

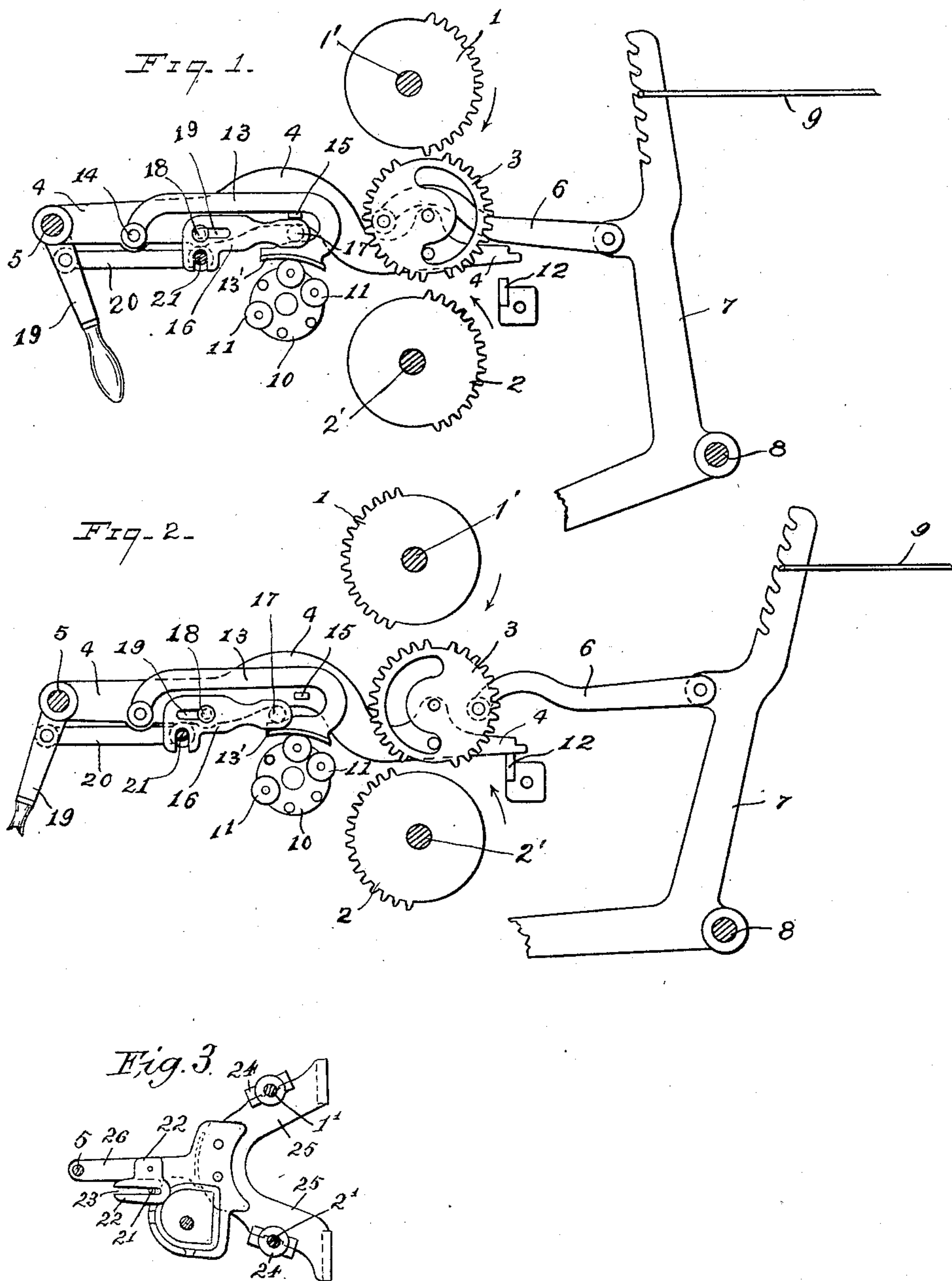
(No Model.)

G. F. HUTCHINS.

SHEDDING AND SHUTTLE BOX OPERATING MECHANISM FOR LOOMS.

No. 454,135.

Patented June 16, 1891.



Witnesses

Clinton Wood
Char. J. Fletcher

Inventor

George F. Hutchins

By his Attorney

John C. Dewey

UNITED STATES PATENT OFFICE.

GEORGE F. HUTCHINS, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE
KNOWLES LOOM WORKS, OF SAME PLACE.

SHEDDING AND SHUTTLE-BOX-OPERATING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 454,135, dated June 16, 1891.

Application filed August 11, 1890. Serial No. 361,719. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. HUTCHINS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Shedding and Shuttle-Box-Operating Mechanisms for Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawings making a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to improvements in looms, and more particularly to the harness and shuttle-box motion of looms of the class shown and described in Letters Patent of the United States No. 134,992.

The object of my invention is to improve upon the construction and operation of the mechanism shown and described in said patent for bringing all the harnesses, and thereby all the warp-threads, together into one line or plane, so that instead of raising the harnesses to their highest position to be in line with each other they are lowered to their lowest position.

My invention consists in the improved construction and operation of the mechanism for bringing all the harnesses into one line or plane in their lowest position, and also for lowering the shuttle-boxes, as will be hereinafter fully described, and the nature thereof indicated by the claims.

I have shown in the drawings my improvement applied to the well-known harness-operating mechanism of the Knowles loom, as shown and described in the Letters Patent above referred to, reference being had more particularly to the parts shown in Figures 5 and 6 of the drawings of said patent.

Referring to the drawings, Fig. 1 is a side elevation of portions of the harness-operating mechanism with my improvements applied thereto. Fig. 2 is a view of the same parts shown in Fig. 1 in their opposite position, and Fig. 3 shows a detached section of one end of the frame of the loom-head.

In the accompanying drawings, 1 and 2 are the upper and lower cylinder-gears fast on the shafts 1' and 2', turning in bearings 24

on the frame 25, (see Fig. 3;) 3, the vibrator-gear; 4, the vibrator-lever pivoted on heel-pin 5, supported in the end of the arm 26 of the loom-frame. 6 is the jack or harness lever connector; 7, the harness lever or jack pivoted at 8; 9, the cord leading to the upper side of the harnesses, (not shown;) 10, the pattern-chain carrying rolls 11, and 12 a support or stop on which the free ends of the vibrators rest when the harnesses are in their lowest position.

All of the above-mentioned parts are constructed, arranged, and operated in the ordinary way and as fully set forth in the Letters Patent above referred to.

I will now proceed to describe my improvements, which consist in combining with the vibrator-levers devices and operating mechanism for lowering the free ends of the vibrator-levers, which are held up by the rolls on the pattern-surface, and bringing the harnesses into one line or plane in their lowest position, and also for bringing the shuttle-boxes into their lowest position. Vibrator-levers are ordinarily provided with "runs" on their lower edge made integral therewith, upon which the pattern-surfaces operate.

In my improvement I make the run on which the pattern-surfaces operate on a separate piece from the vibrator-lever. This piece or lever 13 is preferably made of the shape shown in the drawing, and pivoted or hinged at 14 on the vibrator-lever. The free end of the lever 13 is provided with a flattened extension 13', which acts as a run and rides on the pattern-surface. A projection 15 on the vibrator-lever 4 extends out under the upper part of the lever 13. The lever 13, with its extension 13', is locked to the vibrator-lever 4, so that the vibrator-lever will move up or down in the ordinary way, according to the pattern-surfaces, by means of a slide 16, carrying at one end a pin 17, extending out therefrom and between the lower edge of the vibrator-lever 4 and the upper inclined edge of the extension 13' of the lever 13, which acts as a run for the vibrator-lever 4 on which the pattern-surface operates. The slide 16 is supported on the vibrator-lever 4 by a rivet or pin 18 extending through a slot 19 in said slide. Said slide 16 is moved back

and forth to lock the lever 13 and its extension 13' or the movable run to the vibrator-lever 4, or to unlock the same, so that the vibrator-lever 4 may have a motion independently of its movable run by means of a hand-lever 19, preferably pivoted on the heel-pin 5, and a connector 20 and rod 21, which passes through the open slotted end of the slide 16 at right angles to the sliding motion of said slide. The rod 21 is supported at each end in a slotted arm 22, bolted to the loom-head frame, as shown in Fig. 3. It will thus be seen that the rod 21 may have a reciprocating motion in a horizontal plane in the slot 23 of the arm 22.

The operation of my improvements will be readily understood by those skilled in the art from the above description, in connection with the drawings. When the loom is in operation, the hand-lever 19 will be pushed in, as shown in Fig. 1, causing the slide 16 to be moved in and the pin 17 thereon to ride upon the inclined surface on the upper edge of the movable run 13' and bear upon the lower edge of the vibrator-lever 4, thus drawing the free end of the lever 13 down, so that it will rest upon the projection 15 and be locked in position on the vibrator-lever 4, thus causing said vibrator-lever 4 to be moved up or down with the lever 13, having the run 13' thereon operated by the pattern-surface, according to the indicators on the pattern-surface. When it is desired to drop all the vibrator-levers 4, at their free ends, which are held up by the rolls on the pattern-surface and to bring all the harnesses into one line or plane in their lowest position, the hand-lever 19 is drawn out, as shown in Fig. 2, causing the slide 16 to move out and the pin 17 thereon to be withdrawn from between the edges of the vibrator-lever 4 and the run 13' of the lever 13, thus unlocking the lever 13 and run 13' from the vibrator-levers and allowing the said vibrator-levers to drop down at their free ends and rest upon the support 12 independently of the lever 13 and run 13', which rest and are supported in their upper position on the rolls of the pattern-surface, as shown in Fig. 2. The har-

ness-jacks 7 may now be tilted over into the position shown in Fig. 2 by the revolution of the cylinder-gears and the harnesses brought into one line or plane in their lowest position, or "evened down."

My improvements above described are shown applied to the harness motion of the loom; but the same may be readily applied to the box motion of the loom to lower the shuttle-boxes into their lowest position instead of the harnesses, as will be readily understood by those skilled in the art.

It will be understood that the details of construction of the several parts of my improvements may be varied somewhat without departing from the principle of my invention, which consists in combining with the harness or box motion of a loom means for dropping the vibrator-levers at their free ends, which are held up by the rolls on the pattern-surface, so that by the revolution of the cylinder-gears the harnesses may be brought into one line or plane in their lowest position or evened down, and in like manner the shuttle-boxes brought into their lowest position.

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

1. In a loom, the combination, with a vibrator-lever and a movable run attached to said lever and adapted to be operated upon by the pattern-surface, of means for locking said run to the vibrator-lever and unlocking the same therefrom, so that said vibrator-lever may be moved independently of said run, for the purpose stated, substantially as set forth.

2. In a loom, the combination, with a vibrator-lever of the harness-motion or box-motion, of a movable run, upon which the pattern-surface operates, and means for securing said run to the vibrator-lever, so as to move with it or to disconnect it therefrom, for the purpose stated, substantially as set forth.

GEORGE F. HUTCHINS.

Witnesses:

JOHN C. DEWEY,
EDMUND F. SEYMOUR.