O. W. KENISON.

Harness-Motion for Looms.

No. 162,238. Patented April 20, 1875.

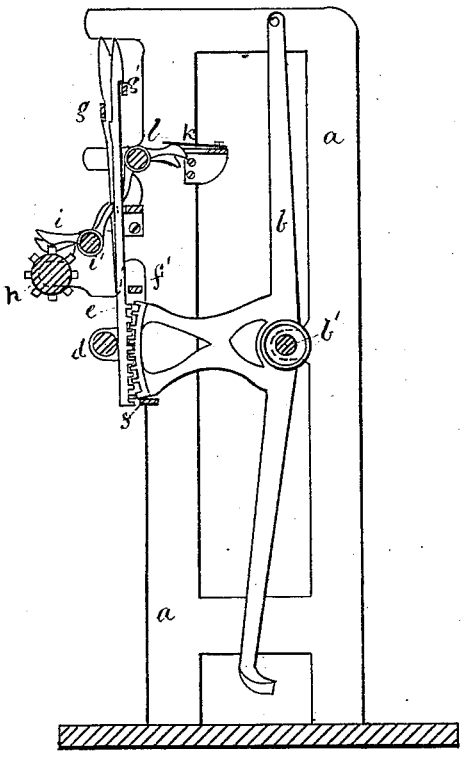

Fig. 1.

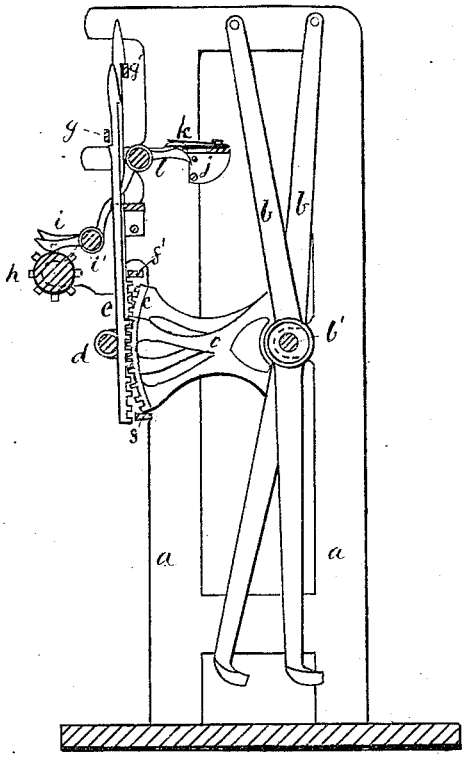

Fig. 2.

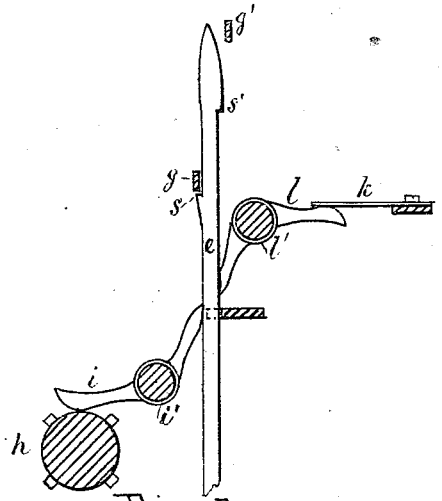

Fig. 3.

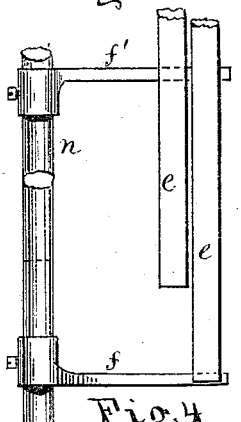

Fig. 4.

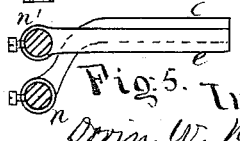

Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

ORRIN W. KENISON, OF LAWRENCE, MASSACHUSETTS.

IMPROVEMENT IN HARNESS-MOTIONS FOR LOOMS.

Specification forming part of Letters Patent No. **162,238**, dated April 20, 1875; application filed March 2, 1875.

To all whom it may concern:

Be it known that I, ORRIN W. KENISON, of Lawrence, in the county of Essex and State of Massachusetts, have invented an Improvement in Harness-Motion for Fancy-Looms, of which the following is a specification:

My invention relates to an improvement in fancy-looms, of the class termed the "closed shed," in which all the harnesses are brought to a common level, and the shed closed after each pick.

The object of my invention is to produce a harness-motion which shall be simple in operation, requiring much less power, and capable of much greater speed than in the ordinary construction of looms of this class. Owing to its peculiar construction, the operation is so simple as to enable any person of ordinary skill and intelligence to readily manage a loom possessing my present improvement.

The improvements apply to that class of fancy-looms in which the harnesses are raised and lowered by means of a series of upright levers—one for each harness; the said levers being supported on a shaft at their centers on one side of the loom, and connected at their upper and lower ends, by straps or other suitable means, with their respective harnesses. At or near the centers of these upright levers project horizontal arms, having on their ends segmental gears, which engage with corresponding racks on the lower ends of the vertical jack-bars.

My invention consists in the employment of two arms placed upon the vertically-acting rods, which are operated by the double crank-shaft, the said arms being made to actuate the segment-gears, so as to close the shed at each revolution of the crank-shaft.

The drawings exhibit a portion of a loom embodying my invention. Figures 1 and 2 are vertical sections of a loom, showing the parts in different relative positions. Figs. 3 and 4 are enlarged views in detail, showing my improvement.

a represents a portion of the frame of the loom. On the shaft *b'* are mounted the harness-levers *b b*. To each lever is attached an arm, *c*, provided at its end with a segmental gear, as shown. These gears engage with racks on the lower portion of the jack-bars *e*. The jack-bars are caused to become engaged with, and disengaged from, the elevator and depressor bars by means of the levers *l*, actuated by the springs *k*, on one side, and the levers *i*, operated by the pattern-chain *h*, on the other side—the bent lever *l* serving to keep the jack-bar pressed forward to engage with the depressor-bar, until the contrary action upon the jack-bar is caused by the action of the pattern-chain upon the lever *i*. On the main double crank-shaft are mounted the two vertical rods *n n'*, each one having an arm, *f f'*, arranged at right angles to the jack-bars *e e*, and moving in opposite directions to each other, and corresponding with the movements of the elevator and depressor bars. When the depressor-bar *g* has carried down the jack-bars to their lowest point, the shed is open, as shown by the position of the harness-levers in Fig. 2. The bars *f f'* are made to bear upon the upper and lower edges of the segmental gears, and are brought to their nearest proximate position at each revolution of the crank-shaft, thus bringing the harness-levers into line, and closing the shed at each pick of the loom. Instead of having the bars *f f'* bear directly on the upper and lower edges of the segmental gears, they can be made to act directly on the jack-bars *e* by passing them outside of the jack-bars, and causing them to act on pins which may be placed in the jack-bars.

It will be seen from the foregoing description that, as the elevator and depressor bars *g g'*, and also the bars *f f'*, are farthest apart, the rack-bars are at their highest point, and the shed is open. The crank-shaft acting upon the vertical rods *n n'*, the bars *f f'* are caused to press upon the segmental gears above and below, thus bringing the harness-levers into line when the shed is closed, the position of the parts being shown in Fig. 1.

This construction and arrangement of parts admits of a limited, and consequently very rapid, motion of the vertical bars *n n'*, causing a correspondingly rapid motion of the loom. The parts are not liable to get out of order, and the simplicity of the construction and operation of the loom enables a person of ordinary skill and intelligence to manage the loom without difficulty.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with the elevator and depressor bars *g g'*, the arms *f f'* and the harness-actuating levers *b b*, provided with the horizontal arms *c* and geared segments, for the purpose of closing the shed at each revolution of the crank-shaft, the whole constructed, arranged, and operated in the manner herein set forth.

2. The combination of the elbow-levers *i i l l*, springs *k*, pattern-chain *h*, and jack-bars, all arranged and operating together in the manner herein described.

3. The combination of the harness-actuating levers *b*, provided with a horizontal arm, *c*, terminating in a geared segment, and sliding jack-bar *g*, provided with a rack adapted to gear with the arm *c*, all arranged and operating together in the manner and for the purpose herein set forth.

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

ORRIN W. KENISON.

Witnesses:

ANDREW C. STONE,

F. E. CLARKE.