S. WALKER.

Shedding Mechanism for Fancy Looms.

No. 204,466. Patented June 4, 1878.

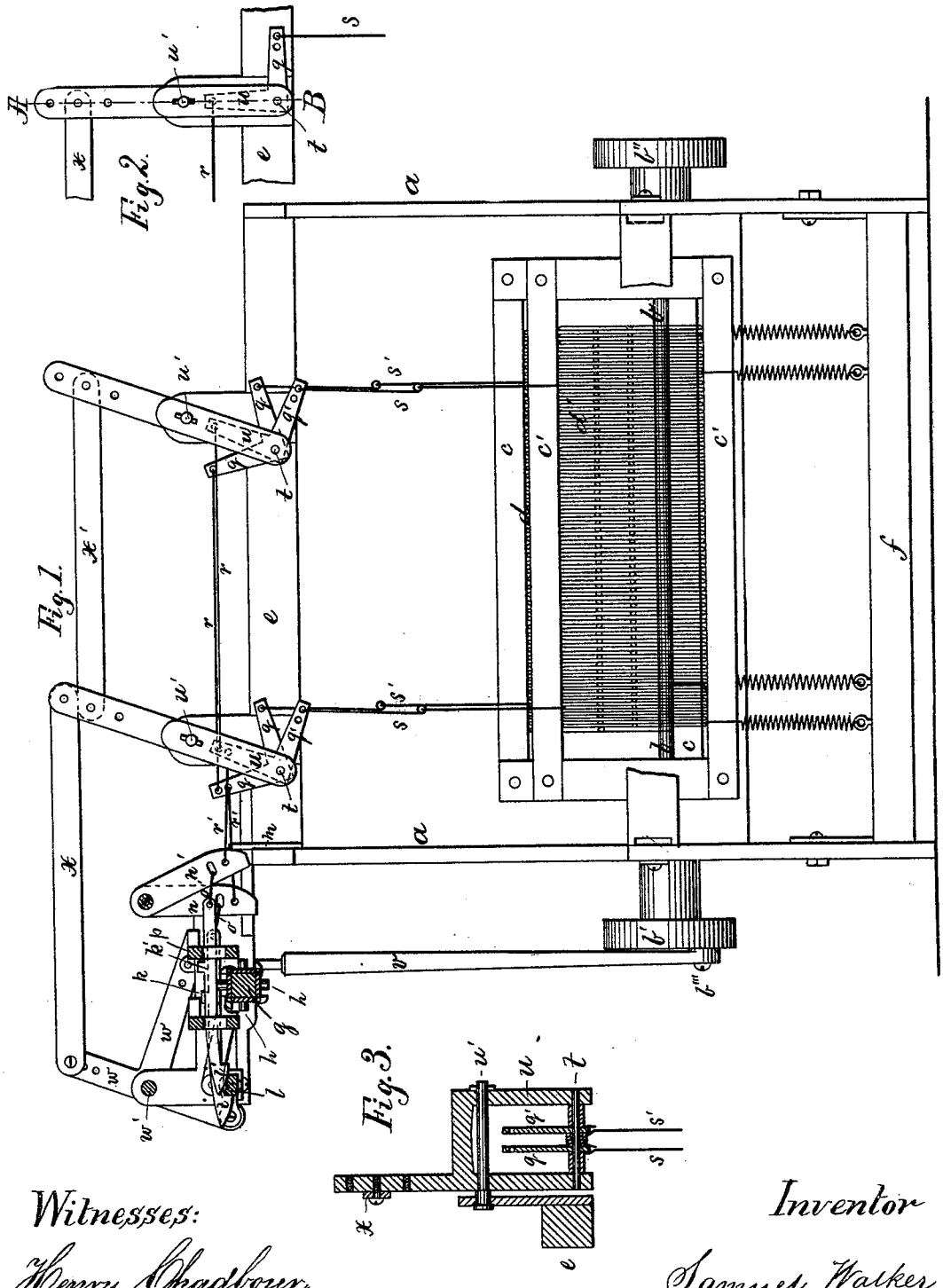

Fig. 1.

Fig. 2.

Fig. 3.

Witnesses:

Henry Chadbourn.

Willis E. Flint.

Inventor

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by Alban Andrew

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UNITED STATES PATENT OFFICE.

SAMUEL WALKER, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF HIS RIGHT TO GEORGE F. HALL, OF SAME PLACE.

IMPROVEMENT IN SHEDDING MECHANISMS FOR FANCY-LOOMS.

Specification forming part of Letters Patent No. **204,466**, dated June 4, 1878; application filed February 8, 1878.

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 certain new and useful Improvements in Fancy-Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in fancy-looms for weaving figured fabrics; and consists in interposing between the jacks and the harness-frames one or more bell-crank levers for each harness-frame, which levers are hung on fulcra to which is imparted a reciprocating motion, by which arrangement each harness-frame is moved from its middle position to its lowest position and up to its middle position by the reciprocating motion of the bell-crank levers and independently of the reciprocating jacks, which results I accomplish by suspending the ordinary bell-crank levers on reciprocating pivots located in oscillating frames, to which a reciprocating motion is imparted by means of suitable connecting mechanism and a crank or path-cam, or its equivalent, on the driving-shaft. Each harness-frame is moved in a vertical direction from its middle position to its highest position, and from the latter position to its middle position, by means of the jacks and connecting mechanism to the harness, as in the usual manner.

The advantage of thus operating the harness from its middle position to its lowest position by means of the reciprocating bell-crank levers, and independently of the jacks, and raising and lowering the harnesses between their middle and upper positions by means of the jacks, is, that less strain and less work are imposed upon the jacks than in single shedding-looms; and, further, that in this manner the shed remains open a longer time in proportion to the revolution of the driving-shaft than is the case in the ordinary single shedding-looms, by which the loom is allowed to run faster and the shuttle to work freer, thereby increasing the capacity of the loom.

In the accompanying drawings, Figure 1 represents a front elevation of a loom with my improvement connected thereto. Fig. 2 represents a front elevation of the bell-crank levers and their reciprocating bearings in a position corresponding with the middle position of the harnesses; and Fig. 3 represents a cross-section of the bell-crank levers and their bearing on the line A B, shown in Fig. 2.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

a a represent the frames or uprights of a loom, and *b* is the driving-shaft, to which the disks *b' b''* are attached, as is usual. *c c'* represent the harness-frames, with their harnesses *d d'*, all arranged as in the ordinary way. *e* is the upper beam or brace between the frames *a a*, and *f* is a similar lower beam or brace, as shown in the drawings. *g* is the pattern-cylinder, with its projections *h h h*, and *i i'* represent the jacks with their projections *k k'*, as is usual. *l* is the reciprocating lifter-bar, by which the jacks are operated, which lifter-bar is reciprocated by the usual devices for this purpose. *m* is a stationary stop or rest board, against which the rocking levers *n n'* rest after their respective jacks *i i'* (to which they are each connected by means of the links *o o'*) have been moved by the weight of the harnesses to their extreme right-hand position, the object of such stop or rest board and rocking levers being to relieve the jacks and their upper projections *k k'* of the undue strain and friction against the cross-bar *p*, so as to allow the said jacks to work freely and easily as soon as they are raised by the projections on the pattern-cylinder *g*. *q q q' q'* represent the bell-crank levers by which the harness-frames are operated from the jacks, their upper ends being for this purpose connected to the levers *n n'* by means of the links *r r'*, and their lower ends connected to the harnesses by means of the links, cords, &c., *s s'*. The bell-crank levers *q q'* are free to rock on the fulcra or pins *t t*, which are hung in the lower ends of the oscillating frames *u u*, that are allowed to swing freely on the shafts or supports *u' u'*, attached in a suitable manner to the upper beam *e*, as shown in Fig. 3. A reciprocating motion is imparted to the

frames *u u* by means of the crank *b'''* on the disk *b'*, the connecting-rod *v*, bell-crank lever *w*, moving on the fulcrum *w'*, and the links or connections *x x'*, by which the upper ends of the said bell-crank lever *w* and the oscillating frames *u u* are connected, as shown in Fig. 1.

In this manner I obtain the desired result—viz., the raising and lowering of the harnesses between their middle position and their lowest position by means of the reciprocating motion of the axes of the bell-crank levers *q q'*, independently of the reciprocating motion of the jacks, the latter only serving for the purpose of raising and lowering the harnesses between their middle position and their highest position.

I have shown two bell-crank levers, *q q*, for each harness-frame in the drawing; but I may dispense with one of these, or increase their number, if so desired, without affecting the essential parts of my invention. In case I only use one of such bell-crank levers for each harness, I need only one oscillating frame, *u*, for the whole loom.

The connecting mechanism from the driving-shaft *b* to the upper ends of the frames *u u* is of minor importance, as this can be accomplished in various well-known manners; and I wish to state that such connecting mechanism does not form a vital part of my invention, the gist of which is to impart a reciprocating motion to the axis of the bell-crank levers by which the harnesses are operated, for the purpose set forth and described.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent, and claim—

In a loom, the combination of the jacks *i i*, the horizontally-reciprocating bell-crank levers *q q'*, oscillating frames *u u*, and harness-frames *c c'* and their connecting-links, as set forth, by which the harnesses are lowered and raised by the jacks between the upper and middle planes of the warp-shed, and raised and lowered between the middle and lowest planes of the warp-shed, by the reciprocation of the bell-crank levers *q q'* on their axes, independent of the jacks *i i*, substantially as set forth.

In testimony that I claim the foregoing as my own invention I have affixed my signature in presence of two witnesses.

SAMUEL WALKER.

Witnesses:
ALBAN ANDRÉN,
HENRY CHADBOURN.