

(No Model.)

2 Sheets—Sheet 1.

J. D. WESTGATE.
STOP MOTION FOR LOOMS.

No. 430,452

Patented June 17, 1890.

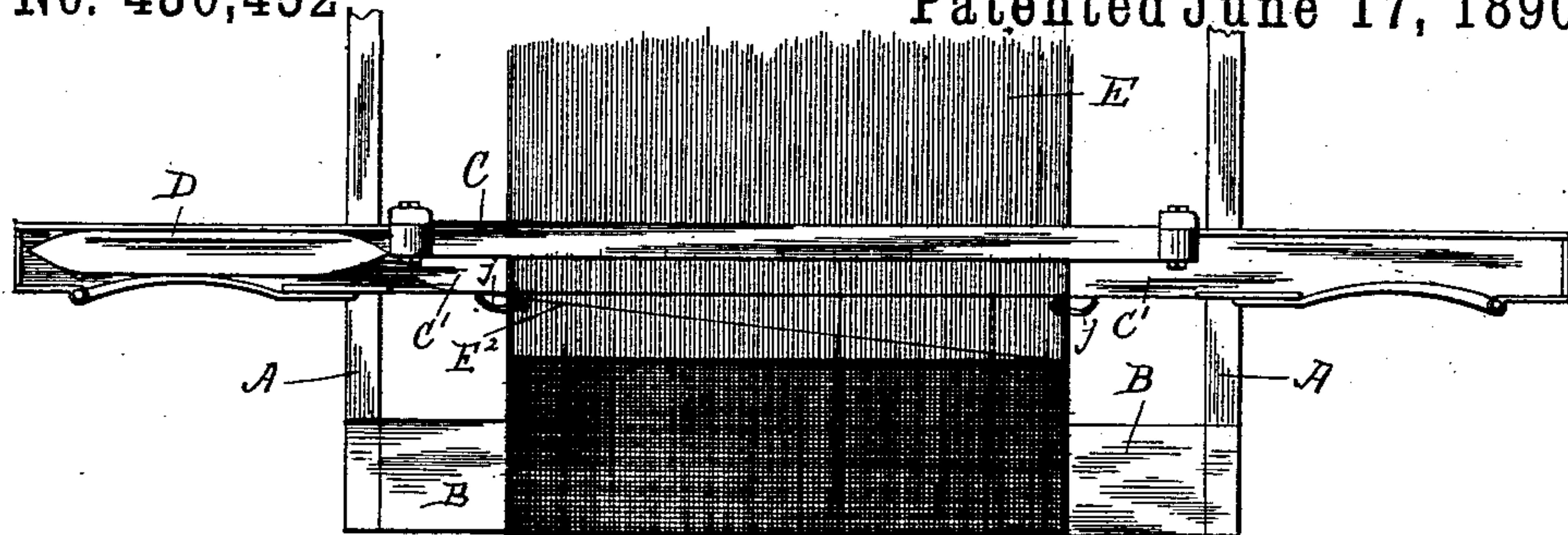


Fig. 1.

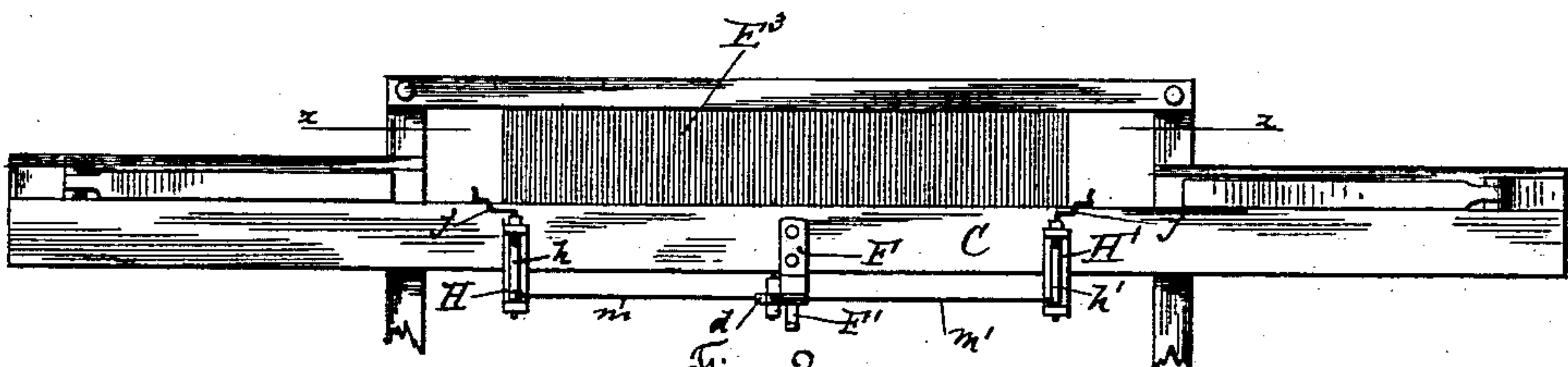


Fig. 2.

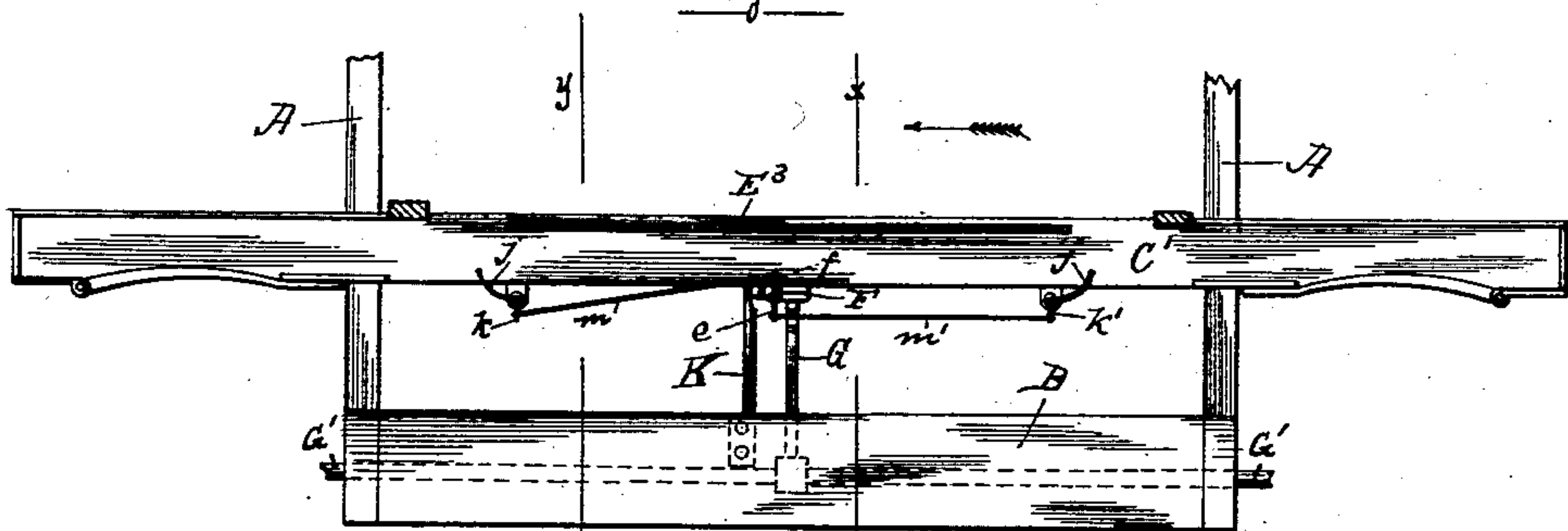


Fig. 3.

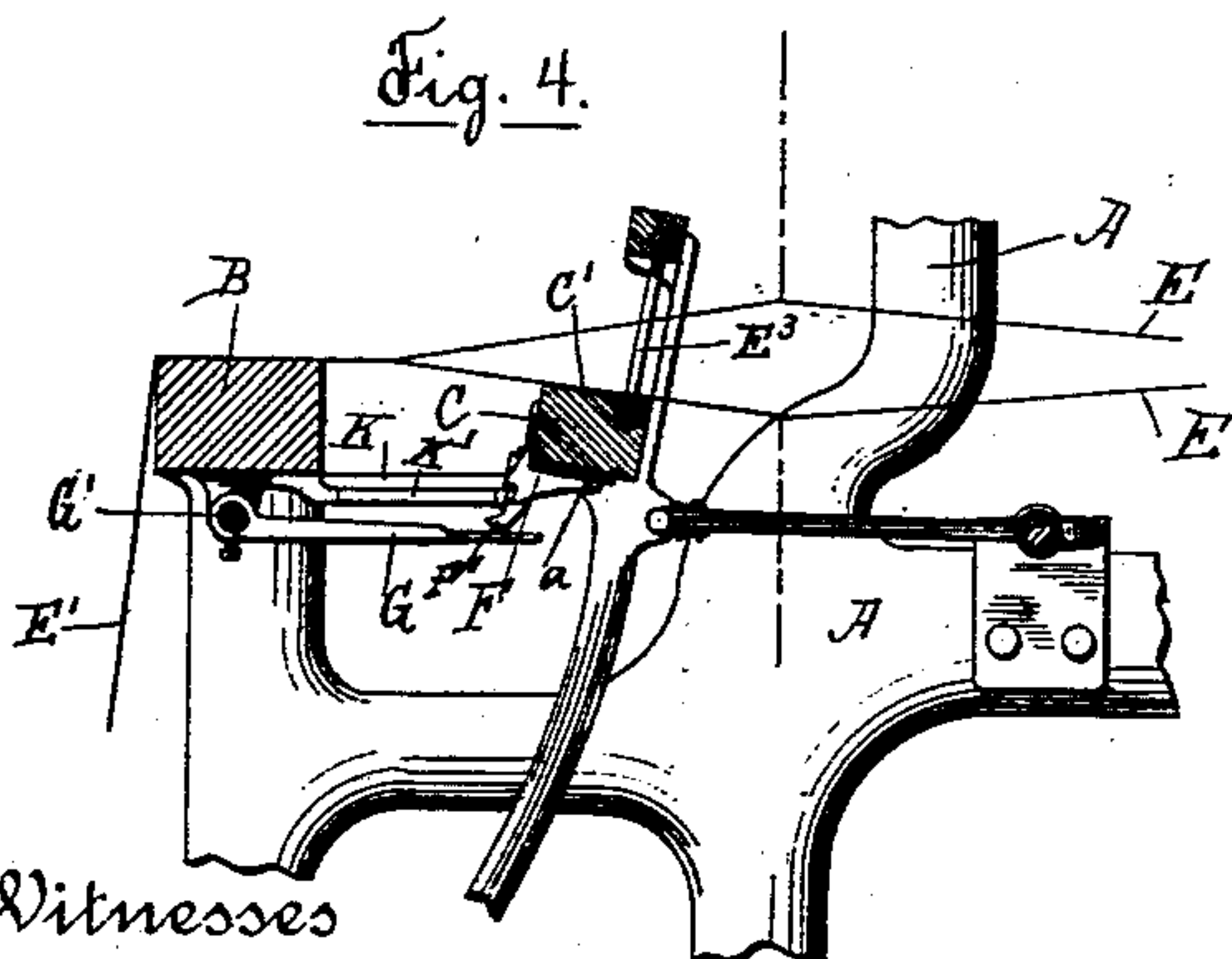


Fig. 4.

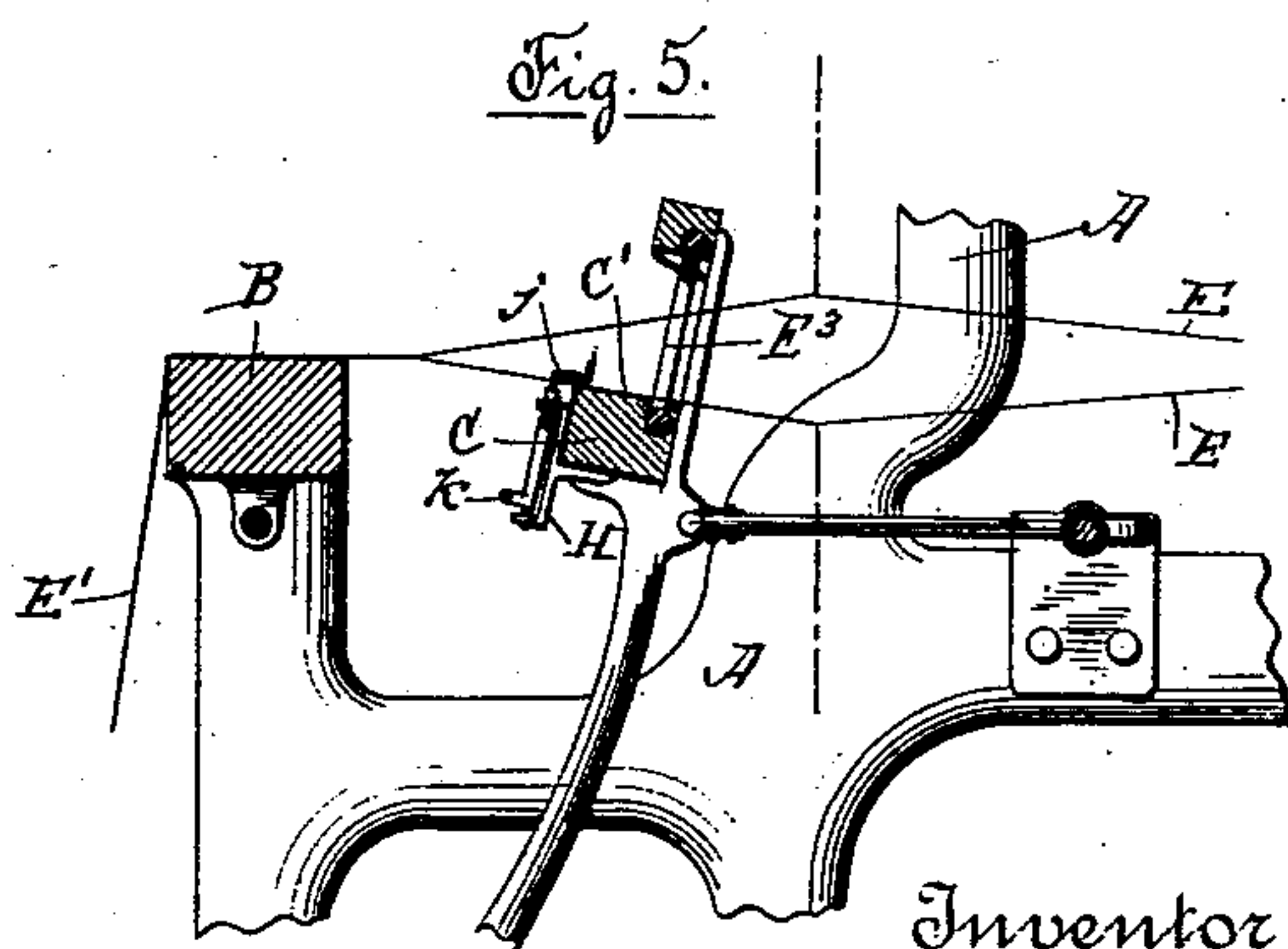


Fig. 5.

Witnesses

Chas. F. Schmelz.

H. M. Fowler.

Inventor

Joseph, D. Westgate,

By his Attorney

Rufus B. Fowler.

(No Model.)

2 Sheets—Sheet 2.

J. D. WESTGATE.
STOP MOTION FOR LOOMS.

No. 430,452.

Patented June 17, 1890.

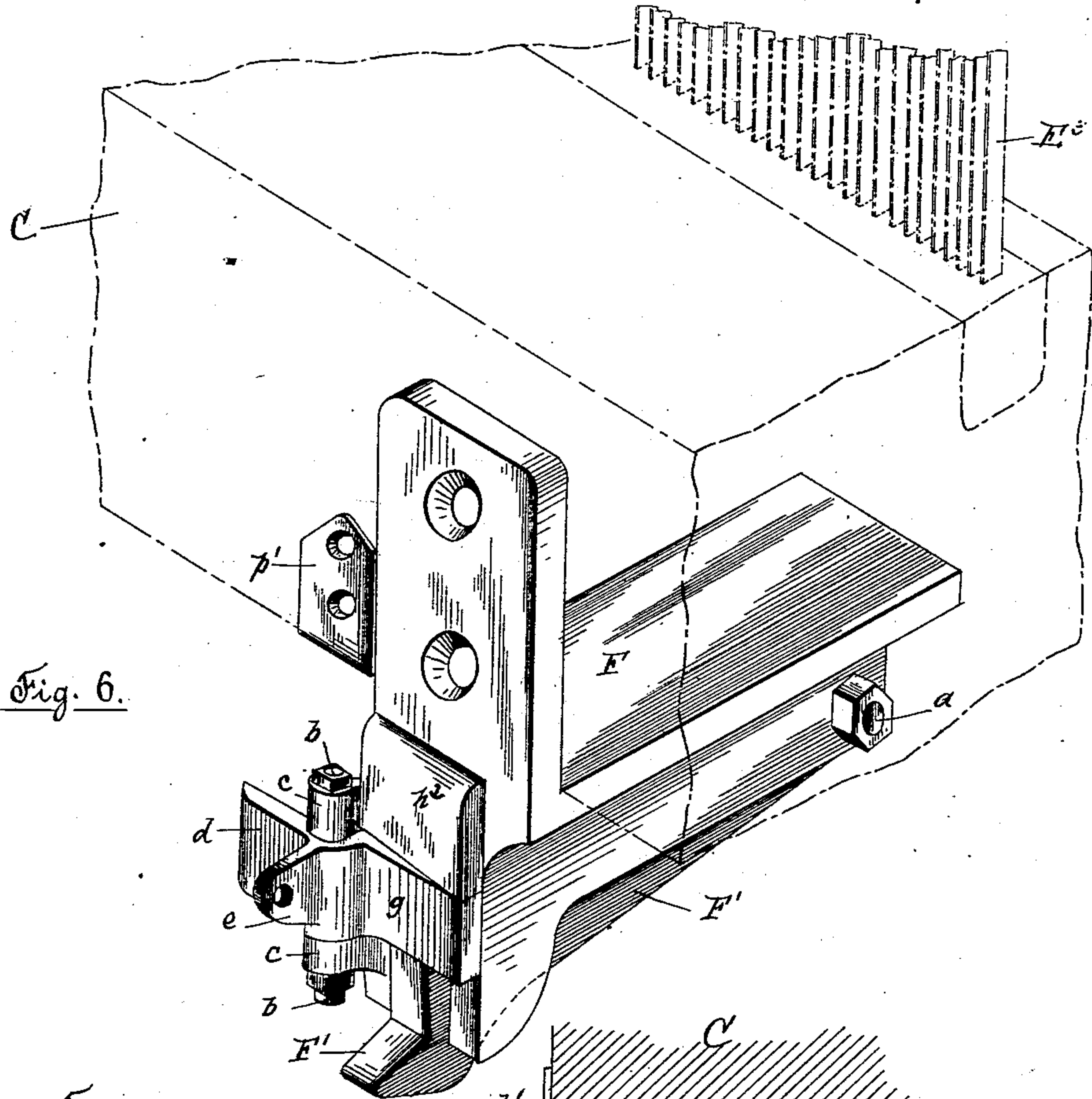


Fig. 6.

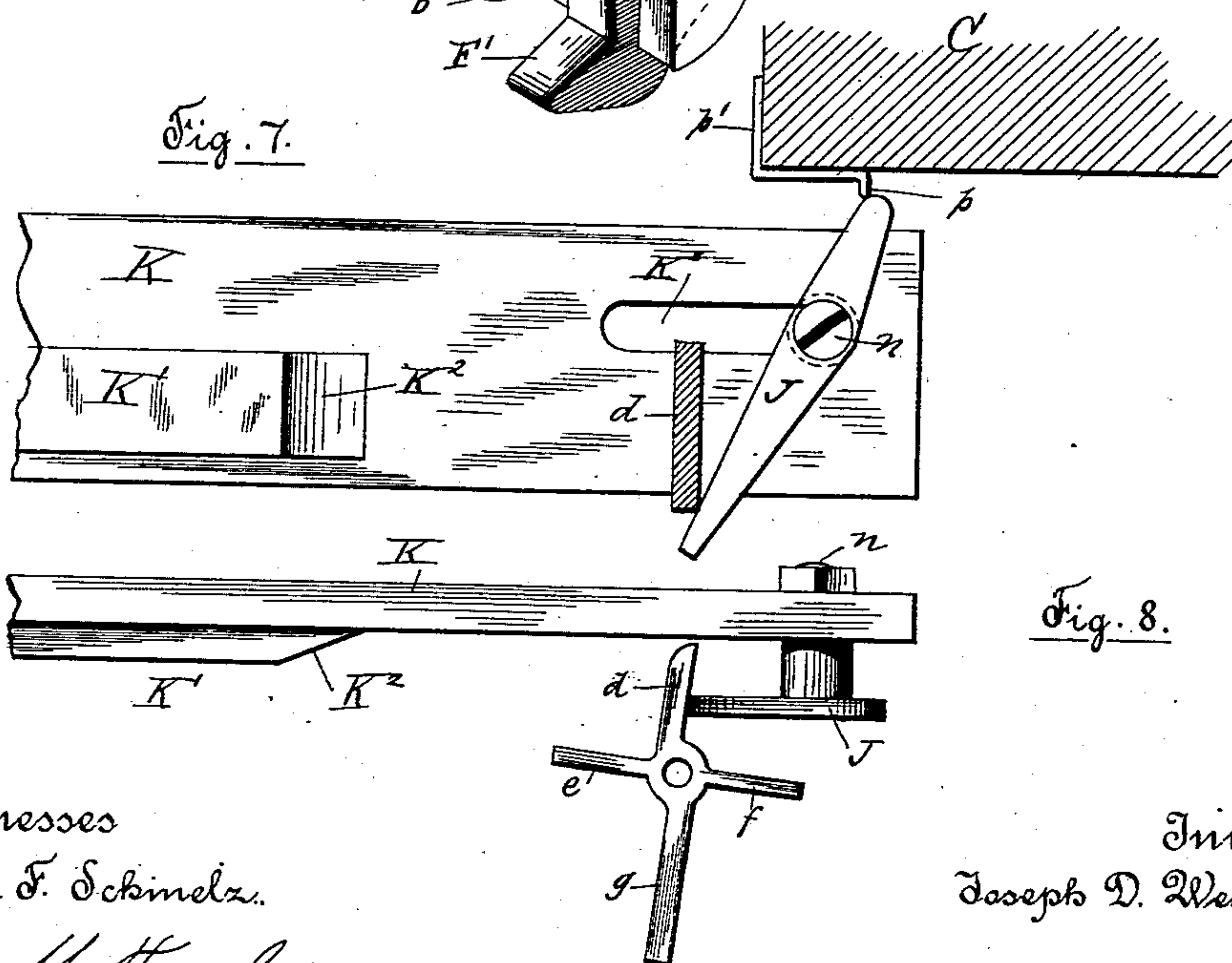


Fig. 7.

Fig. 8.

Witnesses

Chas. F. Schmelz.

H. M. Fowler.

Inventor

Joseph D. Westgate.

By his Attorney

Rufus B. Fowler.

UNITED STATES PATENT OFFICE.

JOSEPH D. WESTGATE, OF WORCESTER, MASSACHUSETTS, ASSIGNOR, BY
DIRECT AND MESNE ASSIGNMENTS, TO ARGALIS P. BUTLER AND
SAMUEL MAWHINNEY, BOTH OF SAME PLACE.

STOP-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 430,452, dated June 17, 1890.

Application filed February 15, 1889. Serial No. 299,994. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH D. WESTGATE, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Stop-Motions for Looms, of which the following is a specification, accompanied by drawings forming a part of the same, and showing such parts of a loom as are necessary to illustrate the nature of my invention and the construction and operation of the same.

Figure 1 represents the top of a portion of a lay with a part of the warp and woven fabric, showing the method of operating my improved stop-motion by the action of the weft-thread. Fig. 2 is a front view of a portion of the lay, with my improved stop-motion attached. Fig. 3 is a top and sectional view of the portion of the lay, as shown in Fig. 1, the warp being removed and the section taken on line Z Z, Fig. 2. Fig. 4 represents a portion of the loom-frame and lay in sectional view on line X X, Fig. 3. Fig. 5 is a view in section of a portion of the loom-frame and lay, taken on line Y Y, Fig. 3. Fig. 6 represents in perspective view that portion of my improved stop-motion which is attached to the central section of the lay, the relative position of the lay being indicated by broken lines. Fig. 7 represents in enlarged view a portion of the bar attached to the breast-beam and projecting toward and beneath the lay and by which the latching mechanism attached to the central section of the lay is operated; and Fig. 8 represents the projecting bar or dagger which is attached to the shipping mechanism of the loom.

Similar letters refer to similar parts in the several views.

My invention relates to a stop-motion for looms by which the loom is stopped by the failure of the weft-thread, and the stoppage is effected upon the forward swing of the lay of the loom in which such failure of weft-thread occurs; and it consists in the construction and arrangement of the parts, as hereinafter set forth, and claimed in the claims.

In the accompanying drawings, A A denote the sides or portions of the frame-work of the loom.

B is the breast-beam; C, the lay; C', the race, across which the shuttle D is thrown alternately from one side to the other, in the manner common in the operation of weaving.

E represents the warp, and E' the woven fabric, which passes over the breast-beam B to the cloth-winding drum below, and not shown in the accompanying drawings.

E² denotes the line of weft-thread extending from the selvage edge of the cloth to the shuttle D, and E³ represents the reed by which the weft-thread is beaten up at each forward swing of the lay.

To the central section of the lay I attach an angular plate F, which supports a latch F', pivoted at one end upon a bolt *a* held by the plate F, and also the four-armed gate pivoted upon the bolt *b*, held in the lugs *c c*, and having the arms *d*, *e*, *f*, and *g*, Fig. 8. The plate F is provided with a lip *h*, between which and the upper edge of the latch F' is placed the arm *g*, thereby preventing the latch F' from rising, as during the forward swing of the lay the forward or free end of the latch is brought in contact with the dagger G, Fig. 4, attached by a set-screw to a rocking rod or shaft G' beneath the breast-beam. The rod or shaft G' is so connected with the mechanism for shipping the belt from the driving-pulley of the loom, or otherwise disconnecting the operative parts of the loom from the driving-power, that the forward end of the latch F' as it passes over the dagger G will depress the free end of the dagger and rock the shaft, causing the loom to be disconnected from the driving-power.

The connection between the rocking rod or shaft G' beneath the breast-beam and the shipping devices I have not herein described in detail nor shown in the drawings, as the construction and operation of this part of the stop-motion are well known, they being in general use upon looms. I have therefore confined both description and illustration to those parts of the stop-motion by which the rod or

shaft G' is rocked as determined by the presence of the weft-thread, that part only being concerned in my present invention.

To the front side of the lay and at each side of the central section I attach plates $H H'$, provided with lugs, in which I journal the short spindles $h h'$, each of the spindles being provided at its upper end with a bent wire or finger j , bent first outwardly toward the ends of the lay, then upwardly a short distance above the race of the lay, then rearwardly over the race, and then upwardly at or nearly at right angles to the race of the lay, and forming a vertical section or tip against which the weft-thread is brought as the shuttle is thrown across the race. From the lower end of the spindles $H H'$ arms $k k'$ extend outwardly, connected by the rods or links $m m'$ with the arms e and f , respectively, so that the rotation of either of the spindles $h h'$, caused by carrying the fingers j outward in the position shown in Fig. 1, will rotate the four-armed gate so as to withdraw the arm g from between the latch F' and the lip h^2 , allowing the latch F' to rise as it passes over and in contact with dagger G without depressing the dagger and rocking the shaft G' and causing the stoppage of the loom. The vertical sections or tips of the fingers j are held in such position when the arm g is between the latch F' and the lip h that the weft-thread as it is drawn in a right line from the selvage edge of the woven fabric to the eye of the shuttle as the shuttle rests in the box, as shown in Fig. 1, will press the finger j , against which the thread is drawn, outwardly, rotating the spindles and the connected four-armed gate, removing the arm g from the position in which it is shown in Fig. 6, and allowing the dagger G to raise the latch F' without rocking the shaft G' . As the spindles are each connected by the links $m m'$ with the four-armed gate and upon opposite sides the motion of the gate and spindles will be simultaneous, each of the fingers j moving toward or away from the lay at the same time.

I attach a bar K to the lower side of the breast-beam provided with a rib K' , having a beveled end K^2 . The bar K is so placed that the rib K' is brought in the path of the arm d as the lay swings forward, causing the four-armed gate to rotate on the bolt b and remove the arm g from between the latch F' and the lip h at each forward swing of the lay. The free end of the bar K has a slot K^3 , in which I hold the stud n , adjustable along the slot and carrying the swinging lever J with its upper end in the path of the edge p of the plate p' , attached to the lay C . The lever J is placed in such position on the bar K that the lay in its backward swing will bring the edge p of the plate p' in contact with the upper end of the swinging lever J just before it has reached the limit of its backward swing, vibrating the lever J on the stud n , and bringing the lower end of the le-

ver J in contact with the arm d of the four-armed gate and carrying the arm g between the upper edge of the latch F' and the lip h . As the lay continues its backward swing, the edge p of the plate p' passes the upper end of the lever J , allowing it to assume a vertical line again by means of its own weight and leaving the four-armed lever free to be again rotated on the bolt b by the action of the weft-thread.

The operation of my improved stop-motion in the process of weaving is as follows: As the lay swings back, the plate p' is brought into contact with the upper end of the lever J , throwing the lower end of the lever forward, as shown in Figs. 7 and 8, against the arm d , thereby rotating the gate and bringing the arm g between the latch F' and the lip h , and also carrying the fingers j over the race C' in the position shown in Fig. 3. As the shuttle is thrown across the race, the line of the weft-thread is as indicated by the line E^2 , Fig. 1, the tension of the weft-thread carrying the finger j on the left of the figure outward, rotating the spindle h , and through the link m the four-armed gate, removing the arm g from between the latch F' and the lip h^2 , and allowing the latch F' to be raised as it is brought in contact with the dagger G without operating the shipping mechanism as the lay moves forward. In case the weft-thread is wanting as the shuttle is thrown, the finger j is not carried out and the arm g remains in its place, as shown in Fig. 6, holding the latch F' from rising and causing the dagger G to be depressed as the lay moves forward, thus operating the shipping mechanism and disconnecting the loom from the driving-power. As the lay swings back, the plate p' passes over the top of the swinging lever J , causing the lower end to rotate the gate and bring the arm g again between the latch F' and the lip h , and carrying the fingers j over the race in the position shown in Fig. 3 to be again moved outward, as already described by the action of the weft-thread. In case the arm g is not removed by the action of the weft-thread, the latch will depress the dagger, as described, and as the lay advances in its forward swing the arm d is brought into contact with the rib K' and the arm g removed from the position between the latch F' and the lip h , allowing the rod or shaft G' to be rotated for the purpose of again starting the loom.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a latch pivoted upon the lay, a rocking gate provided with an arm by which the pivoted latch is locked in position to operate the shipping mechanism, a rocking shaft journaled upon the rigid portion of the loom and operatively connected with the shipping mechanism, a dagger attached to said rocking shaft and placed in the path of the pivoted latch, spindles journaled upon the lay and operatively connected with said rocking gate, as described, and fin-

gers attached to said spindles and projecting into the path of the weft-thread, substantially as described.

2. The combination of dagger G, latch F', 5 the rocking gate having arms *g*, *e*, and *f*, links *m m'*, spindles *h h'*, having arms *k k'*, and fingers *j*, substantially as described.

3. The combination of latch F', the rocking 10 gate having arms *g*, *e*, and *f*, spindles *h h'*, having radial arms *k k'*, and fingers *j*, and links *m m'*, connecting said spindles with said rocking gate, substantially as described.

4. The combination of latch F' with the

rocking gate having arms *g* and *d*, and bar K, having a rib K' lying in the path of said arm 15 *d*, substantially as described.

5. The combination of latch F' with the rocking gate, having arms *g* and *d*, bar K, swinging lever J, supported by said bar, and actuating-plate *p*, adapted to be attached to 20 the lay, substantially as described.

JOSEPH D. WESTGATE.

Witnesses:

A. P. BUTLER,

RUFUS B. FOWLER.