

M. R. KENYON.  
Hair-Weaving Loom.

No. 164,565.

Patented June 15, 1875.

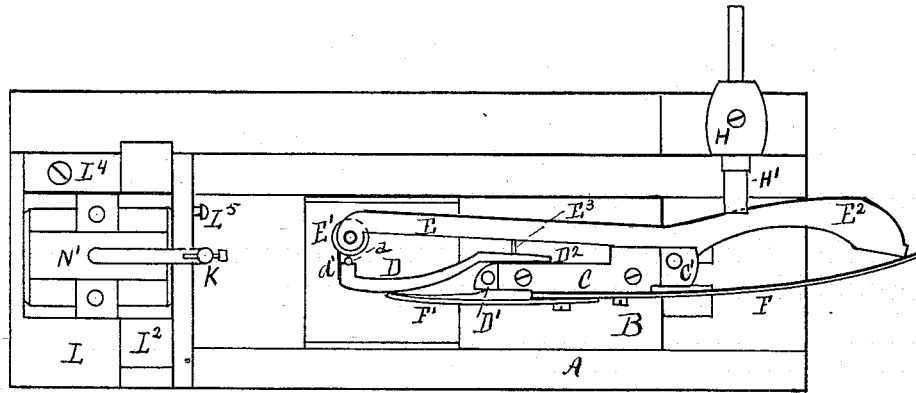


Fig. 1.

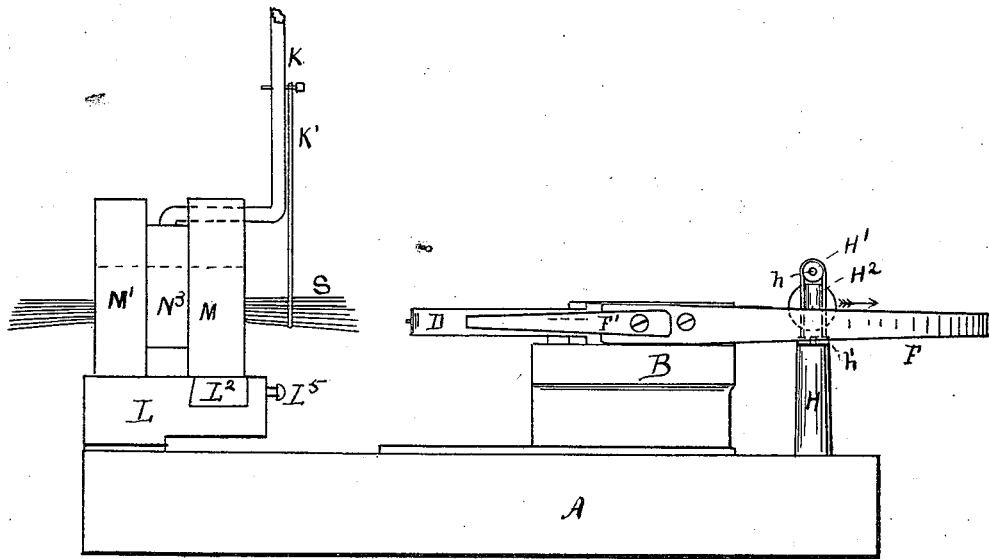


Fig. 2

Witnesses  
Frank G. Parker  
William A. Wilson

Inventor  
Martin R. Kenyon  
per William Edson, Atty

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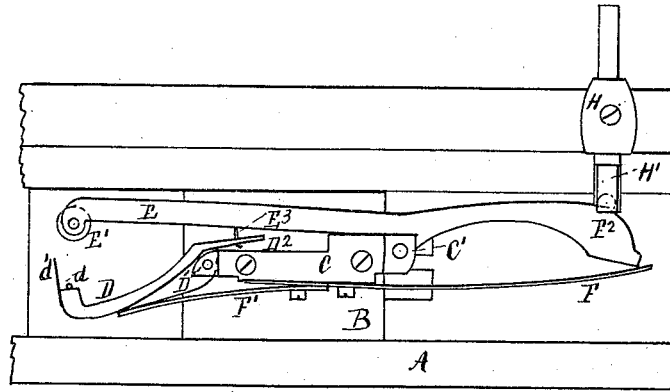


Fig. 3

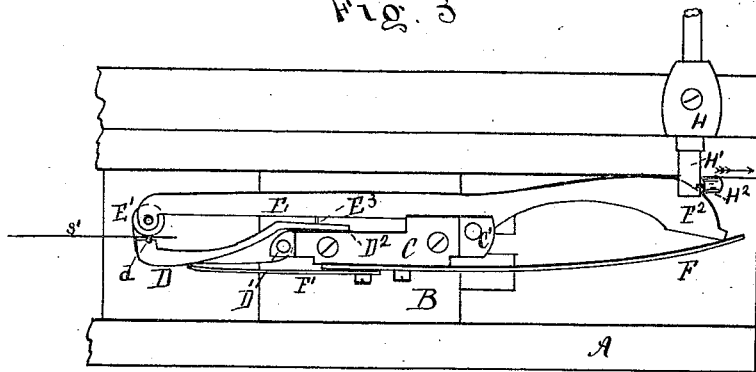


Fig. 4.

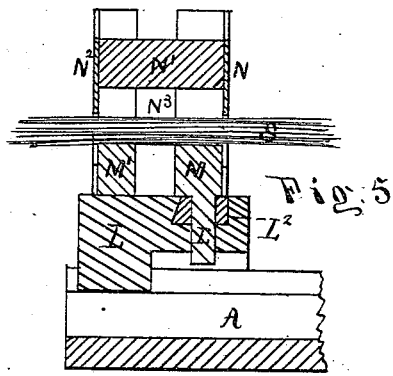


Fig. 5

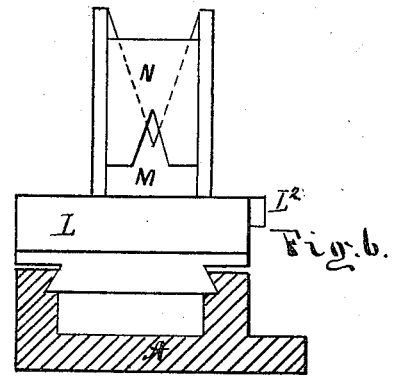


Fig. 6.

Witnesses  
Frank G. Parker  
William A. Wilson

Inventor  
Martin R. Kenyon  
per William Edison, Atty

# UNITED STATES PATENT OFFICE.

MARTIN R. KENYON, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR OF THIRTEEN-TWENTIETHS HIS RIGHT TO NATHAN B. HAIL AND EDWARD J. BICKNALL, OF SAME PLACE.

## IMPROVEMENT IN HAIR-WEAVING LOOMS.

Specification forming part of Letters Patent No. 164,565, dated June 15, 1875; application filed November 14, 1874.

*To all whom it may concern:*

Be it known that I, MARTIN R. KENYON, of Providence, in the county of Providence and State of Rhode Island, have invented a certain new and useful Improvement in Hair-Weaving Looms, of which the following is a specification:

The nature of my invention consists, first, in an improvement in the pinchers for taking the hair, the novel device being a loose wheel in one of the jaws which forms the pinchers; also, in a device for operating the pinchers; second, in an improved instrument for holding the hair, comprising a combination of V-shaped blocks and an elastic band.

Figure 1 shows my invention in plan. Fig. 2 is an elevation of the same. Figs. 3 and 4 are plans to illustrate the pinchers in operation. Fig. 5 is a longitudinal vertical section through the hair-holder. Fig. 6 is a front elevation of the hair-holder.

Let A represent a part of the loom to which the hair nipping and inserting device is attached. B is a sliding block, operated by a pitman and crank. (Not shown in the drawings.) Upon the sliding block B I attach the two jaws D and E of the pinchers. The jaw D is pivoted at D<sup>1</sup>, and is thrown inwardly when freed by the spring F'. This jaw D has a small projecting bead, *d*, and a spur, *d'*, the function of the spur *d'* being to penetrate the bunch of hairs, and to hold some of them in position for the action of the pinchers. The jaw E E<sup>2</sup> is pivoted at C', and is thrown inwardly by the spring F. E<sup>3</sup>, Figs. 1, 3, and 4, is a link, which connects the two jaws D and E, so that when E is opened it acts, through the link E<sup>3</sup>, upon the extension D<sup>2</sup> of the jaw D, and causes a similar motion of the jaw D. E<sup>1</sup> is a wheel, loosely attached to the jaw E. This wheel, when the jaws E and D are closed, presses against the bead *d*; or, in case the machine is working, it presses and holds one hair of the bundle S, Fig. 2. H<sup>2</sup>, Figs. 4 and 2, is a pendent roller, hanging down from the horizontal arm H<sup>1</sup>, the arm H<sup>1</sup> being held by the standard H. The roller H<sup>2</sup> is pivoted at *h*, Fig. 2. The lower end of this roller fits into a notch made at *h'*, Fig. 2, and is so arranged

that it is free to swing in the direction of the arrow. (See Figs. 2 and 4.) The function of this roller H<sup>2</sup>, Figs. 2 and 4, is to cause the pinchers E D to open during their forward motion.

In Fig. 1 I have shown the pinchers as they appear during the forward stroke, and just before they begin to open. As soon as the curved part E<sup>2</sup> of the jaw E comes in contact with the hanging roller H<sup>2</sup>, then the continued forward motion of the pinchers causes them to open, as shown in Fig. 3. Since the roller H<sup>2</sup> cannot be pushed out of its perpendicular position, it follows that the end E<sup>2</sup> of the jaw E must be thrown inwardly, and thus cause the opening of the pinchers. As soon as the pinchers, in their forward stroke, have arrived at the position shown in Fig. 4, the forward end having reached the hair, the slanting end of E<sup>2</sup> acts as a wedge on the pendent roller H<sup>2</sup>, to swing it out in the direction of the arrow—the only way it can swing. This displacement of the roller H<sup>2</sup> allows the spring F to throw the end E<sup>2</sup> of the jaw E outward, and thus close the pinchers, as shown at Fig. 4, and thus grasp a hair, *s'*, from the bunch.

In the back stroke of the pinchers the pendent roller H<sup>2</sup> does not act as it is swung out of position. The roller H<sup>2</sup> remains out of position until the pinchers have been drawn back sufficiently for the part E<sup>2</sup> to clear it. Then the roller H<sup>2</sup> will swing back into place, and there remain vertical until the whole action of the pinchers is repeated.

The hair-holding device consists of a block, L, Figs. 2, 5, and 6, which is made fast to the base A. In the block L I fix a slide, L<sup>2</sup>, and to this slide I attach, by means of a round pin, L<sup>3</sup>, the holder M M'. To adjust this device longitudinally on the base, I fit it into a dovetail, as shown in Fig. 6, and hold it in any desired position by the set-screw L<sup>4</sup>, Fig. 1. The lateral adjustment I get by means of the cross-slide L<sup>2</sup>, Figs. 1, 2, 5, and 6. This is held in position by the set-screw L<sup>5</sup>, Fig. 2. I obtain an angular adjustment by turning the holder on the pin L<sup>3</sup>, Fig. 5.

The jaws M M' N N<sup>1</sup> N<sup>2</sup>, for holding the bunch of hairs, are made as follows: The un-

der jaws consist of two blocks, M and M', Fig. 2, each of which has a V-shaped opening. (See Fig. 6.) The upper or corresponding jaws consist of a block, N<sup>1</sup> N<sup>3</sup>, which has a Λ-shaped opening, and two plates, N N<sup>2</sup>, Figs. 5 and 6, which are also provided with Λ-shaped openings. The upper jaw fits into the lower one, and the two, when combined, leave a diagonal-shaped opening for the hairs, as shown in Fig. 6.

From the above description it may be seen that the opening for the hairs may be made larger or smaller by simply raising or lowering the upper jaw or block; and that the hair, whether much or little, is always held in a central position, for, as the hairs are drawn out and the bunch diminished, the upper jaw will settle by its own weight and diminish the opening, which always retains the diamond shape.

By weighting the upper jaw, or by forcing it down with a spring, any desired amount of tension may be put onto the hair.

K is a rod, extending upward from N<sup>1</sup>, and serves as a holder for the elastic band K'. This band K' serves to hold the bunch of hairs up, and keep them from spreading.

I claim as my invention—

1. In a hair-weaving loom, the combination of the loose wheel E<sup>1</sup> with the jaws E and D, operating substantially as described, and for the purpose set forth.

2. The combination of the pin d' with the jaws E and D, substantially as described, and for the purpose set forth.

3. The hanging roller H<sup>2</sup>, in combination with the pinchers D E, the latter having the curved part E<sup>2</sup>, substantially as described, and for the purpose set forth.

4. The vertically-adjustable jaw N<sup>1</sup> N<sup>3</sup>, provided with Λ-shaped opening, in combination with the lower jaw M M', provided with V-shaped opening, substantially as and for the purpose set forth.

5. The combination of the hair-holding device M M' N<sup>1</sup> N<sup>1</sup> N<sup>2</sup> N<sup>3</sup> with the standard K and elastic strap K', all operating substantially as described, and for the purpose set forth.

MARTIN R. KENYON.

Witnesses:

WILLIAM EDSON,  
FRANK G. PARKER.