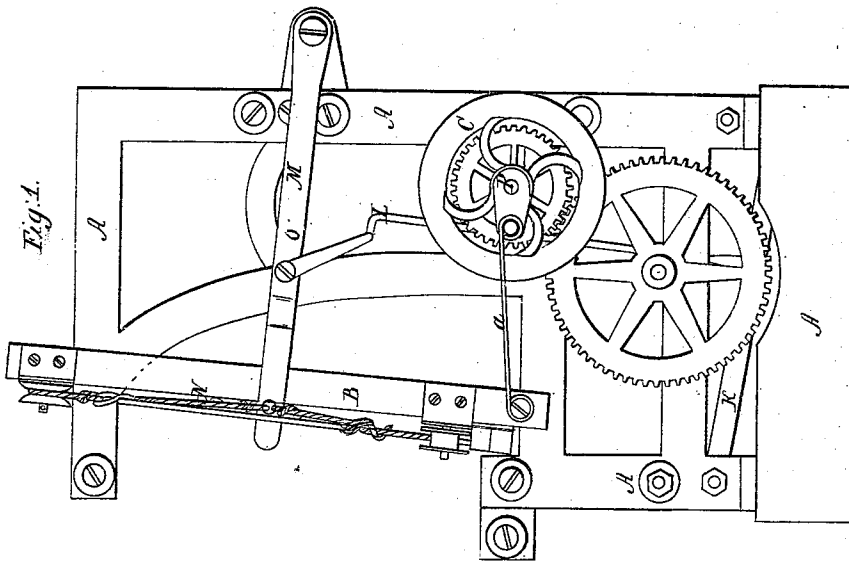
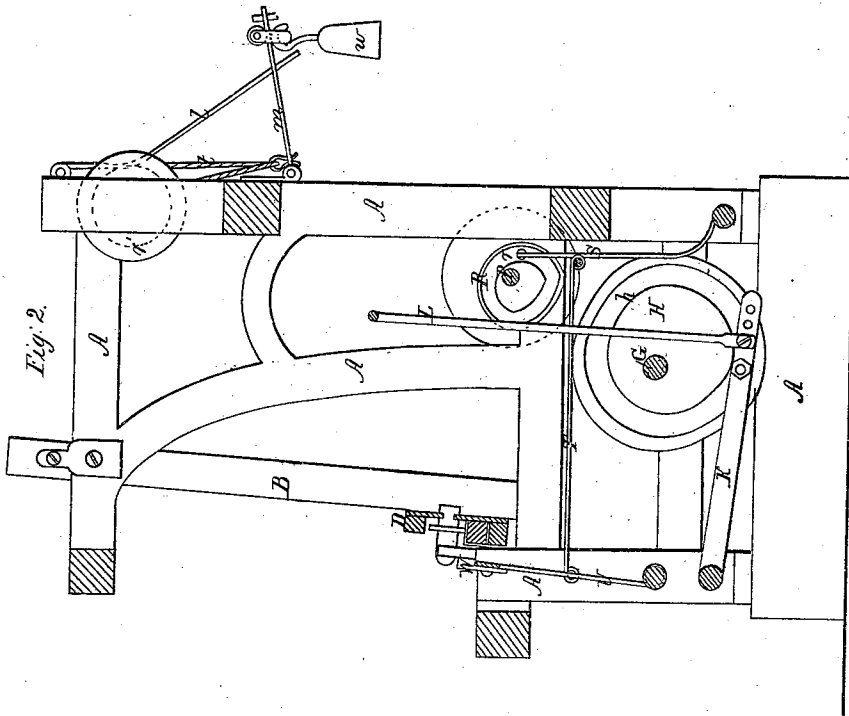


S. Walker.

Narrow Ware Loom.

N^o 61,583.

Patented Jan. 29, 1867.



Witnesses,
J. H. Adams
L. H. Smith

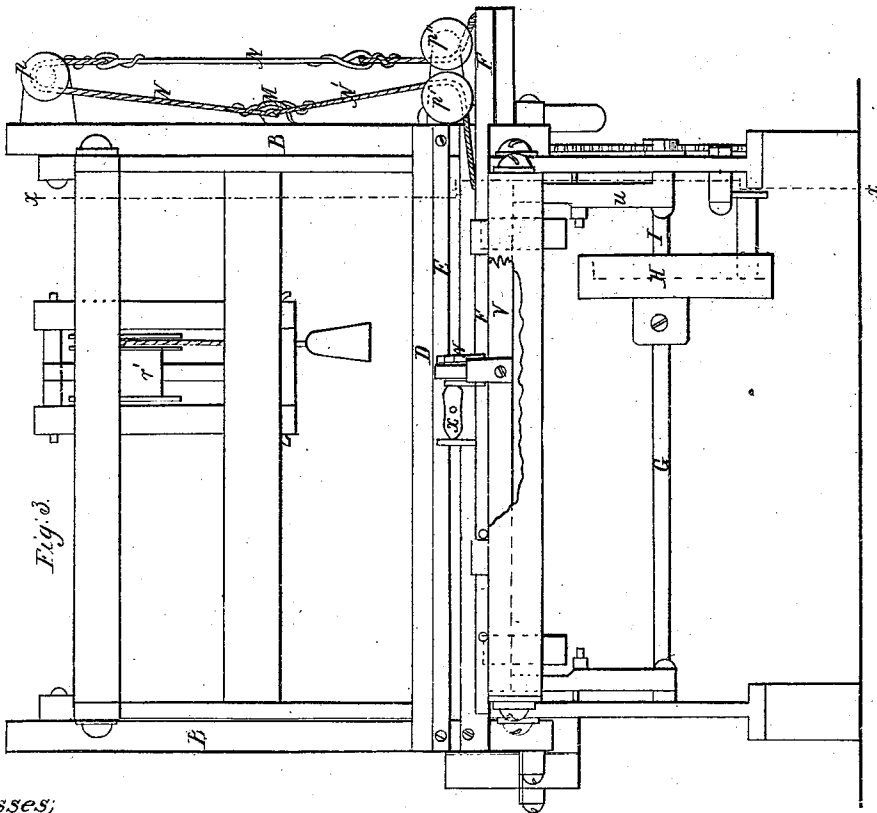
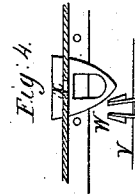
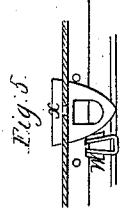
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S. Walker

United States Patent Office.

SAMUEL WALKER, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 61,583, dated January 29, 1867.

IMPROVEMENT IN NARROW-WARE LOOMS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, SAMUEL WALKER, of Boston, in the county of Suffolk, and State of Massachusetts, have invented a new and useful Improvement in Power-Looms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 represents a side elevation of a loom containing my improvement.

Figure 2 is a transverse section of the same on a line *x x*, of fig. 3.

Figure 3 is a front view; and

Figures 4 and 5 are detail views showing the position of the shuttle; the one at the point of contact with the shuttle-guide, and the other at the completion of the movement at one side.

Similar letters of reference indicate like parts in the several figures.

My invention consists in the employment, in a narrow loom, of a path cam for the purpose of operating the shuttle-rack or driver, through the medium of levers, a connecting-rod, and a belt or strap, so that a positive motion will be imparted to the rack or driver. My invention also consists in reciprocating the guide-bar that holds the shuttle-guides by means of grooved cams and connecting arms, or their equivalents, in such a manner that before the batten has completed its rearward movement, and before the shuttle commences its lateral motion, the guide-bar and guides will commence a forward motion towards the batten, and thus the guides will come sooner in contact with the shuttle than if they were stationary, by which means the shuttles will be pushed across the warp spaces in a continuous and positive movement, a result which has hitherto not been certain in this class of battens. The shuttle may be made of hard rubber or gutta percha, or their compounds, either wholly or in part, for the purpose of enabling it to move with less resistance than when made of a heavier substance. The invention also consists in regulating the tension of the yarn on the warp-roll by means of a flat lever which bears against the yarn upon the roll, in connection with another lever placed at an angle with the first-named lever, and a sliding weight upon the second lever, so that as the warp-roll decreases in size by the unwinding of the yarn, the weight bearing against the friction-lever will exert an even pressure upon the roll, and thus regulate the friction of the tension-cord upon the roll.

Referring to the drawings, A represents the frame, constructed in any suitable manner. B is the lathe-sword, properly hung at the upper end to the upper cross-piece of the frame in the usual manner. It is connected by a rod, *a*, to a wrist of the wheel, *c*, by which it is reciprocated as the wheel is rotated. To the lower ends of the lathe-swords B are attached, in the usual manner, the batten D, together with the shuttle-board or block E, and the shuttle-rack or driver F. On a shaft, G, extending longitudinally across the lower part of the frame, is a path cam-wheel, H, having a continuous groove, *b*, in one side, near its perimeter. In the groove *b* is fitted a pin or stud, I, which may be provided with an anti-friction roller, the said stud being connected with a lever, K, pivoted at one end to the front part of the frame, as seen in figs. 1 and 2. Near the opposite or free end of the lever K is attached a rod, L, extending upwards, and, being bent so as to pass outside the frame, is attached at its upper end to a lever, M, near its centre. The rear of the lever M is pivoted to a projecting piece at the rear of the frame, and to the front end of the said lever M are attached the ends of cords or straps, *n n'*, one of which, *n*, passes over a pulley, *p*, at the upper part of the frame, and thence downwards around pulley *p'*, is attached, the one to the end of the driver F and the end of the other cord, extending downwards, passes under the pulley *p'* and is attached to the driver F at a point somewhat distant from the end of the said driver F, so that as the cam-wheel H is put in motion the stud or pin I will travel around the groove *b*, thus imparting motion through the levers K and M, rod L, to the cords *n n'*, which thus reciprocate the shuttle-board longitudinally across the frame. Motion is imparted to the path-wheel H by means of gearing in connection with the driving-shaft in any convenient way. In the rear of the frame, at a point above the level of shaft G, and parallel with the same, is a shaft, P, upon which are placed two path-wheels, R, arranged just within the frame, on either side. The wheels R are each provided with a groove, *r*, in one side, near the perimeter, in which is fitted a stud, attached to a lever, S, pivoted at its lower end to the lower part of the frame. Towards the upper end of the lever S is attached a rod, T, connecting with the arms U, attached or pivoted at their lower ends to the frame, and bearing upon their upper ends the guide-bar V, which carries the shuttle-guides W. As the cam-wheels R are rotated a reciprocating motion will be imparted to the

guide-bar, and the parts of the machine relating to the path-wheels R and guide-bar V are so adjusted in relation to the path-wheel H, and the batten and shuttle-board, with their connections, that, as the lathe-swords B and batten commence their rearward movement, and before the driver with the shuttles commences its lateral movement, the guide-bar and guides W will commence a forward motion towards the driver and shuttles, and following in their wake until the said guides come in contact with the sides of the shuttles, when the guides become stationary or nearly so, and the shuttles complete their movement in contact with the guide; and when the batten and driver commence their return movement, the guide-bar V and guides will recede until they are again brought forward by the operation of the cams as before. By this means the forward motion of the batten will bring the shuttles in contact with the guides sooner than if the latter were stationary, thus causing the shuttles to be passed across the warp space in a continuous and positive movement. The shuttles *x* are constructed as shown in figs. 4 and 5, and I design making them of hard rubber, gutta percha, or any of the compounds of the same, either wholly or in part, for the purpose of rendering them light and more easily put in motion than when made of a heavier material. In the rear of the upper part of the frame is arranged the warp-roll *r'*, and on a rod placed above the roll is hung a lever, *l*, which, passing downwards, is made to bear against the yarn upon the roll, when it takes an outwardly inclined direction. The lower end is turned at a right angle to one side, and the part so turned passes under, but not in contact with, a lever, *m*, which is hung to the frame below the warp-roll, and extends outwards at a slight upward inclination. Near the inner end of the lever *m* is secured the tension cord *t*, which passes over one end of the roll *r*, and serves by friction to regulate the rotation of the said roll. On the lever *m* is a sliding weight, *w*, which bears against the lever *l*, and as the warp-roll lessens in diameter, by the winding of the yarn, the lower end of lever *l* and the sliding weight move towards the fulcrum of lever *m*, thus loosening the tension on the cord *t*, and consequently partially relieving the friction of the same on the roll.

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

1. Operating the shuttles of narrow looms by means of a path cam-wheel, H, in combination with the system of levers, connecting-rod, and the cords or straps *n n'*, substantially as described.
2. I claim reciprocating the guide-bar and guides by means of devices such as described, or their equivalents, substantially as and for the purpose set forth.
3. I claim the combination of the roll *r'* with the levers *l* and *m*, the sliding weight *w*, and tension cord *t*, arranged and operating as and for the purpose set forth.

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

Witnesses:

J. H. ADAMS,
D. KELLEHER.

SAMUEL WALKER.