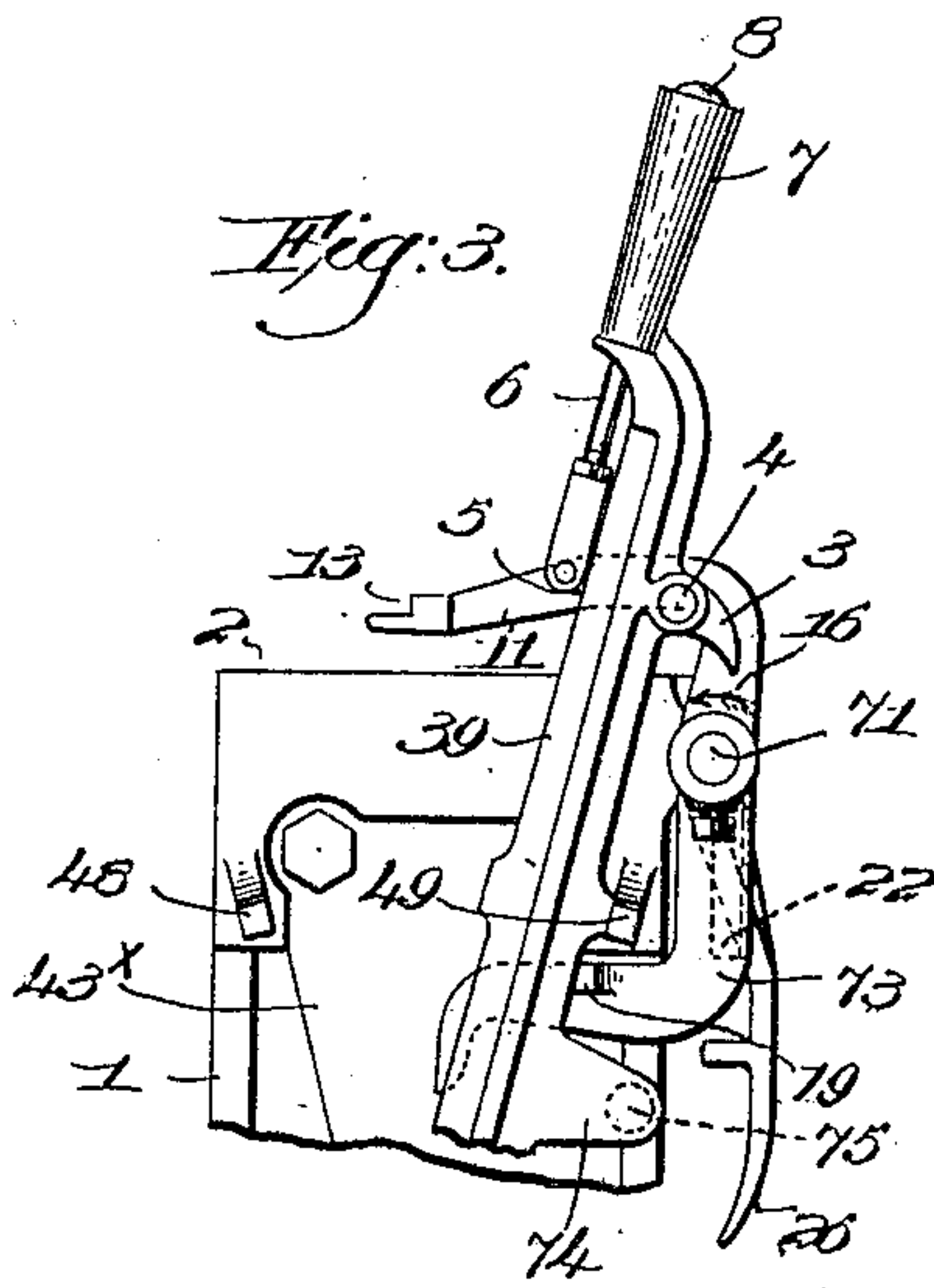
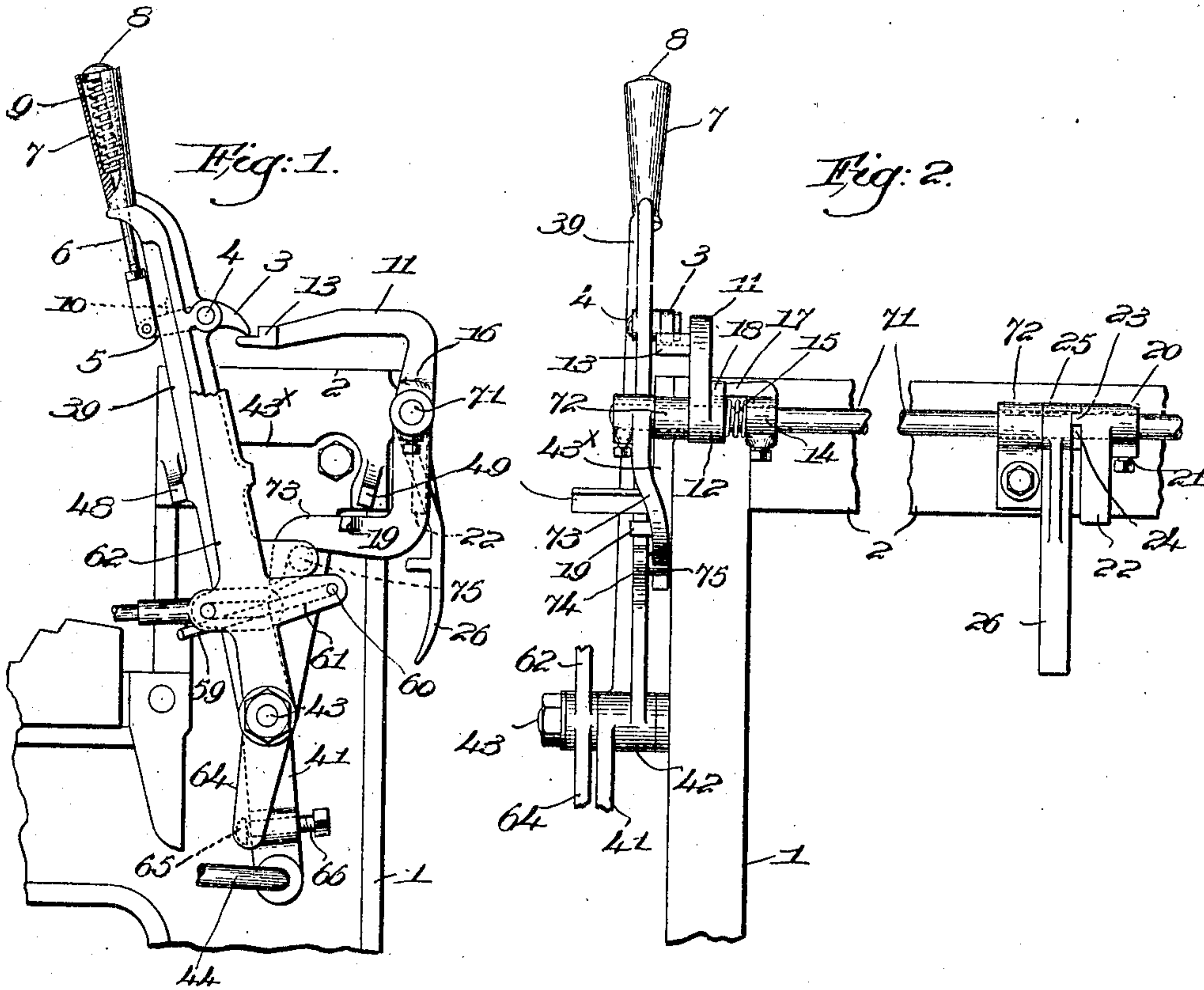


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 STARTING AND STOPPING MECHANISM FOR LOOMS.
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UNITED STATES PATENT OFFICE.

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STARTING AND STOPPING MECHANISM FOR LOOMS.

No. 926,021.

Specification of Letters Patent.

Patented June 22, 1909.

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To all whom it may concern:

Be it known that I, ALONZO E. RHOADES, a citizen of the United States, residing at Hopedale, county of Worcester, and State of Massachusetts, have invented an Improvement in Starting and Stopping Mechanism for Looms, of which the following description, in connection with the accompanying drawing, is a specification, like numerals on the drawing representing like parts.

The apparatus forming the subject matter of United States Patent No. 867,934, granted to Ambler, October 8, 1907, provides mechanism for throwing on or off the power, in a loom, the construction and arrangement being such that not only is the shipper easily moved from running to stopping position but the opposite movement, viz: to running position, can be effected by the expenditure of very little force or strength.

In practice, even on a broad loom, the weaver can with one finger move the shipper to running position, but this very desirable and valuable characteristic opens the way to accidental shipper movement as easily as when such movement is designed, and it will be apparent that should the weaver unwittingly move the shipper to running position while working about the loom serious injury might result.

My present invention relates more particularly to loom starting and stopping mechanism of the type referred to wherein the shipper movement is so easily effected, and it has for its main object the improvement of such mechanism whereby the shipper is locked automatically in stopping position, so that it cannot be thereafter moved to running position until unlocked.

The unlocking is effected manually, either immediately adjacent the shipper or at a point distant therefrom, and another object of my invention is the production of an instrumentality whereby the weaver may move the shipper to running position from such distant point, the actuation of said instrumentality operating first to unlock the shipper.

The patent referred to provides means for starting the loom from different points at the front of the loom, a very useful feature, particularly on broad looms, and I do not broadly claim such means herein, but I have arranged for the stopping of the loom through

the same instrumentality and for the unlocking of the shipper, as before mentioned.

The various novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a left hand side elevation of a sufficient portion of the starting and stopping mechanism of the Ambler patent to be understood, with one embodiment of my present invention applied thereto, the shipper being shown in stopping position and locked; Fig. 2 is a front elevation of such devices, with the breast-beam and shipper-operating member or rod broken out to save space, and the greater part of the controller adjacent the shipper is also broken off; Fig. 3 is a detail similar to Fig. 1 but showing the shipper in running position, the controller being omitted to avoid confusion.

Referring to the drawings the loom-side 1, breast-beam 2, the shipper comprising a long upper member 39, shorter lower member 41, connected by a hub 42 fulcrumed on the stud 43 extended from a bracket 43^x; the link 44 connecting the lower member 41 of the shipper with the devices to throw the power on or off, the stops 48, 49 on the bracket 43^x; the brake-governing link 59 pivotally connected at 60, Fig. 1, to an ear 61 extended from the controller 62 fulcrumed near its lower end on the stud 43 along side the shipper and having below the fulcrum stud 43 an extension 64 provided with a lateral toe 65, shown in dotted lines Fig. 1, extended back of the shipper member 41 and cooperating with an adjustable stop 66 on said member; the rod 71 mounted in bearings, as 72, on the breast-beam and having a rigidly attached and depending hooked arm 73, and the ear 74 on the shipper member 39, provided with a lateral pin 75 with which the arm 73 is adapted to cooperate, may be and are all substantially as in the Ambler patent referred to.

When the controller 62 is thrown forward, or to the right, Fig. 1, the link 59 causes the brake to be released, as in said patent, and when the controller is thrown into the position shown in Fig. 1 the toe 65 acts against the stop 66 to move the shipper to stopping position while the operation of the link 59 causes the brake to be set.

Herein I have shown a latch 3 fulcrumed at 4 on the longer member 39 of the shipper,

and forming one member of a shipper locking means, the tail 5 of the latch extending rearward and having pivotally connected with it the lower end of an upturned rod 6 extended
 5 slidably through a hole in the bottom of the tubular handle 7 of the shipper, as shown in Fig. 1.

A head or finger-piece 8 on the upper end of the plunger or rod 6 projects above the
 10 open top of the handle and is acted upon by a coiled spring 9 within the handle, said spring acting under normal conditions to maintain the latch in operative position, with its tail against a stop 10, see dotted lines Fig. 1, on
 15 the side of the shipper.

By pressure of the thumb or finger on the finger-piece 8 the rod 6 is depressed, lifting the latch on its pivot into inoperative position, as will be obvious.

20 A rearwardly extended stop-arm 11 has its hub 12, Fig. 2, loosely mounted on the rock-shaft or rod 71, the rear end of the arm having a lateral, shouldered extension or stop 13 overhanging the breast-beam 2 and so
 25 located when operatively positioned that the latch 3 will cooperate therewith when the shipper is in stopping position, Figs. 1 and 2, the stop-arm 11 and stop 13 thereon forming the other member of the shipper-locking
 30 means.

The stop-arm is shown in its normal, operative position, in Figs. 1, 2 and 3, and when the shipper is moved to stopping position the latch 3 clicks over the stop 13 and snaps into
 35 cooperation therewith, as shown in Figs. 1 and 2, locking the shipper in stopping position so that it cannot be moved therefrom until either the latch or the stop is moved into inoperative position.

40 The weaver can unlock the shipper by pressing down the finger-piece 8, as described, thereby lifting the latch above the stop 13 so that the shipper can be moved forward to running position, the handle 7 being grasped
 45 to effect such movement.

When the shipper is locked any accidental forward push or pressure upon it is resisted by the locking means, so that the loom cannot be started unwittingly, and it will be
 50 seen that the unlocking if effected by means adjacent the shipper does not change the position of the stop 13.

While the stop-arm 11 is loose on the rod 71 the pressure exerted thereon by the latch,
 55 should the shipper be pressed forward, acts in a line through the axis of the rod 71, so that no turning tendency is imparted to the stop-arm. Said rod 71 has fast upon it a collar 14, Fig. 2, adjacent the hub 12 of the
 60 stop-arm, and a spring 15 coiled about the rod is attached at one end to the hub and at its other end to the collar, the winding of the spring being such that when the rod is turned in the direction of arrow 16, Fig. 3, the spring
 65 will tighten and turn the stop-arm 11 to

depress the stop 13 out of the path of the latch 3.

A lug 17 on the collar extends behind a projection 18 on the hub 12, to positively return the stop-arm to operative position
 70 when the rod 71 is returned to normal position.

Supposing the parts are in stopping position, Fig. 1, then if the rod 71 is turned in the direction of arrow 16 the shipper-locking
 75 means will be rendered inoperative, as described, and the hooked arm 73 will engage the pin 75 and will thereby move the shipper forward into running position, Fig. 3, against the lug 49, the yielding connection between
 80 the rod and the stop-arm permitting the full angular movement of the rod after the stop 13 engages the top of the breast-beam. When the rod 71 is released the arms 73 and 11 return to the position shown in Fig. 1. 85

Viewing Fig. 3, it will be seen that a lateral lug 19 on the arm 73 bears against the front edge of the upper member 39 of the shipper, and if now the rod 71 is turned oppositely to
 90 arrow 16, said lug 19 will act upon the shipper to throw it rearward into stopping position, the latch 3 clicking over the stop 13 during such movement of the shipper. While the movement of the rod 71 to move the shipper to stopping position slightly elevates the
 95 stop 13 temporarily it is not sufficient to prevent the riding of the latch thereover, and the latch operatively engages the stop to lock the shipper in stopping position.

I will now describe the means for manually
 100 actuating the rod to move the shipper into running or stopping position.

Referring to Fig. 2 said rod has fixed upon it at a point distant from the shipper, for instance at or near the right hand side of the
 105 loom, a collar 20, secured by a set-screw 21 and provided with a short depending extension or actuating handle 22. When the weaver wishes to stop the loom when he is at a distance from the shipper or the controller
 110 62, he presses the handle 22 toward the breast-beam, thereby turning the rod 71 oppositely to the arrow 16, and the lug 19 acts upon the shipper and moves it to stopping position, as has been described, the locking
 115 means operating automatically to retain the shipper in stopping position. The collar 20 has a lateral lug 23 which extends into a segmental recess 24 in the adjacent end of the hub 25 of a depending handle 26 loosely
 120 mounted on the rod between the bearing 72 and the collar 20, the handle 26 being preferably longer than the handle 22. If the loom is at rest and the weaver wishes to start it other than by direct grasp of the shipper he
 125 pulls the handle 26 forward and upward, until the lower end of the recess 24 engages the lug 23, further lifting movement of the handle 26 then acting through said lug and the collar 20 to turn the rod 71 in the direc- 130

tion of arrow 16 and moving the arm 73 forward. Said arm acts against the pin 75 and moves the shipper forward to running position, Fig. 3, and the stop 66 acts upon the
 5 toe 65 to correspondingly swing the controller 62 and effect release of the brake.

The lost-motion connection between the handle 26 and the rod 71 is similar to the connection in the Ambler patent, obviating
 10 any tendency to apply undue force in operating the rod.

The handles 22 and 26 may be termed stopping and starting handles or actuators, respectively, and both can be actuated at a
 15 point distant from the shipper, a matter of great convenience in broad looms.

My invention is not restricted to the precise construction and arrangement herein shown and described, as the same may be
 20 varied or modified in different particulars by those skilled in the art without departing from the spirit and scope of my invention as set forth in the appended claims.

Having fully described my invention, what
 25 I claim as new and desire to secure by Letters Patent is:—

1. In a loom, means, including a shipper, to throw the power on or off, a manually actuated rod extended along the front of the
 30 loom, an arm on said rod to cooperate with and move the shipper from running to stopping position, and vice versa, by angular movement of the rod in one or the other direction, respectively, a manually released
 35 device to lock automatically the shipper in stopping position, and means to render said device inoperative by angular movement of the starting rod to move the shipper to running position.

2. In a loom, means, including a shipper, to throw the power on or off, a manually released latch on the shipper, a relatively fixed
 40 stop with which the latch cooperates automatically when the shipper is moved to stopping position, to retain it locked in such position, a manually actuated instrumentality to
 45 cooperate with and move the shipper from running to stopping position, and vice versa, and means operated by actuation of said instrumentality to move the shipper to running
 50 position, to effect disengagement of the latch and stop and thereby unlock the shipper.

3. In a loom, means, including a shipper, to throw the power on or off, means to lock
 55 the shipper automatically when moved to stopping position, a manually actuated instrumentality to cooperate with and move the shipper from running to stopping position, and vice versa, and means, operated by
 60 actuation of said instrumentality to move the shipper to running position, to first unlock the shipper.

4. In a loom, means, including a shipper, to throw the power on or off, a spring-controlled latch on the shipper, having a man-
 65

ually operated releasing member, a stop with which the latch cooperates automatically when the shipper is moved to stopping position, a manually actuated instrumentality at
 70 the front of the loom to move the shipper from running to stopping position, and vice versa, and an arm on which said stop is carried, said arm being moved to release the latch by actuation of said instrumentality to
 75 move the shipper from stopping to running position.

5. In a loom, means, including a shipper, to throw the power on or off, combined with means inoperative when the shipper is in
 80 running position and rendered operative by movement of the shipper to stopping position, to lock and hold positively the shipper in stopping position and prevent movement thereof toward running position, and an instrumentality manually operated at a point
 85 distant from the shipper to engage directly and temporarily said locking means and render it inoperative, thereby releasing the shipper.

6. In a loom, means, including a shipper, to throw the power on or off, a spring-actuated latch on the shipper, a connected finger-
 90 piece to render the latch inoperative, and a stop with which the latch cooperates when the shipper is in stopping position, to lock the shipper in such position, combined with
 95 a manually actuated member operatively connected with and to move the shipper to running position, and means, governed by actuation of said member, to effect dis-
 100 engagement of the latch and stop.

7. In a loom, in combination, a shipper to throw the power on or off, a manually actuated rod extended along the front of the
 105 loom, an arm on said rod to act upon and move the shipper from running to stopping position, and vice versa, when the rod is turned in one or the other direction, respectively, handles on the rod, to effect angular
 110 movement thereof, a stop-arm mounted on said rod and moved into inoperative position when said rod is turned to move the shipper to running position, and a latch on the shipper adapted to cooperate with the stop-arm
 115 when operatively positioned and lock the shipper in stopping position.

8. In a loom, in combination, a shipper to throw the power on or off, a manually actuated rod extended along the front of the
 120 loom, an arm on said rod to act upon and move the shipper from running to stopping position, and vice versa, when the rod is turned in one or the other direction, respectively, handles on the rod, to effect angular
 125 movement thereof, a stop-arm mounted on said rod and moved into inoperative position when said rod is turned to move the shipper to running position, a yielding connection between said stop-arm and rod, and a latch on
 130 the shipper adapted to cooperate with the

stop-arm when operatively positioned and lock the shipper in stopping position.

9. In a loom, in combination, a shipper to throw the power on or off, a manually actuated rod extended along the front of the loom, an arm on said rod to act upon and move the shipper from running to stopping position, and vice versa, when the rod is turned in one or the other direction, respectively, handles on the rod, to effect angular movement thereof, a stop-arm mounted on said rod and moved into inoperative position when said rod is turned to move the shipper to running position, a latch on the shipper to cooperate with the stop-arm when operatively positioned and lock the shipper in stopping position, and a latch-releasing member on the shipper.

10. In a loom, means, including a shipper, to throw the power on or off, means to lock the shipper automatically when moved to stopping position, an instrumentality operated manually at a point distant from the shipper to effect movement thereof to running or stopping position, means to unlock the shipper by the operation of said instrumentality to move the shipper to running position, and a separate, manually operated device on the shipper to effect its release from the locking means.

11. In a loom, means, including a shipper, to throw the power on or off, means to lock the shipper automatically when moved to stopping position, a manually operated device on the shipper to render said locking means inoperative, and means manually operated at a point distant from the shipper to release it from the control of the locking means.

12. In a loom, means, including a shipper, to throw the power on or off, means to lock the shipper automatically when moved to stopping position, said means including a

member on the shipper and a cooperating member mounted independently of the shipper, a manually operated device on the shipper to move one of the locking members into inoperative position, and means manually operated at a point distant from the shipper to move the other locking member into inoperative position.

13. In a loom, means including a shipper, to throw the power on or off, and a locking device rendered operative by movement of the shipper to stopping position, to lock automatically the shipper in such position, said device including a movable member mounted independently of the shipper and a member movable with and also relatively to the shipper, combined with separate, manually operated releasing means for each of said locking members to move either member at will into inoperative position and thereby unlock the shipper.

14. In a loom, means to throw the power on or off, including a shipper easily moved from running to stopping position, combined with a shipper-locking device operating only when the shipper is in stopping position and rendered operative by movement of the shipper to such position, to lock and hold positively the shipper from movement to running position, said device comprising two members each of which is movable into and out of locking relation with the other, and manually operated means to move one of said members out of locking relation with the other, to thereby release the shipper.

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

ALONZO E. RHOADES.

Witnesses:

JESSE D. BROMLEY,
EDWARD DANA OSGOOD.