(No Model.)

G. F. HUTCHINS.

TAKE-UP MECHANISM FOR LOOMS.

No. 457,451. Patented Aug. 11, 1891.

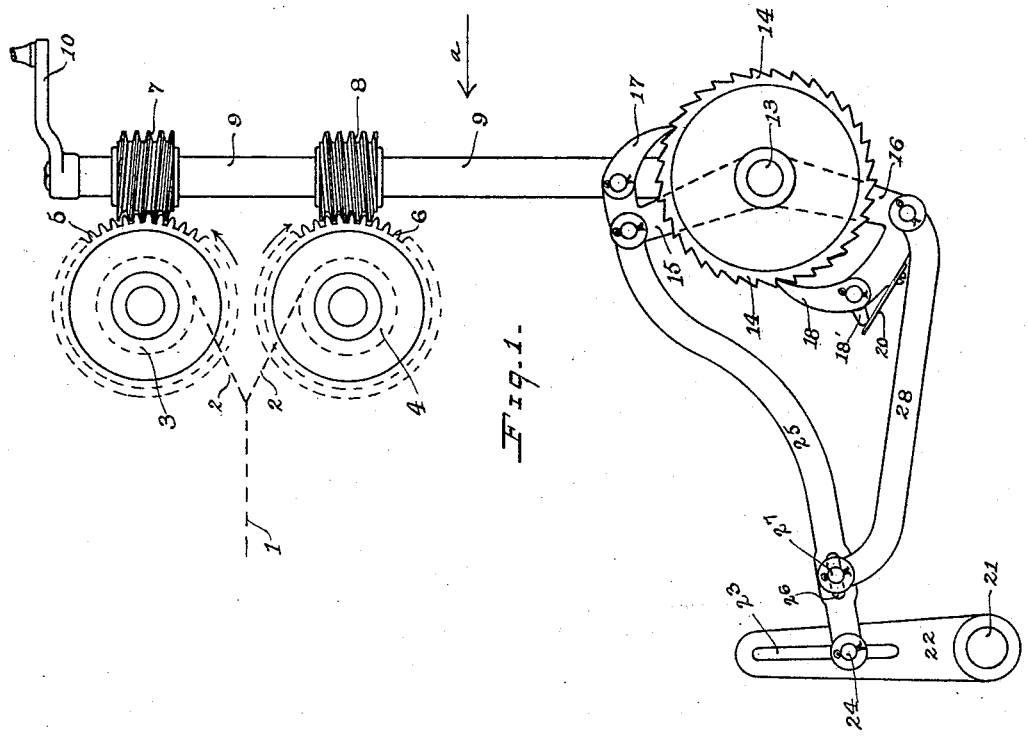

Fig. 1.

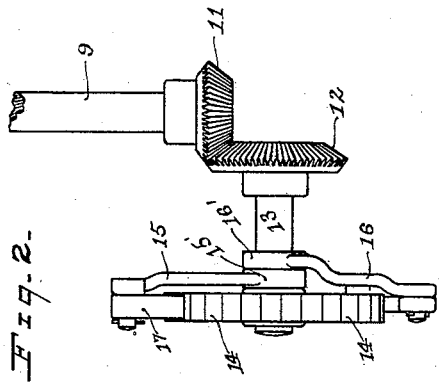

Fig. 2.

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UNITED STATES PATENT OFFICE.

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

TAKE-UP MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 457,451, dated August 11, 1891.

Application filed December 26, 1890. Serial No. 375,873. (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 Take-Up Mechanism 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 the take-up mechanism for looms, and more particularly to the take-up mechanism for plush or velvet looms, where the fabric is woven double, or with two backs connected by the pile, said pile being afterward cut on the loom and each piece of cloth taken up by its own particular take-up roll.

The object of my invention is to give to the ratchet of the take-up mechanism an almost continuous motion by means of a double pawl or two pawls, which are driven from the rocker-pin of the loom, one pawl moving the ratchet at the forward beat of the lay and the second pawl moving the ratchet at the backward beat of the lay, as will be hereinafter fully described.

My invention consists in certain novel features of construction and operation of the take-up mechanism of a loom, as will be hereinafter fully described.

Referring to the drawings, Figure 1 is a side elevation of my improved take-up mechanism detached; and Fig. 2 is a partial end elevation of the same, looking in the direction of arrow *a*, Fig. 1.

In the accompanying drawings, the broken lines 1 represent the double fabric as it comes from the loom before it is cut apart, and 2 the two sections of fabrics after the double fabric 1 has been cut apart, said sections 2 running to the take-up rolls. (Shown by broken lines 3 and 4, Fig. 1.) On the end of said take-up rolls 3 and 4 are secured the worm-gears 5 and 6, which mesh with and are driven by the worms 7 and 8, fast on the upright shaft 9. A crank-handle 10 is fast on the upright end of the shaft 9, and a beveled gear 11 (see Fig. 2) is fast on the lower end of said shaft and meshes with the beveled gear 12, fast on the shaft 13. The ratchet-wheel 14 is fast on the opposite end of the shaft 13 from the beveled gear 12. The hubs 15′ and 16′ of the pawl-arms 15 and 16 are loose on the shaft 13. The pawl-arms 15 and 16 carry the pawls 17 and 18, respectively pivoted thereto, each of which engages the ratchet-wheel 14. The pawl-arm 16 is provided with a flat spring 20, which presses against the knob 18′ on the pawl 18 and holds said pawl in contact with the ratchet-wheel 14.

Fast on the rocker-pin 21 (see Fig. 1) is an arm 22, provided with a slot 23. A stud 24 extends through said slot and can be adjusted up or down therein. From said stud 24 extends the pawl-lever connector 25 to the pawl-arm 15. The connector 25 is provided with a slot 26, through which extends a stud 27, which may be adjusted back and forth therein. From the stud 27 extends the pawl-lever connector 28 to the pawl-arm 16.

From the above description, in connection with the drawings, the operation of my improved take-up mechanism will be readily understood by those skilled in the art and is as follows: The rocker-pin 21 oscillates back and forth with each pick of the loom. On the forward motion of the arm 22, fast on the rocker-pin 21, pawl 17, through the connector 25, operates the ratchet 14, and on the back-stroke of the arm 22 pawl 18, through the connector 28, operates the ratchet 14. It will be seen that on the forward stroke of the arm 22 the lower pawl 18 will move backward, and on the back-stroke the pawl 17 will move backward. The motion of the ratchet 14 is transmitted through the shaft 13, beveled gears 12 and 11, and worms 7 and 8 to the gears 5 and 6 on the take-up rolls, which will turn in the direction of the arrows. (See Fig. 1.) The worms 7 and 8 are cut opposite to each other, one being right hand, the other left hand. The sweep of the pawls 17 and 18 for operating the ratchet-wheel 14 may be varied by adjusting the stud 24 up or down in the slot 23 in the lever-arm 22. By adjusting the stud 27 in the slot 26 in the pawl-lever connector 25 the pawl 18, through the connector 28, may be brought to work correctly in the teeth of any ratchet-

wheel that may be used. The relative position of the pawl 17 is fixed, and it is necessary to adjust the pawl 18 so that it will drop into a tooth of the ratchet 14 when the pawl 17 has arrived at the forward extremity of its stroke. By using the two pawls 17 and 18, as above described, an almost continuous motion is given to the ratchet-wheel 14 and through the intervening mechanism to the take-up rolls.

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

1. In the take-up mechanism of a loom, the combination, with the ratchet-wheel and the two oppositely-arranged pawl-arms having pawls pivoted thereon adapted to engage the ratchet-wheel teeth and each pawl adapted to drive the ratchet-wheel independently, of a rocker-pin, a slotted arm fast thereon, and a connector adjustably attached to the slotted arm and extending to one of the pawl-arms, and a second connector adjustably attached to the first-mentioned connector and extending to the other pawl-arm, for the purpose stated, substantially as set forth.

2. The combination, with shaft 13, ratchet-wheel 14, pawl-arms 15 and 16, loose on shaft 13 and carrying the pawls 17 and 18, pivoted thereon, of the rocker-pin 21, arm 22, having a slot therein, and connector 25, extending between said arm 22 and pawl-arm 15, and connector 28, extending between said connector 25 and pawl-arm 16, substantially as set forth.

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