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PATENTED JUNE 26, 1906

J. K. DALKRANIAN.
BEATING IN DEVICE FOR LOOMS.
APPLICATION FILED FEB. 28, 1905.

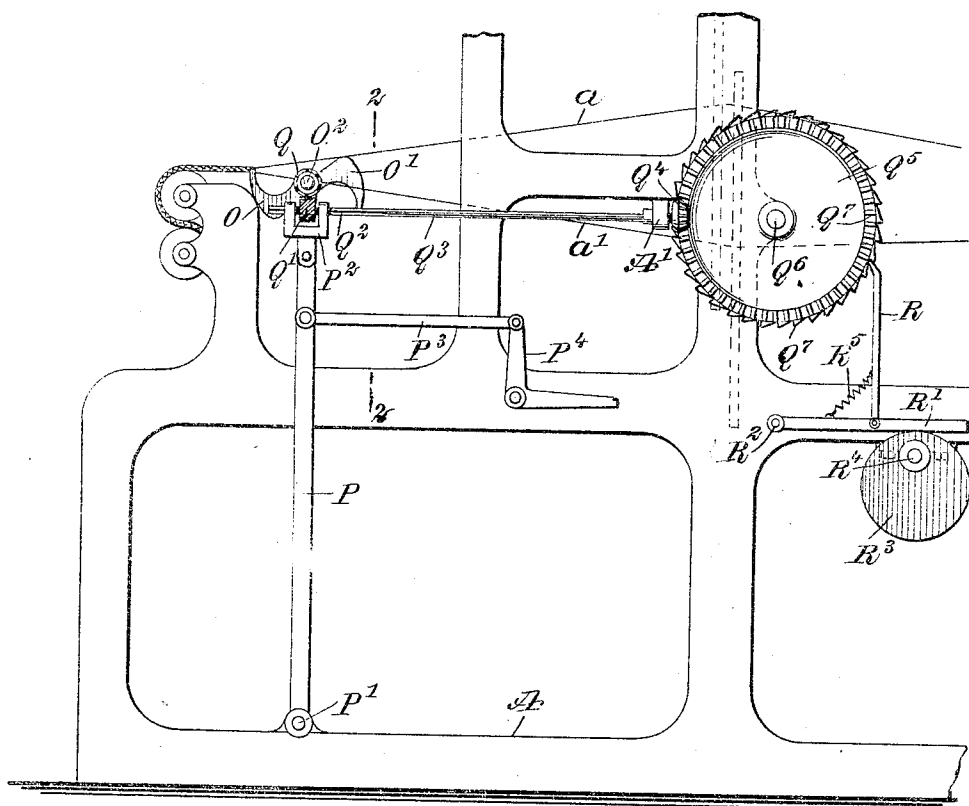


Fig. 1

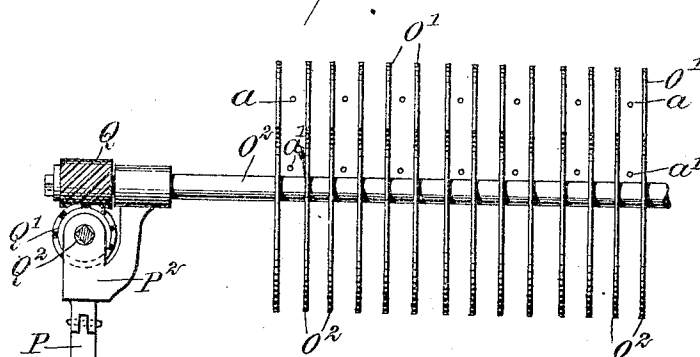


Fig. 2

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BEATING-IN DEVICE FOR LOOMS.

No. 824,685.

Specification of Letters Patent.

Patented June 26, 1906.

Original application filed January 4, 1905, Serial No. 239,563. Divided and this application filed February 28, 1905. Serial No. 247,744.

To all whom it may concern:

Be it known that I, JAMES KARMI DALKRANIAN, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and improved Beating-In Device for Looms, of which the following is a full, clear, and exact description, this being a division of the application for Letters Patent of the United States for a pile-fabric loom, Serial No. 239,563, filed by me January 4, 1905.

The object of the invention is to provide a new and improved beating-in device which is simple and durable in construction, very effective in operation, and arranged to insure a proper beating in of the weft and the pile-warp-thread loops, to hold the beaten-in parts in position during the formation of the following row of pile-warp-thread loops, and to keep the pairs of ground-warp threads properly separated for the pile warp-thread needles to pass between adjacent pairs of ground-warp threads.

The invention consists of novel features and parts and combinations of the same, as will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the views.

Figure 1 is a side elevation of a pile-fabric loom provided with the improvement, and Fig. 2 is a cross-section of the same on the line 2 2 of Fig. 1.

The beating-in device consists, essentially, of sets of curved arms, each set having two arms O and O' secured on a transversely-extending shaft O², journaled at its ends on levers P, fulcrumed at their lower end at P' on the main frame A of the loom. On the shaft O² is secured a worm-wheel Q, in mesh with a worm Q', mounted to rotate with and to slide on the square end Q² of a shaft Q³, journaled at its square end Q² in a suitable bearing formed on the upper formed end P² of the lever P. The other end of the shaft Q³ is mounted to turn in a bearing A', carried by the main frame A, and on this end of the shaft Q³ is secured a bevel-pinion Q⁴, in mesh

with a bevel gear-wheel Q⁵, mounted to rotate on a stud Q⁶, held on the main frame A. On the peripheral surface of the bevel gear-wheel Q⁵ is secured or formed a ratchet-wheel Q⁷, engaged by a pawl R, pivotally connected with a lever R', fulcrumed at R² on the main frame A. The free end of the lever R' rests on the peripheral surface of a cam-wheel R³ in the form of an eccentric secured on a shaft R⁴, receiving a rotary motion from the driving-gear of the loom. A spring R⁵ presses the pawl R to hold the same in contact with the ratchet-wheel Q⁷. When the loom is in operation, the cam R³ imparts a swinging motion to the lever R', which by the pawl R imparts an intermittent rotary motion to the ratchet-wheel Q⁷ and gear-wheel Q⁵, so that the shaft Q³ is intermittently rotated, and this intermittent rotary motion is transmitted by the worm Q' and worm-wheel Q to the shaft O² and the sets of beating-in arms O and O', held on the said shaft.

The sets of arms O and O' extend between adjacent sets of ground-warp threads *a* and *a'*, and the arrangement is such that at least one of the said arms is always between adjacent pairs of ground-warp threads *a* and *a'* to prevent the ground-warp threads from becoming entangled and to hold adjacent pairs of warp-threads sufficiently far apart for the proper entrance of the knot-forming devices of the loom. The arms O and O' are also arranged in such a manner that the free end of the outermost arm is always against the weft beaten in last by this arm to prevent loosening of the weft last beaten in by the pulls exerted on the pile-warp threads to be formed into a new loop after the loop is completed and previous to and during the time a cutting mechanism cuts the pile-warp threads, as more fully explained in the application above referred to.

The lever P is pivotally connected by a link P³ with a bell-crank lever P⁴, controlled by a suitable cam mechanism, to impart an intermittent swinging motion to the lever P, to shift the beating-in device, and with it the worm-wheel Q and worm Q', bodily during the time the arms O and O' are rotated.

The operation is as follows: When a weft has been passed through the open shed, the

pile-warp threads are drawn tight around the weft, and then the beating-in arms O and O' are rotated and moved bodily to the right, so that the advancing beating-arm O' acts on the weft to beat the same home, the beating-in device coming to a stop as soon as the end of the arm O' has reached a final beating-in position and the arms O O' having revolved one hundred and eighty degrees. When the beating-in device is again rotated at the next operation of the loom, it causes the arm O to beat in the following weft, and this arm O remains in the beating-in position against this weft until the following operation.

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

1. A beater-in device comprising a shaft, means for intermittently rotating the said shaft, and sets of curved arms on the said shaft, each set of curved arms consisting of at least two arms extending diametrically opposite each other, and one of the said arms extending between adjacent sets of ground-warps.

2. A beater-in device comprising a shaft, means for intermittently rotating the said shaft, and sets of curved arms on the said shaft, each set of curved arms consisting of at least two arms extending diametrically opposite each other, and one of the said arms extending between adjacent sets of ground-warps and the other of the said arms being in

engagement with the weft last beaten in during the time the beater-in is at rest.

3. A beating-in device for pile-fabric looms, having curved arms, and means for intermittently rotating the said arms, the end of an arm abutting against the fabric at the time the arms are at rest.

4. A pile-fabric loom provided with a rotating beating-in device, means for intermittently turning the said beating-in device, and means for imparting bodily movement to the said beating-in device in the direction of the length of the weave.

5. A beater-in for pile-fabric looms, comprising a shaft, means for intermittently rotating the said shaft, a plurality of curved arms on the said shaft, at least one of the said arms extending between adjacent sets of ground-warp threads, and means for bodily shifting the said shaft in the direction of the length of the weave.

6. A beating-in device for pile-fabric looms, comprising a shaft, means for intermittently rotating the said shaft, and a double arm of an approximately S shape secured at its middle on the said shaft.

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

JAMES KARMI DALKRANIAN.

Witnesses:

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