A. FAULKNER.

Shuttle-Motion for Looms.

No. 213,183 Patented Mar. 11, 1879.

Fig1.

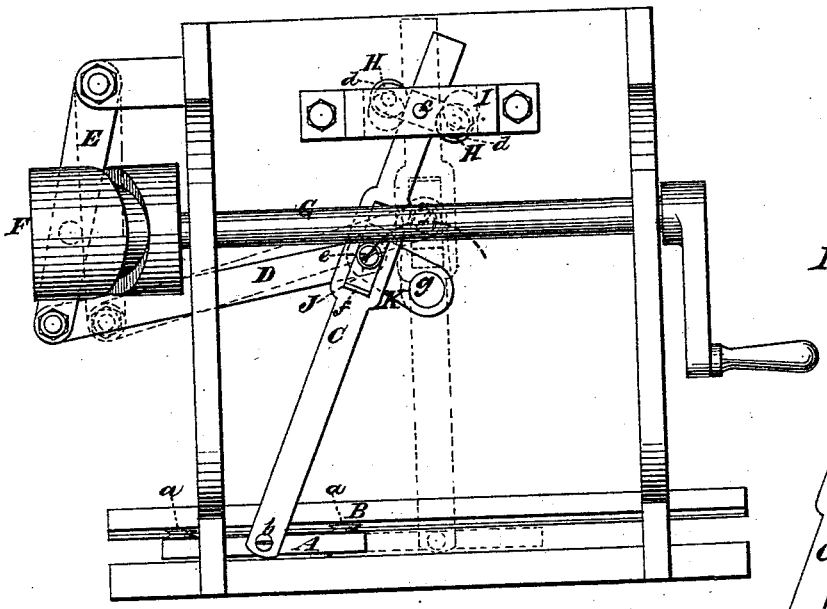


Fig:3.

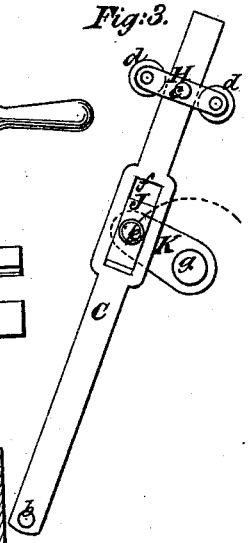
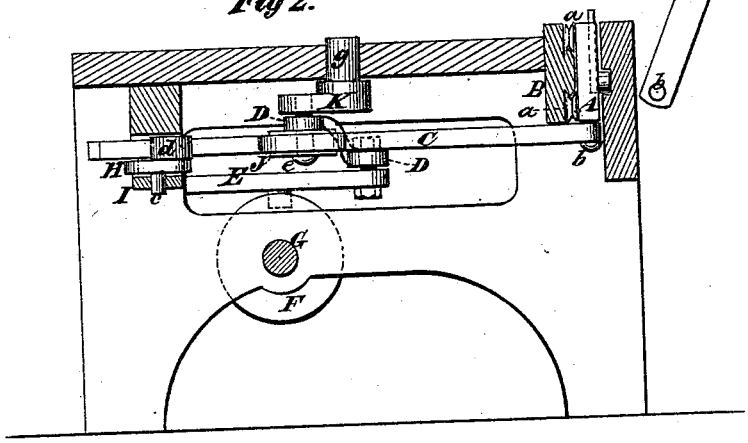


Fig 2.



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UNITED STATES PATENT OFFICE

ALFRED FAULKNER, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO THE NEW YORK SILK MANUFACTURING COMPANY, OF NEW YORK, N. Y.

IMPROVEMENT IN SHUTTLE-MOTIONS FOR LOOMS.

Specification forming part of Letters Patent No. **213,183**, dated March 11, 1879; application filed September 24, 1878.

To all whom it may concern:

Be it known that I, ALFRED FAULKNER, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Shuttle-Motions for Looms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention more particularly relates to shuttle-motions for narrow-ware looms, but is also applicable to the shuttle-motions of other looms in which the shuttle is carried or driven by a carrier or driver having a positive rectilinear motion.

The improvements consist, first, in certain means whereby a lever connected with the shuttle carrier or driver, for imparting to the same its necessary motion back and forth, is caused, at its connection with the said carrier or driver, to move in a right line; also, in certain means whereby the said lever and the shuttle carrier or driver are caused to move more rapidly at and near the middle of the stroke than at the commencement and termination thereof, all substantially as hereinafter described, and pointed out in the appended claims.

Figure 1 in the accompanying drawings is an inverted plan view of a shuttle-motion constructed according to my invention. Fig. 2 is a vertical section of the same at right angles to the line of motion of the shuttle. Fig. 3 is an inverted plan view of the before-mentioned lever and its immediate appurtenances.

A is the shuttle carrier or driver, represented as furnished with rollers *a a*, running upon a straight guide-rail, B, on the loom-framing. This shuttle carrier or driver may be of any known or suitable construction.

C is the lever for giving the said carrier or driver its motion back and forth. This lever is represented as being moved horizontally by means of a rod, D, which connects it with a lever, E, actuated by a cam, F, on the shaft G of the loom. The said lever is connected at its front end with the carrier or driver A by means of a pin, *b;* but instead of having a fixed fulcrum at its rear end its rear portion is fitted to slide longitudinally back and forth through an oscillating fulcrum-yoke, H, which is pivoted by a fulcrum-pin, *c*, into a hanger, I, which is secured to the loom-framing, the said yoke being free to oscillate with the lever on the fulcrum-pin *c* as motion is imparted to the lever.

The movement of the carrier or driver being confined to a straight line by the straight guide B, on which it runs, and the lever C being connected at its front end with the carrier or driver in such manner as to be compelled to move in a corresponding straight line, and in order to permit this movement of the front end of the lever and make it accommodate itself to the varying distance between the pin *b* and the fulcrum-pin *c*, the rear portion of the lever has to move longitudinally through the yoke H. In order to render this movement easy, anti-friction rollers *d d* are fitted to the yoke; but these rollers might be dispensed with.

The rod D is connected with the lever C by means of a pivot or pin, *e*, which is secured in a slide, J, which is fitted to slide lengthwise of the lever C in a slot, *f*, provided in the said lever; and the same pivot or pin *e* connects the said rod and slide with a crank, K, which is pivoted by a pin, *g*, to the loom-framing. This crank K does not assist in transmitting motion to the shuttle driver or carrier, but controls or regulates the motion thereof in the following manner: The pivot or pin *e*, which connects the lever C with the rod D, being compelled by the said crank to move in the arc of a circle, (shown in dotted outline in Figs. 1 and 3,) has the effect of varying the velocity of the motion of the lever C and of the shuttle driver or carrier in such manner that said velocity becomes less in the earlier and later portions of the stroke of the latter when the position of the crank is at a greater angle to the lever C, and becomes greater when the position of the said crank approximates to a position in line with the said lever. By this means there is less resistance in the starting of the shuttle, and the momentum of the shuttle and shuttle-driver is more easily arrested at the termination of its stroke than if the rod D were directly connected with the lever, and the shuttle is caused to move faster while in the warp. Moreover, by the action of the crank the slide *f* and rod D are caused, when the shuttle-carrier has ar-

rived at either end of its stroke, to be farther from the fulcrum of the lever C and nearer to the shuttle carrier or driver, so as the better to brace the lever in such position.

I claim—

1. The combination, with the reciprocating shuttle driver or carrier A, of the vibrating and longitudinally-moving lever C, extending laterally from said driver or carrier, the rod D, cam F, lever E, having a projecting pin engaging with the groove of said cam, and the oscillating fulcrum-yoke H, substantially as described.

2. The combination, with the shuttle driver or carrier, of the vibrating and longitudinally-moving lever C, having the slot *f*, the slide J, arranged in said slot, the crank K, pivoted to said slide, arm D, also pivoted to said slide, cam F, and lever E, having a projecting pin engaging with the groove of said cam, substantially as described.

3. The combination, with the shuttle driver or carrier, of the lever C, rod D, cam F, lever E, pivot *e*, slide J, crank K, and oscillating fulcrum-yoke H, substantially as and for the purpose herein described.

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