

No. 779,997.

PATENTED JAN. 10, 1905.

J. R. FITTON.

LOOM.

APPLICATION FILED AUG. 4, 1904.

3 SHEETS--SHEET 1.

Fig. 1.

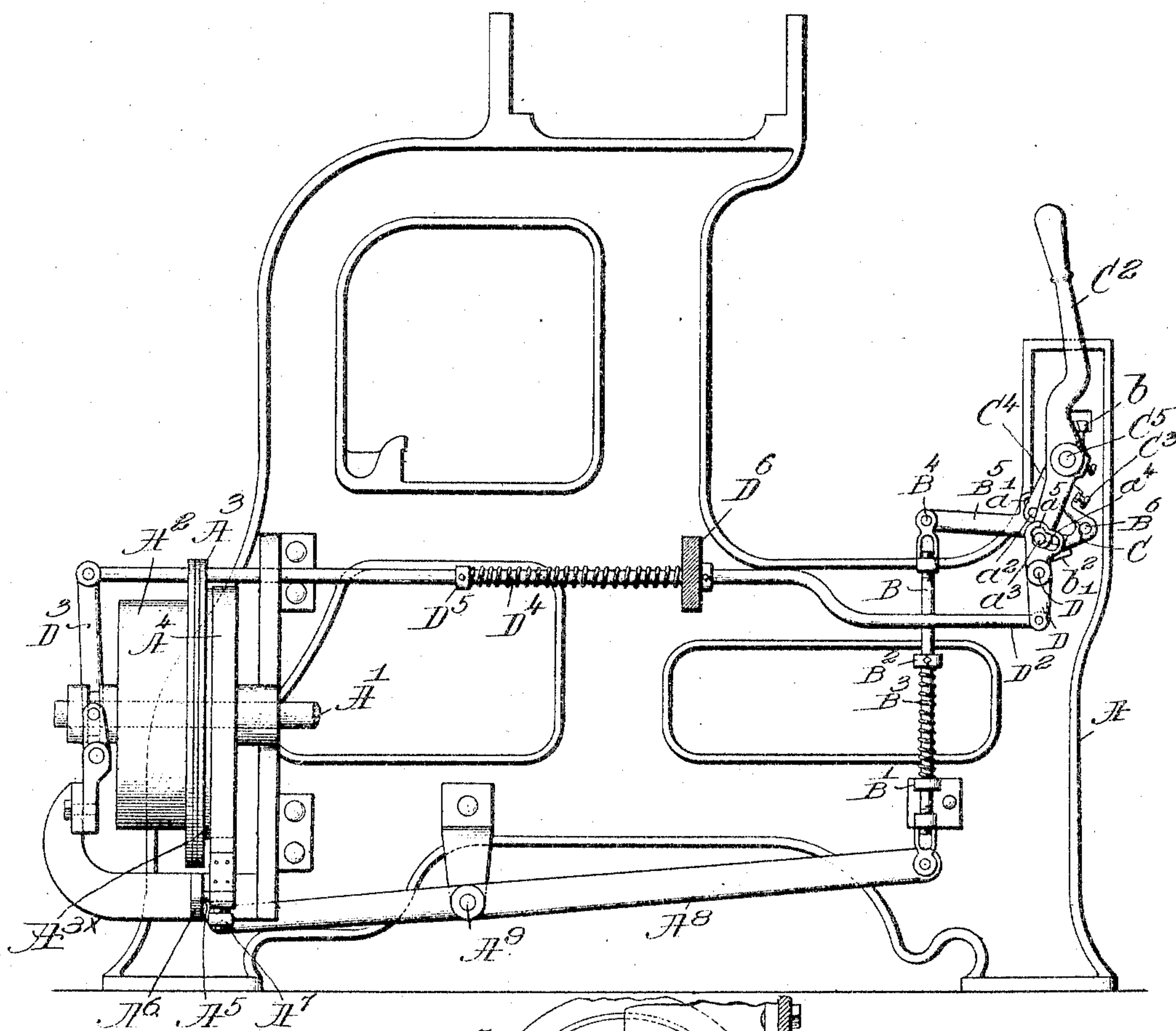
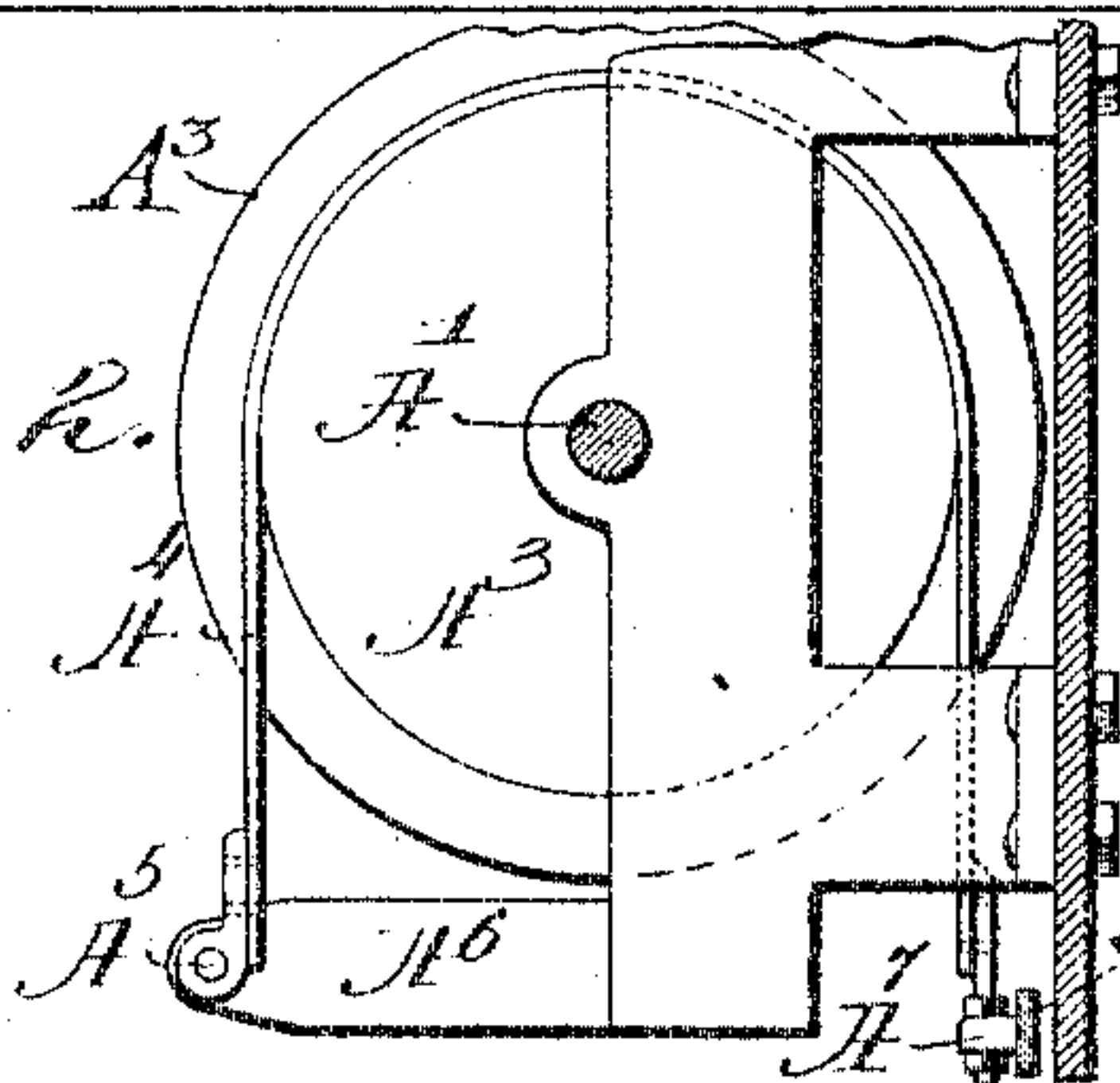


Fig. 2.



Witnesses:

Fred. S. Greenleaf.  
S. Wm. Lutton.

*Inventor.*

John R. Fillmore,

<sup>8</sup>  
A by Leahy Gregory  
Sells.

No. 779,997.

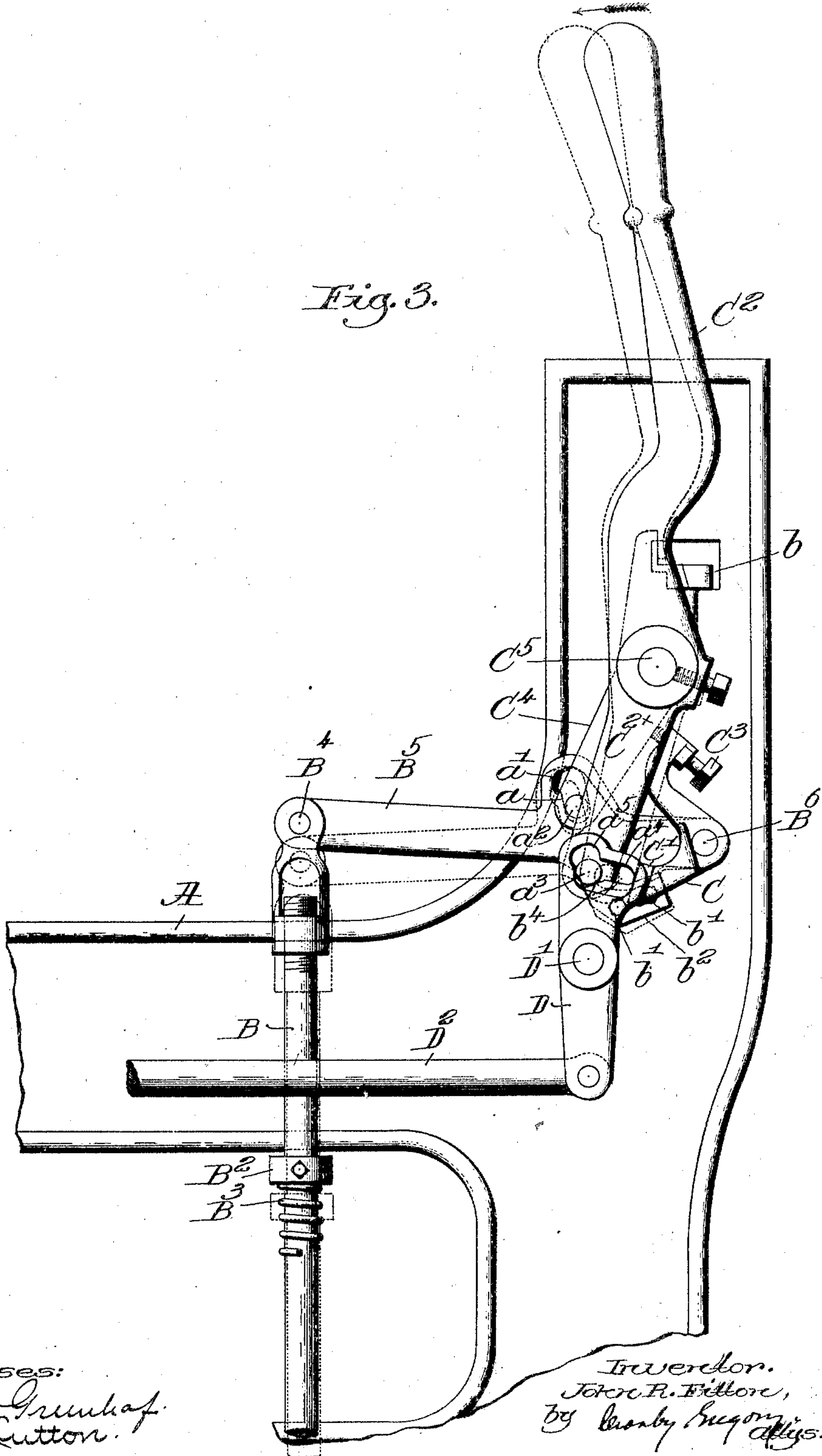
PATENTED JAN. 10, 1905.

J. R. FITTON.  
LOOM.

APPLICATION FILED AUG. 4, 1904.

3 SHEETS—SHEET 2.

Fig. 3.



witnesses:

Fred. S. Grunkap.  
J. Wm. Lutton.

Inventor.  
John R. Fitton,  
by Crosby Ferguson  
attys.

No. 779,997.

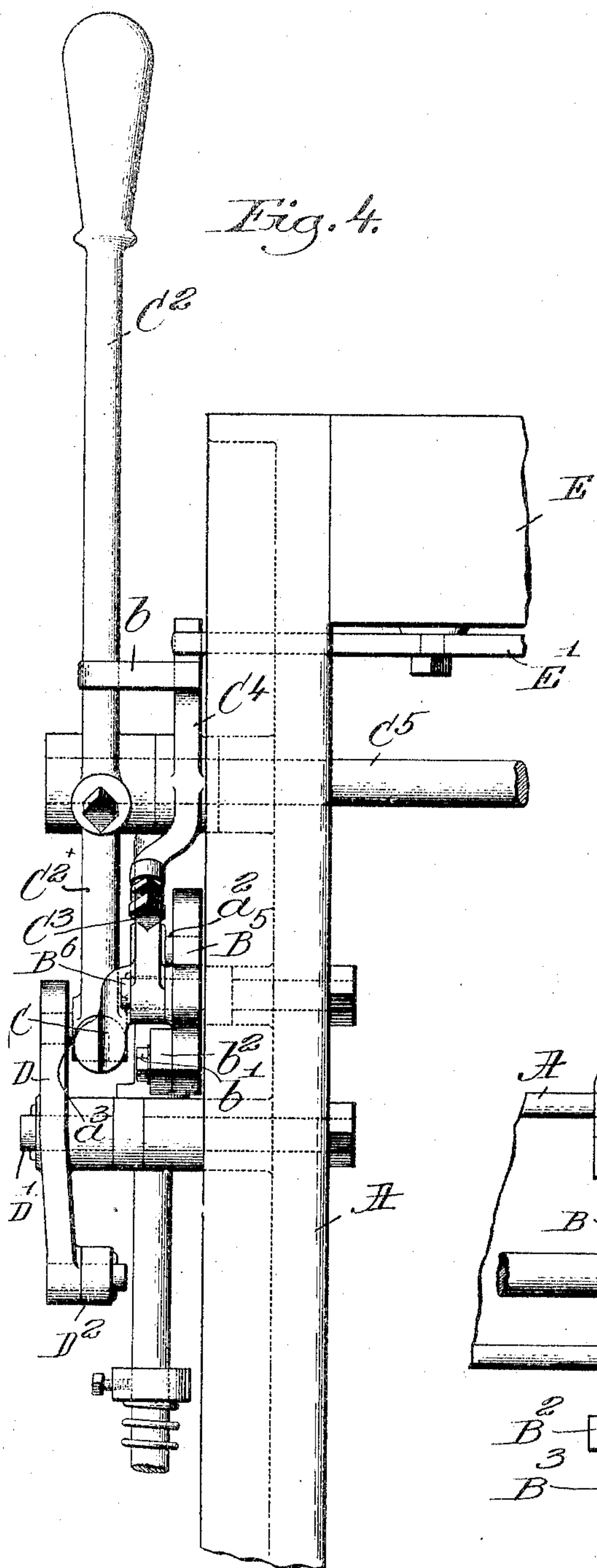
PATENTED JAN. 10, 1905.

J. R. FITTON.

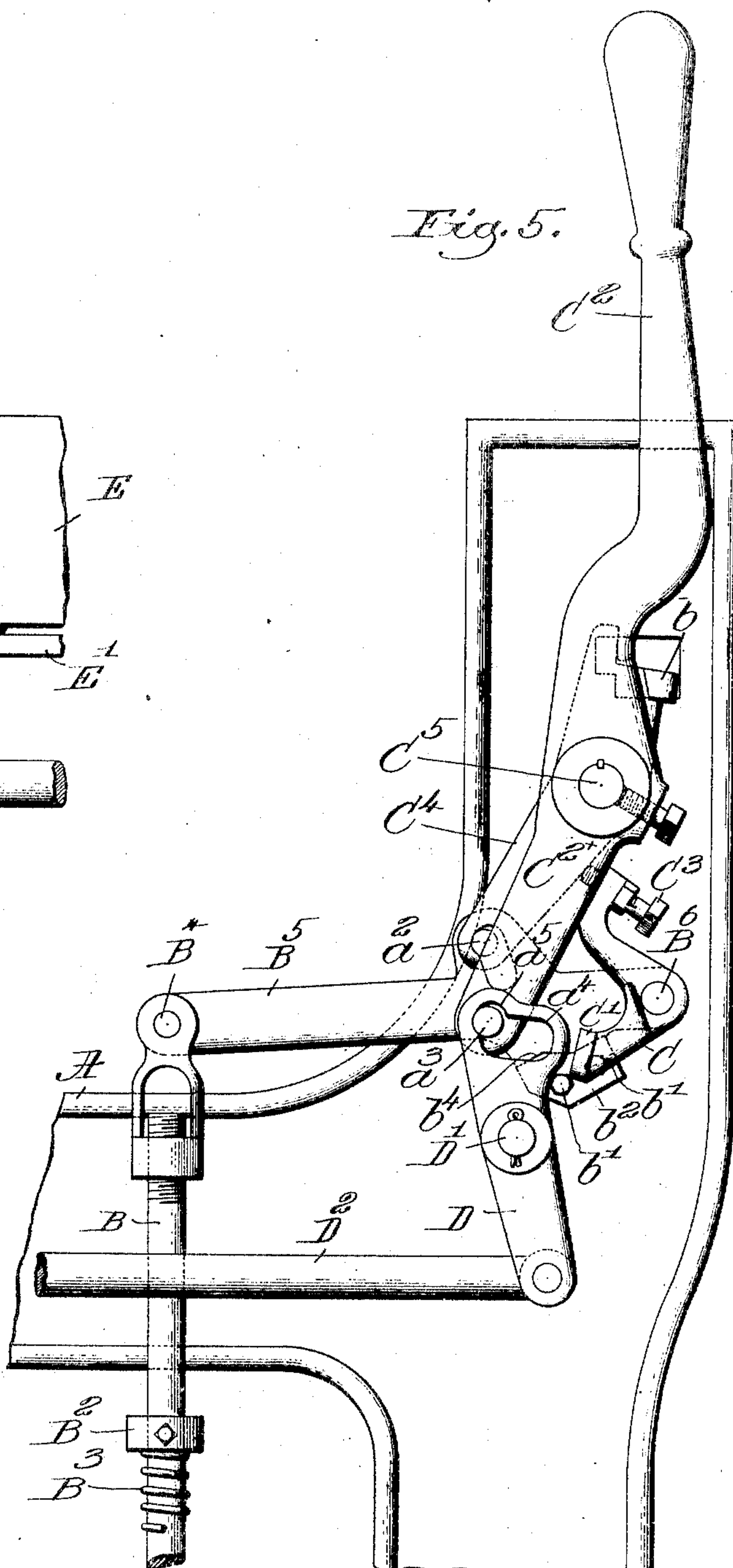
LOOM.

APPLIOATION FILED AUG. 4, 1904.

3 SHEETS—SHEET 3.



Witnesses:  
Fred. S. Greenleaf.  
S. Wm. Lutton.



Traverton.  
John R. Fillon.  
by Charles H. Hays.



# UNITED STATES PATENT OFFICE.

JOHN R. FITTON, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO RANDOLPH CROMPTON, GEORGE CROMPTON, EDWARD D. THAYER, AND WILLIAM B. SCOFIELD, OF WORCESTER, MASSACHUSETTS.

## LOOM.

SPECIFICATION forming part of Letters Patent No. 779,997, dated January 10, 1905.

Application filed August 4, 1904. Serial No. 219,426.

*To all whom it may concern:*

Be it known that I, JOHN R. FITTON, a citizen of the United States, residing at Worcester, county of Worcester, State of Massachusetts, have invented an Improvement in Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention relates to stopping and brake mechanisms of looms, and has for its object to be able to release the brake after the loom has been stopped automatically, and this may be done from either end of the loom.

15 Prior to this invention it has been customary to stop the loom automatically by or through the usual dagger acting upon a knock-off lever to release automatically the brake-rod, so that the usual spring shall apply 20 the brake and stop the loom, and thereafter in case the operator desires to turn over the loom or adjust the same for any purpose it has been customary to engage the shipper-handle and pull the same backwardly in opposition 25 to its movement effected through the automatic stopping of the loom, and it has been found that this movement is so delicate that the loom is started when it is only desired to release the brake.

30 The aim of this invention has been to provide a means that may be operated practically to stop the loom automatically and leave the parts in a position that the operator may continue to move the shipper-handle in the direction that it was moved to put on the brake, and 35 thereby effect the release of the brake, the movement of the shipper-handle by the operator when stopping the loom and releasing the brake being in the reverse direction from that in which it must be moved to start the 40 loom, so that in the plan herein provided it is impossible to accidentally start the loom when the operator is attempting to simply release the brake.

45 Figure 1, in side elevation, represents a sufficient portion of a loom and parts to indicate my invention in one of the best forms now known to me, the brake being supposed to be

effective and the loom as having been stopped automatically. Fig. 2 is a detail showing the 50 brake part of the friction driving mechanism and the surrounding brake-band. Fig. 3 is an enlarged view of some of the parts represented in Fig. 1, the full lines showing the shipper-handle in position with the loom 55 stopped and brake on, the dotted lines showing the position of the shipper-handle when the brake is off. Fig. 4 is a view of the parts represented in Fig. 3 looking at the same from the front of the loom; and Fig. 5 is a 60 view similar to Fig. 3, but with the shipper-handle in the position it will occupy when the loom is running.

Referring to the drawings, A represents part of the loom-frame; A', the usual drive- 65 shaft, which may be driven in any usual manner by a friction-pulley A<sup>2</sup>, surrounding the shaft loosely and having a friction-face to co-act with the friction-face of a fast pulley member A<sup>3</sup>, having an attached brake-surface A<sup>3x</sup>, 70 said member being surrounded by a brake-band A<sup>4</sup>, connected at one end with a stud A<sup>5</sup>, sustained by a projection A<sup>6</sup>, extended from the loom-frame, the opposite end of said brake-band being connected by a suitable bolt or de- 75 vice A<sup>7</sup> with a brake-lever A<sup>8</sup>, pivoted on a stud A<sup>9</sup> of a depending hanger secured to the loom-frame. The longer arm of the brake-lever A<sup>8</sup> has jointed to it a rod B, extended through a suitable guide B' and having fastened to it a col- 80 lar B<sup>2</sup>, that sustains the upper end of a spring B<sup>3</sup>, encircling the rod B, and the lower end of which abuts the guide B' and acts normally to cause the brake-band to be drawn with such force over the pulley member A<sup>3</sup> as to stop the 85 loom. The upper end of the rod B has jointed to it at B<sup>4</sup> one end of the main brake-lever B<sup>5</sup>, pivoted at B<sup>6</sup> on a stud of the loom-frame. This lever has a cam-slot a, provided with a notch a', that serves as a part of a locking de- 90 vice to retain the main brake-lever in its position to lock the auxiliary brake-lever in a position to overcome the pressure of the spring B<sup>3</sup> and leave the brake free, so that the loom may be turned over by hand, if desired, or be 95 started by power. The stud sustaining the



main brake-lever carries a supplemental lever C, that when moved, as will be described, by contact with a lug C' thereof on the lower end of the regular shipper-lever C<sup>2</sup> will move said supplemental lever and cause it through the adjusting device C<sup>3</sup>, shown as a screw and carried thereby, to meet the auxiliary knock-off lever C<sup>4</sup>, loose on the rock-shaft C<sup>5</sup> and provided with a stud a<sup>2</sup>, that enters the slot a and causes the stud, the main brake-lever having been depressed, to move farther in said slot and enter the notch a' thereof, thus causing the main brake-lever to be locked in its inoperative position, as described.

The rock-shaft C<sup>5</sup> is common to looms and is extended across the loom from one to its opposite side underneath the breast-beam, and in practice said shaft will have connected with it at both ends a shipper-handle, but one shipper-handle being herein shown. The shipper-handle at the opposite end of the loom need not have a portion depending below the rock-shaft. The shipper-handle C<sup>2</sup> shown is shaped as it will be when the driving mechanism, such as the belt-pulley and main drive-shaft, is at the left-hand end of the loom. This lever has a depending portion C<sup>2x</sup>, provided with a stud a<sup>3</sup>, that enters a peculiarly-shaped cam-slot a<sup>4</sup> a<sup>5</sup> in the upper end of the shipper-lever D, pivoted to turn about a stud D' of the loom side, the lower end of said lever having connected with it a rod D<sup>2</sup>, that at its opposite end (see Fig. 1) is jointed to a lever D<sup>3</sup>, the movement of which in one or the other direction shifts or makes effective the loose member of the friction-pulley to either leave the loom at rest or to start in rotation the drive-shaft A'. This rod D<sup>2</sup> is surrounded by a spring D<sup>4</sup>, one end of which abuts a collar D<sup>5</sup>, fast on the rod, the other end abutting a guide D<sup>6</sup>, connected with the loom-frame. This rod and lever D<sup>3</sup> are of usual construction, so need not be further described.

To the under side of the breast-beam E, I pivot a knock-off lever E', the free end of which outside the loom-frame crosses the upper end of the auxiliary knock-off lever C<sup>4</sup>, so that when the knock-off lever E' is moved by the usual dagger carried by the lay and controlled by the binders the said auxiliary knock-off lever C<sup>4</sup> will be moved to cause its stud a<sup>2</sup> to be moved out of the notch a' of the slot a from the position Fig. 5 into the position Figs. 1 and 3, such movement of said auxiliary knock-off lever and its stud a<sup>2</sup> releasing the main brake-lever, so that the spring B<sup>3</sup> may act and cause the brake-band, or whatever brake is used, to immediately embrace the fast friction member and stop rotation of the main drive-shaft A', and consequently stop the loom.

Figs. 1 and 3 show the parts in the position with the loom stopped, as it will be automatically through the action of the dagger alone, as described. As the auxiliary knock-off le-

ver is moved by the knock-off lever E', which is started automatically, as described, a projection b of said lever meets the shipper-handle and turns the same from the position Fig. 5 into the position Figs. 1 and 3, wherein it will be noticed that the stud a<sup>3</sup> of the shipper-lever has retired from the portion a<sup>5</sup> of the cam-slot and has unlocked the lever D, so that the spring D<sup>4</sup> may act. Going now again to the main shipper-lever, it will be seen that it has connected with it by suitable set-screws b' a cam-plate b<sup>2</sup>, and when the loom is stopped automatically, as described, the stud a<sup>3</sup> stops substantially in contact with the part b<sup>4</sup> of said cam-plate. This done, usually the operator must turn over the loom to open the shed—for instance, to correct a mispick or for some other usual purpose; but the brake is on, and the operator cannot turn the loom over without taking off the brake, and to be sure that the operator does not start the loom again by moving the shipper-handle I have provided that the operator may move the shipper-handle in the same direction that it was moved when the loom was stopped automatically to effect the release of the brake. This movement of the shipper-handle in the same direction in which it was moved to stop the loom automatically to release the brake that the loom may be turned over by hand is an essential feature of this invention, for which I desire to make the broadest possible claim. The operator to release the brake will push the shipper-handle from the position Fig. 3 shown by full lines into the position shown by dotted line, and in so doing the stud a<sup>3</sup> will act on the cam b<sup>2</sup> and will depress the main brake-lever, compressing the spring B<sup>3</sup> and turning the auxiliary brake-lever to release the brake. Now to start the loom into operation, everything having been adjusted properly, the operator will engage the shipper-handle in the dotted-line position Fig. 3 and turn the same by one movement into the position Fig. 5.

By the term "driving mechanism" I intend to include the shaft A', employed to drive a main shaft of the loom, said shaft having connected therewith the fast pulley member A<sup>3</sup> and a loose pulley member A<sup>2</sup>, said pulley members being represented as of the friction variety. By the term "brake mechanism" I include, as herein illustrated, a brake-band, a brake-surface A<sup>3x</sup>, lever A<sup>8</sup>, rod B, spring B<sup>3</sup>, said band embracing the brake-surface, and by the term "shipping mechanism" I intend to include the shipper-lever D, the rod D<sup>2</sup>, and a suitable connection D<sup>3</sup> for releasing the loose pulley member from the fast pulley member. I do not wish, however, to limit myself to the exact construction shown for the various mechanisms herein illustrated and wish to claim any equivalent mechanism whereby the shipper-handle is moved to release the brake



in the same direction in which it was moved to release the power.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a loom, driving mechanism, brake mechanism, a shipper-handle and intermediate connection under control of said shipper-handle whereby said shipper-handle, when moved in the same direction from the position in which it was left when the loom was stopped automatically, will effect the release of the brake.

2. In a loom, driving mechanism, brake mechanism, a shipper-handle, means intermediate said shipper-handle and said driving and brake mechanisms, and means for moving said shipper-handle automatically to render the driving mechanism inoperative and operate the brake mechanism to stop the loom, further movement of the shipper-handle by hand taking off the brake, leaving the loom stopped and free to be turned back by hand.

3. In a loom, driving mechanism, brake mechanism, devices connecting said shipper-handle with said mechanism, means to move the shipper-handle in one direction to render the driving mechanism inoperative and apply the brake to stop the driving-shaft to the loom, further movement of said shipper-handle in the direction of stopping releasing the brake, the movement of the shipper-handle in a direction opposite the stopping direction causing the driving mechanism to be put into its operative relation to start the loom.

4. In a loom, driving mechanism, brake mechanism, a shipper-handle, and means connected thereby when moved in one direction to start the driving mechanism and in the opposite direction to render the driving mechanism inoperative and apply the brake to stop the loom and to then remove the brake while the loom is stopped.

5. In a loom, driving mechanism, shipping mechanism, brake mechanism, a shipper-handle and suitable connections between the same and means whereby when the main shipper-lever is moved in a direction opposite the direction in which said shipper-handle is moved to start the loom, the shipping mechanism is first moved to render inoperative the driving mechanism and to apply the brake, further movement of the shipper-handle in stopping direction releasing the brake.

6. In a loom, driving mechanism, shipping mechanism controlling the same, brake mechanism, a main brake-lever, a shipper-handle, main and auxiliary neck for levers, and means for automatically moving the shipper-handle

in stopping direction to move the shipping mechanism and render the driving mechanism inoperative and move the main brake-lever to apply the brake mechanism and stop the rotation of the driving-shaft, leaving the shipper-handle in a position to be further turned by hand in the stopping direction to effect the release of the brake mechanism.

7. In a loom, brake mechanism, a main brake-lever, a coacting shipper-handle, means to move said handle automatically to turn said main brake-lever and apply and make effective the brake mechanism, further movement of the shipper-handle in stopping direction effecting the movement of the main brake-lever in a direction to release the brake while the loom is stopped.

8. In a loom, brake mechanism, a main brake-lever having a cam-slot provided with a notch, a shipper-handle having a stud to engage said notch and hold the brake mechanism in its inoperative position, a main and auxiliary neck for lever, automatic means for moving said neck for lever that it may turn the auxiliary lever and move the shipper-handle to lock the main brake-lever and turn the same to apply the brake, further movement of the shipper-handle in the direction in which it was moved automatically imparting movement to the main brake-lever to release the brake.

9. In a loom, brake mechanism, a main brake-lever, a shipper-handle acting to hold the main brake-lever locked open when the loom is running, means for moving automatically the shipper-handle to release the main brake-lever and enable the brake mechanism to act and stop the loom, and means whereby further movement of said shipper-handle in the same direction moves the main brake-lever to remove the brake.

10. In a loom, driving mechanism, shipping mechanism, brake mechanism, a main brake-lever, a shipper-handle acting to lock the main brake-lever when the loom is running, means for moving automatically the shipper-handle to actuate the shipping mechanism to release the driving mechanism, said means also actuating the main brake-lever that it may move the brake mechanism and apply the brake, further movement of said shipper-handle in the same direction removing the brake.

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

JOHN R. FITTON.

Witnesses:

M. L. VAN HOUTEN,  
CHARLES F. ALDRICH.