No. 791,487. PATENTED JUNE 6, 1905.

P. McPEAK.

FRINGE PULLING MECHANISM FOR LOOMS.

APPLICATION FILED MAR. 17, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

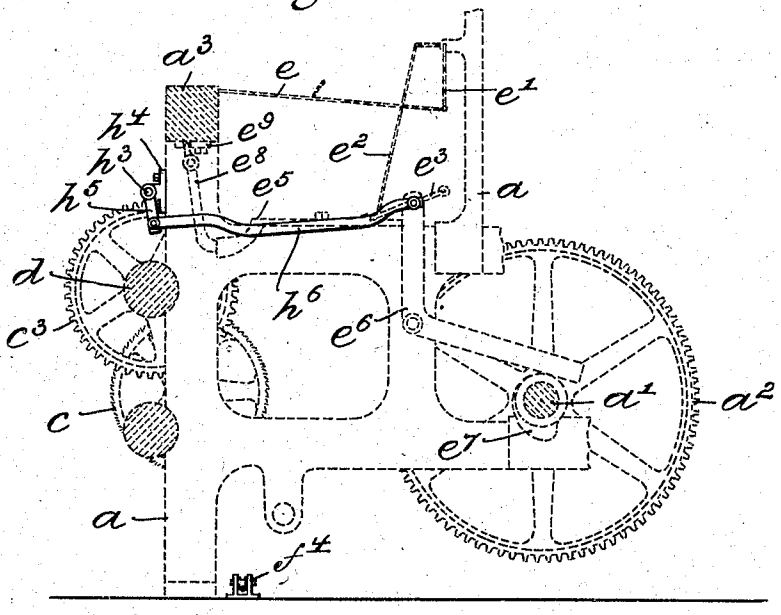
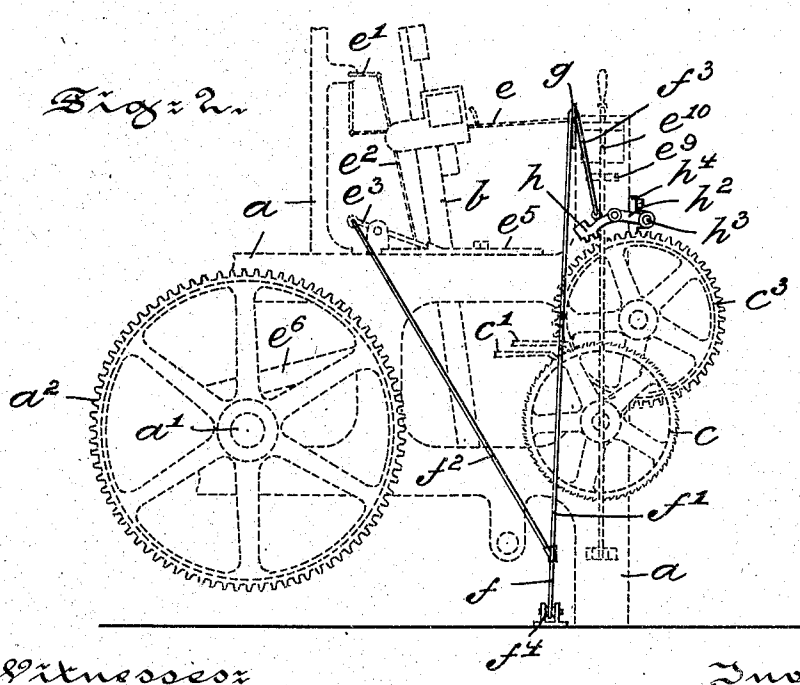


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

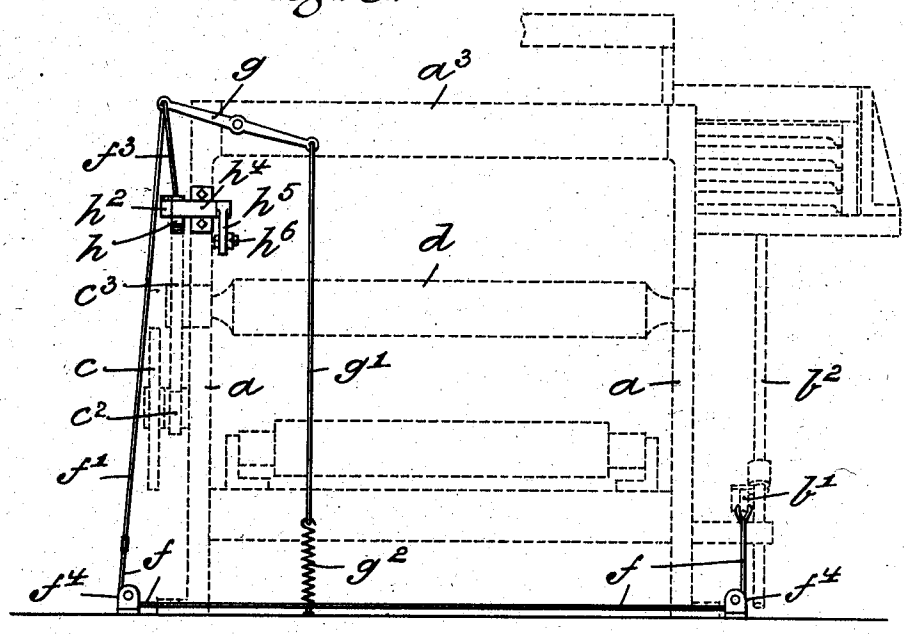
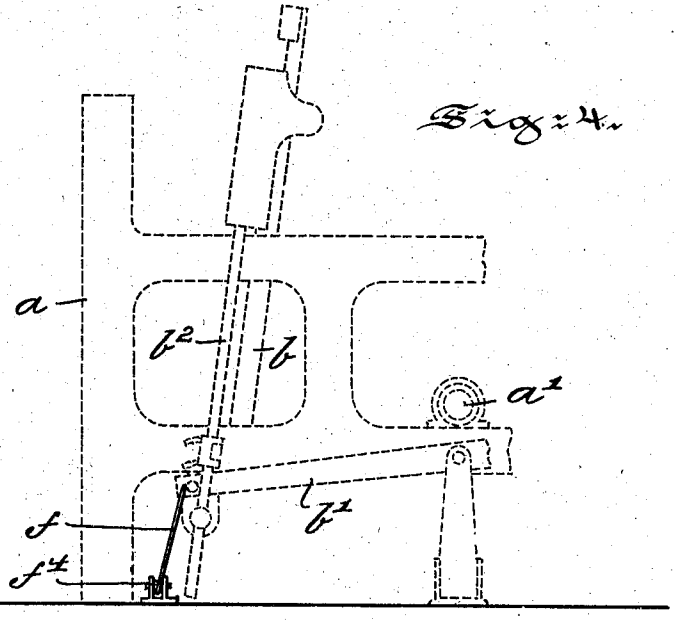


Fig. 4.



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No. 791,487. Patented June 6, 1905.

UNITED STATES PATENT OFFICE.

PATRICK McPEAK, OF CHELTENHAM, PENNSYLVANIA.

FRINGE-PULLING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 791,487, dated June 6, 1905.

Application filed March 17, 1905. Serial No. 250,515.

To all whom it may concern:

Be it known that I, PATRICK McPEAK, a citizen of the United States, residing at Cheltenham, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Fringe-Pulling Mechanism for Looms, of which the following is a specification.

My invention has relation to a fringe-pulling mechanism for looms; and in such connection it relates more particularly to means for preventing the stopping of the loom by the weft stop-motion at the time the fringe is to be pulled and to permit of the acceleration in the revolution of the take-up roll of the loom to feed the warp-threads forward, so as to quickly form the fringe.

The principal object of my invention is to provide means controlled by the drop-box mechanism and actuated by the operating-lever of the weft stop-motion of the loom to rotate the take-up roll independent of its usual driving mechanism for a short distance to form the fringe by the rapid forward feed of the warp-threads.

The nature and scope of my present invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a vertical sectional view of a portion of a loom illustrated in dotted lines and also showing in full lines a portion of the fringe-pulling mechanism thereof embodying main features of my invention. Fig. 2 is a side elevational view of the same and the fringe-pulling mechanism in dotted and full lines. Fig. 3 is a front elevational view of the loom shown in a similar manner, and Fig. 4 is a side elevational view of the loom opposite to that shown in Fig. 2.

Referring to the drawings, with reference to the parts of the loom shown in dotted lines, a represents the framework, to which is secured a cam-shaft a', driven by a gear-wheel a^2, and a breast-beam a^3.

b is a swinging lay, and b' is a drop-box lever for actuating the drop-box rod b^2.

c is a ratchet-wheel, to which is imparted a step-by-step movement by means of pawls c' and which wheel is adapted to rotate a gear-wheel c^2, meshing with a gear-wheel c^3, to which the sand-roll d is secured.

e is a forked rod, and e' a lever adapted when actuated to disengage a pawl e^3 from the slide e^5 by means of a cord e^2. The pawl e^3 is pivotally carried by a cam-lever e^6, actuated by a cam e^7, secured to the shaft a'. The slide e^5 engages a trigger e^8, which actuates a lever e^9, operating the belt-shifting lever e^{10}.

The above-described parts of the loom operate in a well-known manner, and a portion of the same is utilized to actuate the mechanism illustrated in full lines and constituting the particular features of my present invention.

As shown in Fig. 4, to the drop-box lever b' is secured a cord or chain f, passing over pulleys f^4, preferably secured to the flooring of a room from one side of the machine to the other and branching here into two sections, one of which, f', is fastened to a lever g, pivotally connected with the breast-beam a^3 of the loom, and the other branch, f^2, to the pawl e^3, engaging the slide e^5. The lever g, by means of cords f^3 and g' and a spring g^2, tends to hold a pawl h out of engagement with the gear-wheel c^3 of the take-up or sand roll d. The pawl h is pivotally secured to an arm h^2, fixed to the shaft h^3, carried by a bracket h^4, which is secured to the framework a, as shown in Figs. 2 and 3. To the other end of the shaft h^3 is secured an arm h^5, which, by means of a link h^6, is pivotally connected with the cam-lever e^6. When the drop-box lever b' is raised to an extra height, so as to elevate the drop-box at the end of the production of a piece of fabric to bring the lowermost shuttle-box opposite the shuttle-race, the cord f, actuated by the lever b', depresses the lever g against the tension of the spring g^2 and permits the pawl h to engage the gear-wheel c^3. In the meantime the pawl e^3 is prevented from engaging the slide e^5 and is maintained in its elevated position by means of the branch cord f^2 before the cam e^7 is brought into engagement with the cam-lever e^6. The cam e^7 now actuates the lever e^6, which, by means of the link h^6, arm h^5, shaft h^3, and arm h^2, actuates the pawl h, which pawl, by engaging the gear-

wheel c^3 of the take-up or sand roll d, accelerates the rotary movement of the same. By this movement the take-up roll d is quickly shifted forward for a sufficient distance to form the fringe by the pulling of the warp-threads. As soon as the drop-box lever b' is lowered the lever g, by the intervention of the spring g^2, disengages the pawl h from the gear-wheel c^3, actuating the sand-roll d, and at the same time the pawl e^3 is permitted again to be actuated by the forked rod e, lever e', and cord e^2. The cam-lever e^6, by returning to its normal position, moves the pawl h backward over the gear-wheel c^3 of the sand-roll d for a certain number of teeth, so that when brought into engagement with the gear-wheel c^3 it will shift the same and the sand-roll d forward for a predetermined distance. The loom is now permitted to continue its operation in the usual manner until it becomes again necessary to pull the warp-threads. The shuttle-box held opposite the shuttle-race by the drop-box lever b' at its highest position generally does not contain a shuttle. If, however, a shuttle-box should contain a shuttle and a weft-thread should be inserted at this time, the same will not be beaten up, owing to the rapid forward movement of the warp-threads in the formation of the fringe.

Having thus described the nature and object of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A fringe-pulling mechanism for looms, in combination with a take-up roll and its actuating-gear, a drop-box mechanism and operating-lever of a weft stop-motion, a pawl, means to permit said pawl to engage said gear, when operated by the drop-box mechanism, and means connecting said pawl with said operating-lever, said lever shifting said gear and take-up roll when said pawl engages said gear.

2. In a fringe-pulling mechanism for looms, in combination with a take-up roll and its actuating-gear, a drop-box mechanism and operating-lever of a weft stop-motion, a pawl, means adapted to hold the pawl out of engagement with said actuating-gear and to permit the same to engage said gear when operated by said drop-box mechanism, and means connecting said pawl with said operating-lever, said lever arranged to impart a reciprocatory movement to said pawl to permit the pawl when engaging the actuating-gear to rotate the same and take-up roll in one direction.

3. A fringe-pulling mechanism for looms, in combination with a take-up roll and its actuating-gear, a drop-box mechanism, a weft-stop-motion device, and an operating-lever for said device, pawls, means connecting said pawls with said drop-box mechanism and when actuated by the same permitting the engagement of one of said pawls with the actuating-gear and preventing the other of said pawls engaging the weft-stop-motion device so as to render the same inoperative during the operative position of the first pawl, and means connecting said first pawl with said operating-lever.

4. A fringe-pulling mechanism for looms, in combination with a take-up roll and its actuating-gear, a drop-box mechanism, a weft-stop-motion device and an operating-lever therefor, pawls, means connecting said pawls with said drop-box mechanism and adapted when actuated by the same to permit of the engagement of one of said pawls with the actuating-gear and preventing the other of said pawls engaging said weft-stop-motion device and means supporting the first of said pawls and connecting the same with said operating-lever to permit of a quick movement of the take-up roll by said pawl when the same engages said actuating-gear.

5. A fringe-pulling mechanism for looms, in combination with a take-up roll and its actuating-gear, a drop-box mechanism, a weft-stop-motion device and an operating-lever therefor, a pawl, means under the control of said drop-box mechanism adapted to support said pawl, means carrying said pawl and connecting the same with the operating-lever, said lever adapted to actuate said pawl when brought into engagement with the gear of the take-up roll by the actuation of its supporting means by the drop-box mechanism.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

PATRICK McPEAK.

Witnesses:
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THOMAS M. SMITH.