

(No Model.)

R. H. YOUNG & J. HOLYOAK.
HAIR CLOTH LOOM.

No. 460,228.

Patented Sept. 29, 1891.

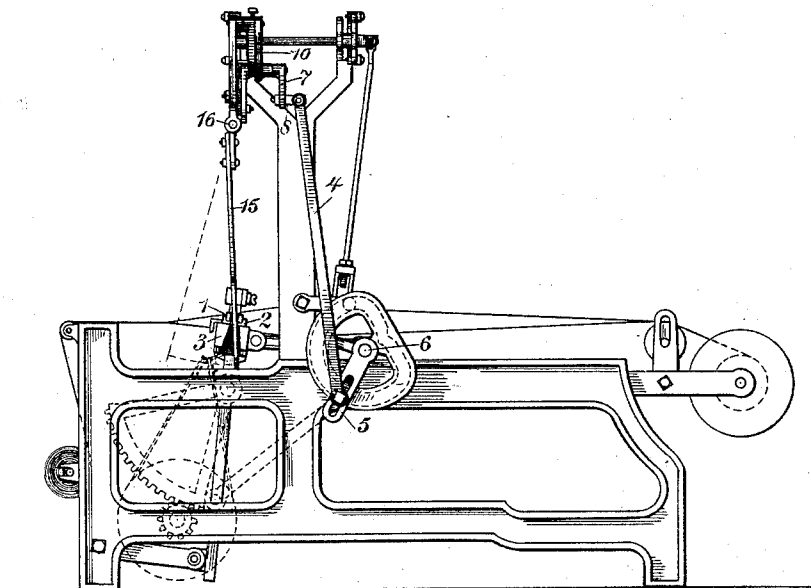


Fig. 1

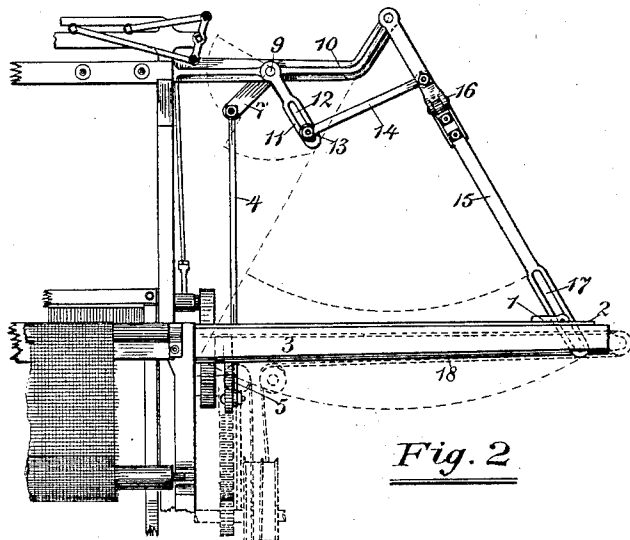


Fig. 2

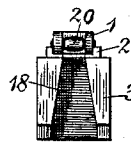


Fig. 3

Witnesses

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UNITED STATES PATENT OFFICE.

ROBERT H. YOUNG AND JOHN HOLYOAK, OF TORONTO, CANADA; SAID HOLYOAK ASSIGNOR TO SAID YOUNG.

HAIR-CLOTH LOOM.

SPECIFICATION forming part of Letters Patent No. 460,228, dated September 29, 1891.

Application filed September 20, 1890. Serial No. 365,686. (No model.)

To all whom it may concern:

Be it known that we, ROBERT HAMILTON YOUNG and JOHN HOLYOAK, both subjects of the Queen of Great Britain, and residing at the city of Toronto, in the county of York and Province of Ontario, Canada, have jointly invented certain new and useful Improvements in Hair-Cloth Looms, of which the following is a specification.

Our invention relates to improvements in the reciprocation of the nipper-rod operating in hair-cloth looms; and the objects of our improvements are, first, to provide a much more uniform motion for the reciprocation of the nipper-rod operating in the batten; second, to provide a simple reciprocating mechanism that can be adjusted by unskilled operators; third, to provide a mechanism for operating said nipper-rod that will endure wear in common with the other machinery of the loom, instead of being the source of continual expense from delay and adjustment by specially-skilled mechanics, and, fourth, by providing a simplified and easily-adjusted mechanism having a uniform motion whereby the capacity of the loom is nearly doubled. We attain these objects by the mechanism illustrated in the accompanying drawings, in which similar numbers of reference correspond to and indicate the parts referred to in this specification hereinafter, and in which—

Figure 1 represents an end elevation of a hair-cloth loom provided with our improvements. Fig. 2 represents a side elevation of the loom in part, which exhibits our improvements in side elevation and more fully than in Fig. 1; and Fig. 3 represents a detail of the end of the batten of the loom to exhibit the splaying necessary for the swinging arm of our improvements.

In Figs. 1 and 2 of the drawings is exhibited in dotted lines the usual means of operating the nipper-rod 1, which is carried in a suitable slide 2 on the upper side of the batten 3. An ordinary means of general use for operating said nipper-rod, which draws the hair and lays it, is essentially a cord of gut or other most available enduring substance secured to the said nipper-rod beneath and carried over rollers and at its ends attached to a drum-wheel vibrated by means of a toothed sector

meshing with a pinion on the drum-wheel axle and operated by a connecting-rod attached to a crank on the main shaft of the loom. By this mechanism, it will be observed, a motion is imparted to the said nipper-rod 1 that is not uniform, but commences the stroke with an accelerated motion and decreases to the end, returning with the reverse motion, which, along with the elastic material employed in the cord, soon destroys it and gives constant trouble from the retarded motion.

Our improvements consist in dispensing with the aforementioned means and either lengthening or providing another longer connecting-rod 4, attached to the crank 5, on the main shaft 6, and at its opposite extremity it is attached to an arm 7 by means of a universal joint 8 to provide for the cross-motions of the ends of said connecting-rod 4. The arm 7 is rigidly secured on one end of a shaft 9, journaled in a bearing-arm 10, secured to the frame of the loom and projecting horizontally, as shown, to support our improvements. On the other extremity of the shaft 9 is secured rigidly an arm 11, somewhat longer than the said arm 7 and having a longitudinal slot 12 therein secured. Clamped in the ordinary way by means of the bolt 13 is a connecting-bar 14, similarly connected at its opposite extremity to a swinging or pendulum arm 15, pivoted at its upper end to the extremity of the bearing-arm 10, so as to swing therefrom. The said pendulum-arm 15 is provided with a hinge 16 toward its upper end and at its lower end has a slot 17 therein similar to the slot 12 in the arm 11. The lower end of the said pendulum-arm 15 operates in a raceway 18 in the batten 3, which is provided with the usual slide 2, along which the nipper-rod 1 is operated. In the said slot 17 in the pendulum-arm 15 an anti-friction roller 20, pivoted on the end of the said nipper-rod 1, operates to reduce friction, and is somewhat barrel-shaped, as shown in Fig. 3, to permit the reciprocation of the batten 3 and the swing of the pendulum-arm 15 to alternate one another.

It will be observed that means are provided in our invention for adjusting the position of the arc of vibration of the pendulum-arm 15 and the consequent reciprocation of the nip-

per-rod 1 by changing the position of the lower end of the connecting-rod 4 where it is clamped to the crank 5. By raising or lowering the position of the rod 4 the other parts are correspondingly altered in their positions, and the pendulum-arm 15 will operate in a correspondingly increased or diminished arc of vibration. For a finer adjustment of the length of the arc of vibration of the said pendulum-arm 15, the connecting-bar 14 is raised or lowered at the arm 11, having the slot 12 therein for this purpose.

Having now described our improvements in detail and the adjustments provided for therein, what we claim as our invention, and desire to secure by Letters Patent, is—

1. In combination, the slotted crank-arm on the main driving-shaft, the connecting-rod adjustably secured at its lower end to said crank-arm and at its upper end to a bell-crank, the bell-crank carried by a support on the main frame and jointed to the connecting-rod, a slot in said bell-crank as a means of adjustment, the connecting-rod adjustably secured in said slot at one end and hinged to a pendulum-arm at its other end, the pendulum-arm supported to vibrate at its upper end on a support carried by the main frame, a hinge in said pendulum-arm, an elongated

slot in the lower end of said pendulum-arm, and the anti-friction roller carried in the nipper-rod to operate in said slot, substantially as shown and described.

2. In combination, the batten having a longitudinal opening therein splayed at its under side, with the slotted crank-arm on the main driving-shaft, the connecting-rod adjustably secured at its lower end to said crank-arm, the bell-crank hinged to the upper end of said connecting-rod and supported by the main frame, a slot in said bell-crank as a means of adjustment, the connecting-rod connected in said slot in the bell-crank at one end, the pendulum-arm hinged to said connecting-rod and supported to vibrate on a support carried by the main frame, an elongated slot in the lower end of said pendulum-arm, a hinge in said pendulum-arm, and the anti-friction roller carried in the nipper-rod to operate in said slot, substantially as shown and described.

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