the hooked lever D next such box will be caught under the next adjacent drop-lever E, and will hold it from having its longer arm thrown up. As soon as a shuttle may enter such box the hooked lever D thereof will be moved from under the stop-lever, and allow it to be moved by its spring.

I claim—

In combination with the loom-lay, provided with cavities G and *c*, as set forth, the lever E, spring *b*, cammed slide *p*, bent arm F, auxiliary arm H, shaft *y*, spring *u*, wheel *l'*, cord *m*, arm *n*, hooked lever D, stud *d*, pivoted arm *e*, and shipping devices, all being substantially and to operate as set forth.

JOHN J. SWITZER.

Witnesses:
R. H. EDDY,
J. R. SNOW.