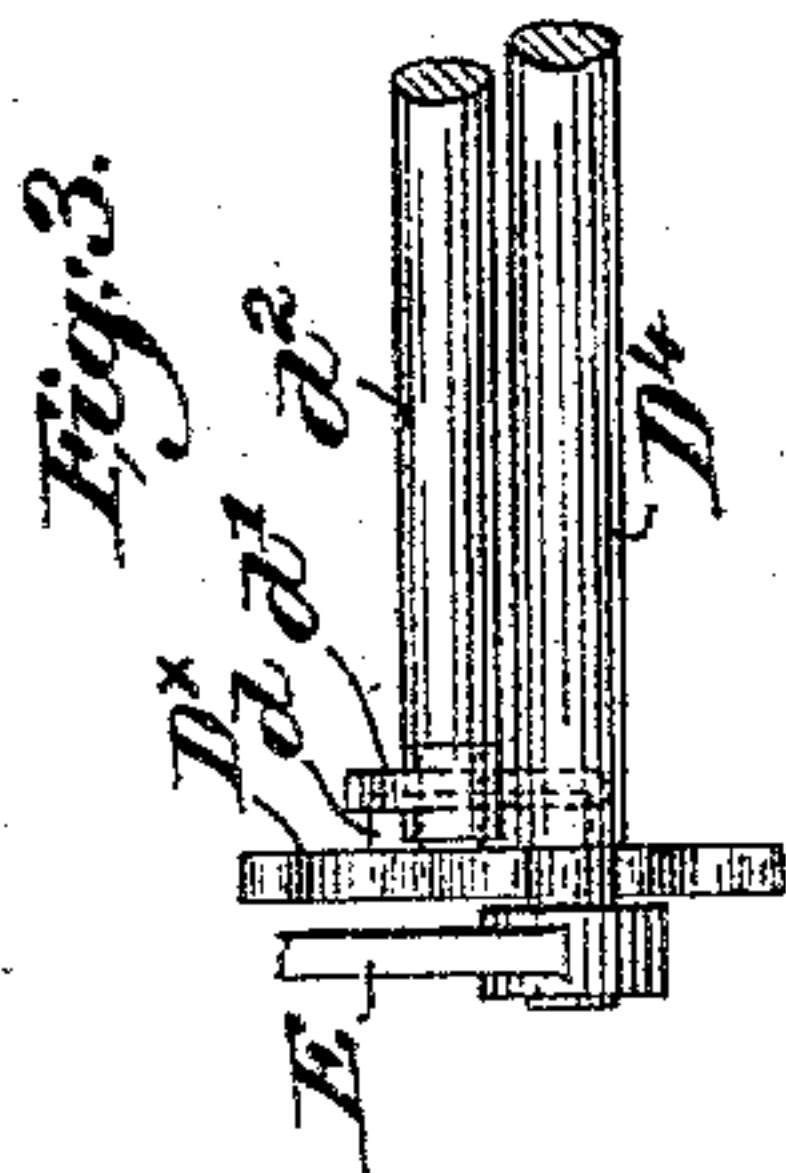
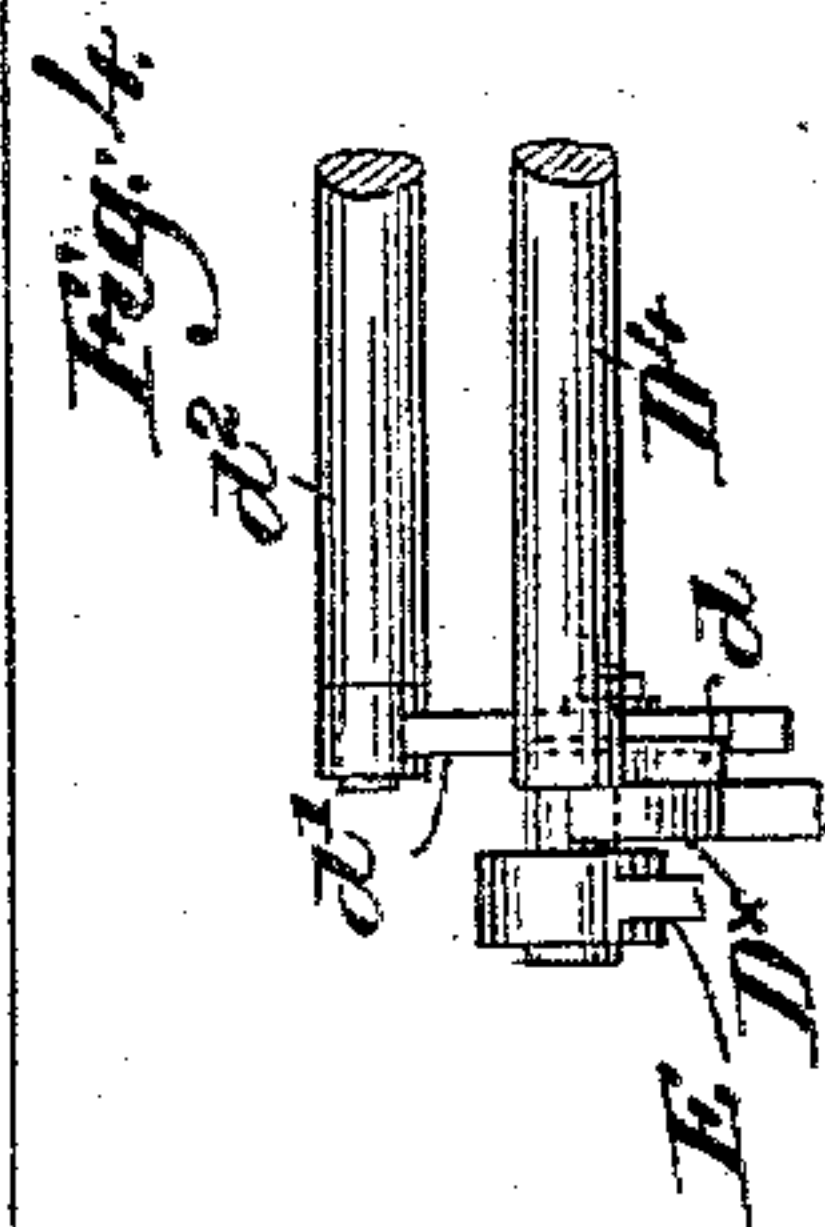
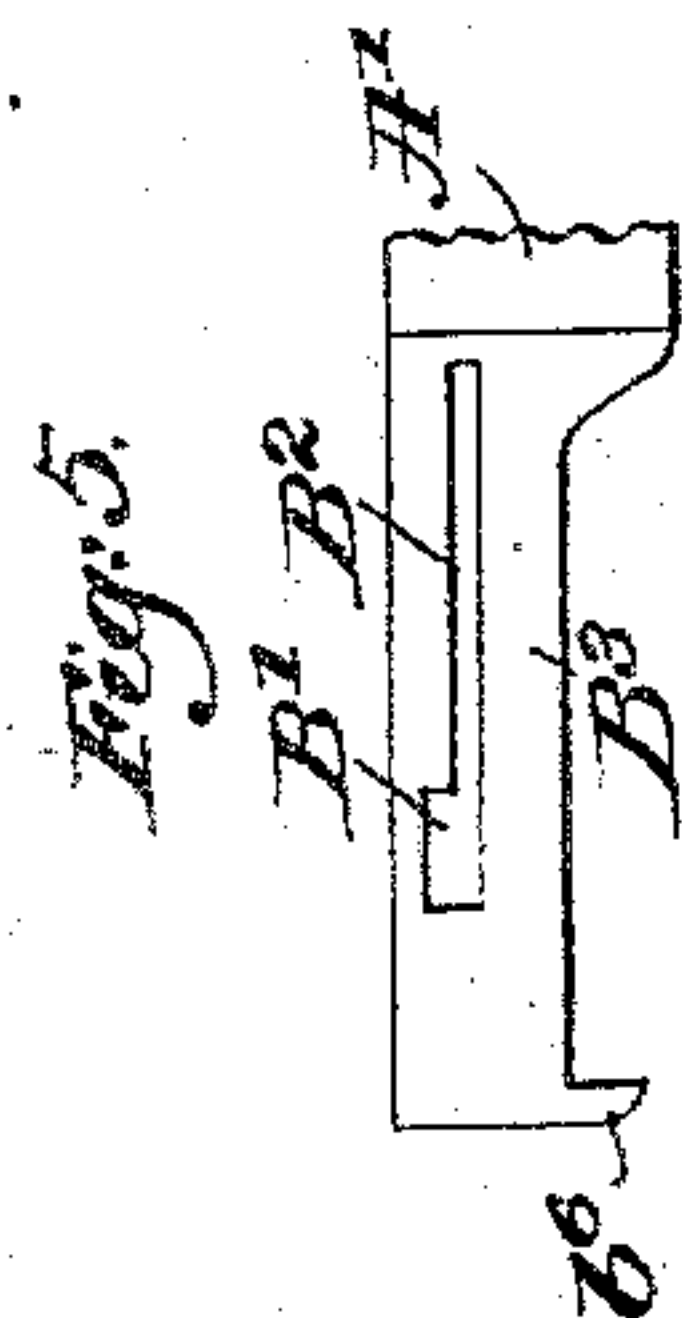
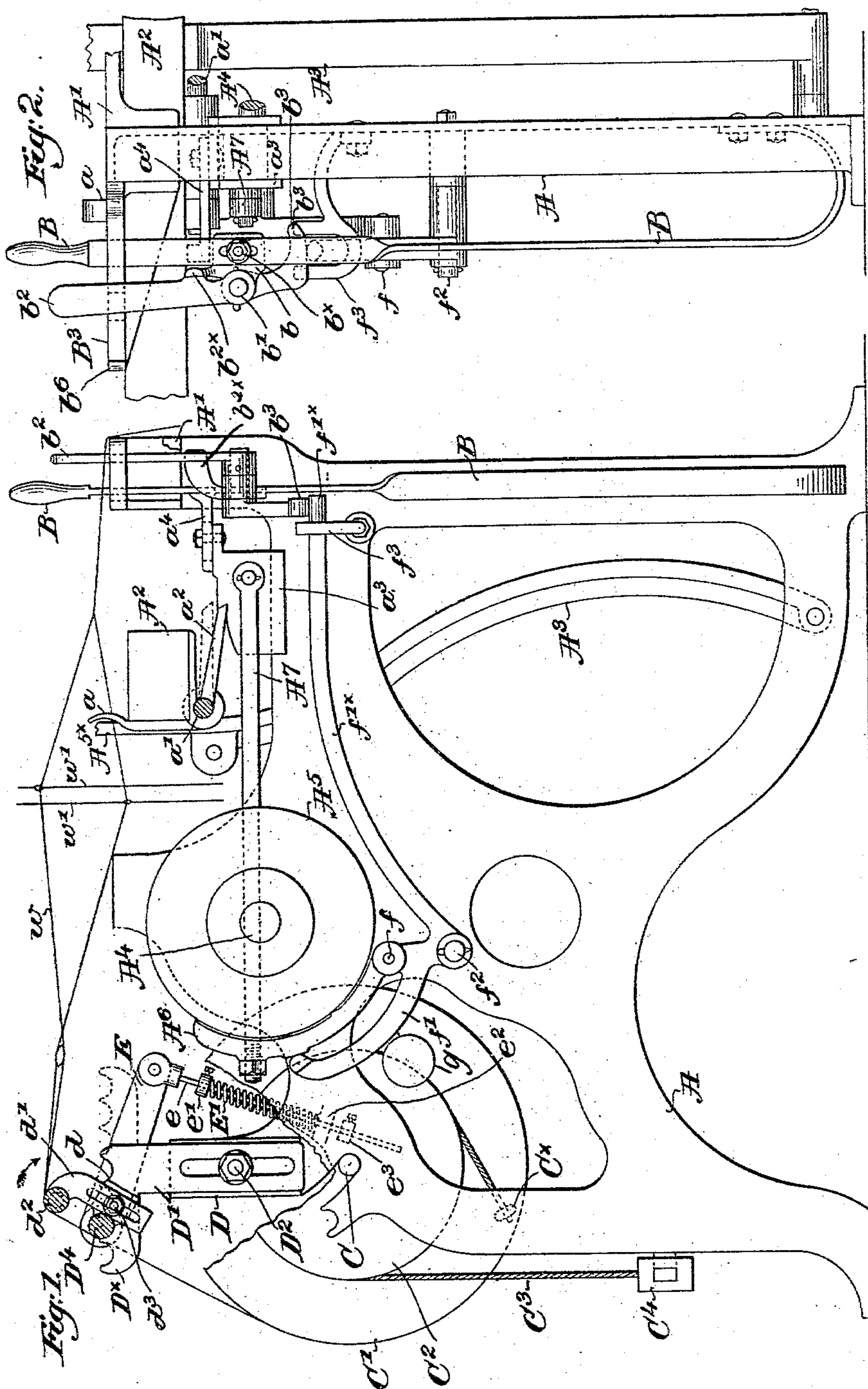


(No Model.)

J. T. MEATS.  
LOOM.

No. 553,036.

Patented Jan. 14, 1896.



Witnesses.

Fred S. Grunkof.  
Thomas Drummond

Inventor.

by John T. Meats.  
Crosby Gregory, attys.



# UNITED STATES PATENT OFFICE.

JOHN T. MEATS, OF TAUNTON, MASSACHUSETTS, ASSIGNOR TO THE MASON MACHINE WORKS, OF SAME PLACE.

## LOOM.

SPECIFICATION forming part of Letters Patent No. 553,036, dated January 14, 1896.

Application filed December 15, 1894. Serial No. 531,894. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN T. MEATS, of Taunton, county of Bristol, 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.

This invention relating to looms has for its object providing the loom with devices by means of which the breakage of warp-threads may be reduced to the minimum and the loom be quickly stopped, not only when the filling is broken or exhausted, but also when the shuttle fails to enter the shuttle-box.

In my invention the strain upon the warp-threads is equalized and reduced by means of an improved back-bearing for the roll over which pass the warp-threads on their way to the harnesses, the said roll being free to yield whenever undue pressure is brought upon the warp-threads.

I have provided the loom with a compound brake which acts upon the brake-pulley of the loom both when the shuttle fails to enter the shuttle-box and also when the filling or weft-thread breaks or is exhausted.

Figure 1 represents, in side elevation, a sufficient portion of a loom with my improvements added to enable my invention to be understood, a portion of the loom-frame being broken out to better show some of the parts. Fig. 2 is a detail showing the left-hand front corner of the loom with the shipper-handle B knocked off and in the act of moving from the left to the right. Fig. 3 is a detail, in plan view, to be referred to, of the warp-thread support; Fig. 4, a face view of the parts shown in Fig. 3; and Fig. 5 is a plan view of the shipper-handle holding-plate.

The loom-frame A, having a breast-beam A', and containing a suitable crank-shaft A<sup>4</sup> having suitable cranks, (not shown,) which are attached to the lay-swords A<sup>3</sup> having the lay-beam A<sup>2</sup> and reed A<sup>5x</sup>, the lay in practice having a suitable binder-finger a, which in practice acts upon the binder (not shown) of the shuttle-box, said binder-finger being connected to the rock-shaft a' carried by the lay and having a dagger a<sup>2</sup> adapted, when lowered into its full-line position, Fig. 1, by

the absence of the shuttle, to meet a notched frog a<sup>3</sup> provided with a finger a<sup>4</sup>, are and may be all as common in looms. The warp-threads w are controlled by suitable heddles w' connected to harness-frames and actuated in usual manner.

The crank-shaft A<sup>4</sup> has upon it at one end a suitable brake-pulley A<sup>5</sup>, which may be of any usual construction, the periphery of the brake-pulley being adapted to be acted upon by a brake-shoe A<sup>6</sup>, connected by a rod A<sup>7</sup> with and to be moved by the frog a<sup>3</sup> when the latter is moved by the dagger.

The loom-frame, at its rear end, has suitable bearings to receive the journals C of the warp-beam C', said warp-beam having at one end a suitable friction device or let-off, shown as a pulley C<sup>2</sup>, over which is extended a rope C<sup>3</sup>, one end of which is attached to the frame at C<sup>x</sup> and the other end to a suitable weighted lever C<sup>4</sup>. The loom-frame, at its rear end, is also provided at each side with suitable guideways D, only one of which is herein shown, and in these guideways are mounted suitable stands D', made adjustable in said guide ways by means of bolts D<sup>2</sup>, passing through slots in said stands. The upper end of each stand is shown provided with a laterally-extended arm D<sup>x</sup>, having a series of open-top bearings for the reception of a shaft D<sup>4</sup>, extended from one to the other of said stands across the loom, and adjustable by placing it in one or the other of the bearings referred to. The stand is also made reversible, as shown by dotted lines in Fig. 1, to increase the range of adjustability.

Fast on the shaft D<sup>4</sup>, at one end, is an arm E suitably supported at its outer end in a yielding manner, herein shown as by a rod e, jointed to said arm and provided with a collar e', resting upon a spring E', supported by a suitable lug or projection e<sup>2</sup> on the framework, and shown by dotted lines, Fig. 1, a suitable adjustable stop e<sup>3</sup> secured to said rod below said projection acting to limit the upward movement of the said rod and its lever. The shaft D<sup>4</sup> also has suitably attached to it, but between the stands D', suitable arms d, to receive the slotted carriers d', between which is mounted the whip-roll d<sup>2</sup>, said carriers being connected to said arms by suitable bolts



or adjusting devices  $d^3$ , to enable the whip-roll to be adjusted up or down with relation to the shaft  $D^4$ .

In the normal operation of the loom the let-off is such as will enable the beam  $C'$  to turn and give off the warp as the latter is taken up in the weaving of the cloth. Frequently, however, a sudden increase in the pull or tension upon the warp would break the warp before the heavy beam could rotate to relieve it. In my improved loom, however, by mounting the whip-roll  $d^2$  on the spring-controlled or yielding carriers referred to any sudden pull or tension upon the warp will simply turn the said roll down more or less in the direction of the arrow and about the axis of the shaft  $D^4$  to effect a temporary relief and thereby save the warp. The tension of the spring  $E'$  or the length of the carrying-arms  $d'$  may be varied for different grades or sizes of warp or fabric woven, to enable said yielding whip-roll to move when necessary to relieve sudden tension or pull on the warp.

The loom has suitably connected to it a usual spring shipper-handle  $B$ , adapted to enter a notch  $B'$  in the slot  $B^2$  of a shipper-holding plate  $B^3$ . The shipper-handle, as herein shown, has attached to it by a bolt  $b^x$  a bearing-block  $b$ , in which is journaled a suitable rock-shaft  $b'$ , upon one end of which is fixed a handle  $b^2$  and upon its other end a toe  $b^3$ . The brake-shoe  $A^6$  is jointed at  $f$  to an auxiliary brake-mover  $f'$ , pivoted at  $f^2$  and having an arm  $f'^x$  held in a suitable guide  $f^3$ , fixed to the frame, and in a position to be acted upon by the toe  $b^3$  referred to. Assuming the shipper-handle  $B$  to be in the notch  $B'$  and the loom weaving regularly, should the shuttle fail to enter the shuttle-box the dagger  $a^2$  will fail to be lifted and will meet the frog  $a^3$  and move the same, causing the finger  $a^4$  on the frog to throw the shipper-handle  $B$  out of the holding-notch  $B'$ , such movement of the frog also acting through the rod  $A^7$ , which herein constitutes one form of main brake-actuator, to draw the brake-shoe  $A^6$  firmly against the brake-pulley. As soon as the shipper-handle  $B$  is disengaged from its holding-notch, as described, it springs to the right, Fig. 2, to throw off the power, such movement of said shipper-handle causing the toe  $b^3$  carried by it to slide onto the outer end of the arm  $f'^x$  referred to and depresses said arm, causing the auxiliary brake-mover  $f'$  to act against the brake-shoe  $A^6$  and increase the pressure with which the same is pressed against the brake-wheel  $A^5$  to more quickly stop the loom. The movement of the shipper-handle is thus utilized to supplement or assist the main brake-actuator. The toe  $b^3$  and the handle-lever  $b^2$  during the movement described are prevented from turning by contact of the handle or lever  $b^2$  with a stop  $b^{2x}$  on the bearing-block  $b$  on the shipper-handle.

In case the weft fails, the filling-fork (not shown) will act in usual manner and will re-

lease the shipper-handle, as described, letting the toe  $b^3$  act upon the outer end of the auxiliary brake-mover, as described, to brake and thereby quickly stop the loom, the rod  $A^7$  at such times not coming into action, the brake being applied solely by the auxiliary brake-mover.

To release the brake and start the loom, the operator moves the handle-lever  $b^2$  to the left, Fig. 2, about its pivot  $b'$ , to move the toe  $b^3$  to the right or from the end of the arm  $f'^x$ , relieving the latter and permitting the brake-shoe to be drawn by the weight of the counterbalance  $g$  away from the brake-wheel, after which the shipper-handle  $B$  is moved back to the left and engaged and locked in the holding-notch  $B'$  in its holding-plate.

The holding-plate is shown provided with an outer projection or stop  $b^6$  to throw the handle-lever  $b^2$  into its proper vertical position against the stop  $b^{2x}$  on return or outward movement of the shipper-handle, to thereby cause the toe  $b^3$  to assume proper position with relation to the arm  $f'^x$  after passing the latter, in order to be in readiness for a subsequent braking movement when the shipper-handle is released.

This invention is not limited to the particular arrangement or construction of parts herein shown, for the same may be varied without departing from the spirit and scope of my invention.

I claim—

1. A loom containing a whip roll, pivoted supports for the same, means to vary the radial length of the supports between their pivots and the axis of said roll, and a spring connected with and to control the said supports, said spring acting in opposition to the tension of the warp threads passed over said rolls, substantially as described.

2. In a loom the combination with a brake wheel, its brake-shoe, and a main actuator therefor of a shipper-handle, auxiliary devices intermediate said shipper-handle and brake-shoe, and actuating means common to and for moving said shipper-handle and brake-shoe, said means moving the latter through said auxiliary devices substantially as described.

3. In a loom, the combination of a brake wheel, its brake shoe, a shipper handle, and means to disengage it to remove the power for operating the loom; and to simultaneously apply said brake shoe, an auxiliary brake mover, and a handle lever pivoted on and movable with said shipper-handle and adapted on movement of the latter to act upon and move said auxiliary brake mover, substantially as described.

4. In a loom, the combination of a brake wheel, its brake shoe, a shipper handle, and means to disengage it to remove the power for operating the loom; and to simultaneously apply said brake shoe, an auxiliary brake-mover, a handle lever pivoted on and movable with said shipper-handle and adapted on movement of the latter to act upon and move said



auxiliary brake-mover, and stops for and at each side of the said handle lever to operate, substantially as described.

5 5. In a loom, a brake wheel, its brake shoe, a shipper handle, and a brake handle mounted on and movable with the said shipper handle and connected with said shoe, whereby stopping movement of the shipper handle automatically causes application of the brake  
10 shoe, said brake handle also having a movement independent of said shipper handle to

release the brake without returning the shipper handle to running position, substantially as described.

In testimony whereof I have signed my 15 name to this specification in the presence of two subscribing witnesses.

JOHN T. MEATS.

Witnesses:

JOSEPH S. EATON,  
E. W. DEAN.