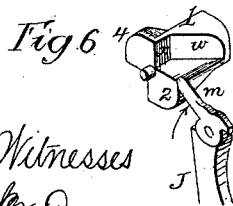
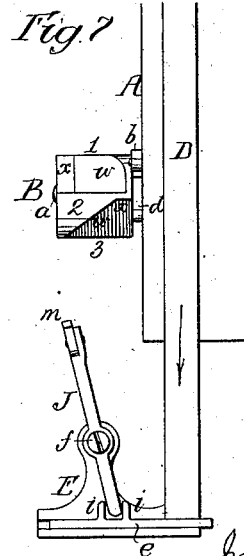
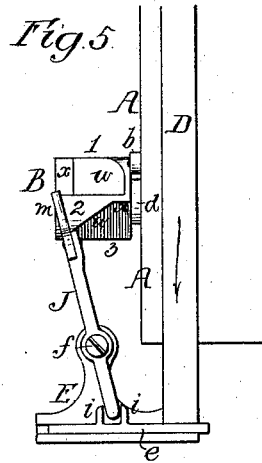
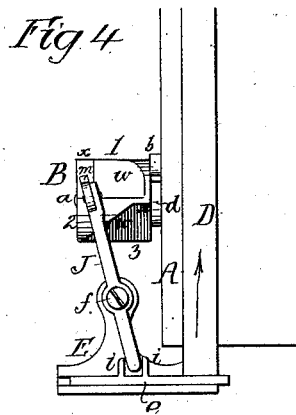
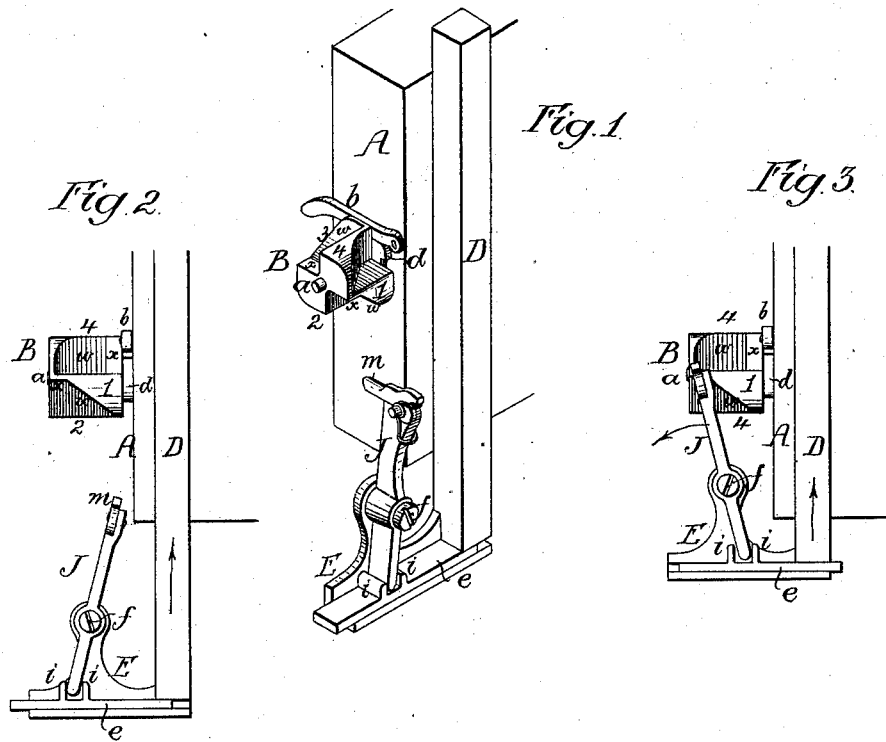


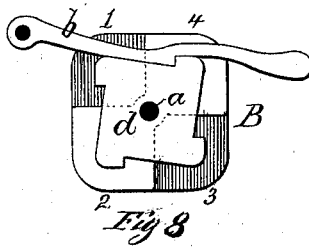
S. Y. LOVE.  
Mechanical-Movement.

No. 216,425.

Patented June 10, 1879.



Witnesses  
McDermott  
Harry Smith



Inventor  
Samuel Y. Love  
by his Attorneys  
Hosson & Son

# UNITED STATES PATENT OFFICE.

SAMUEL Y. LOVE, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN MECHANICAL MOVEMENTS.

Specification forming part of Letters Patent No. **216,425**, dated June 10, 1879; application filed May 8, 1879.

*To all whom it may concern:*

Be it known that I, SAMUEL Y. LOVE, of Philadelphia, Pennsylvania, have invented a new Mechanical Movement, of which the following is a specification.

My invention consists of the combination of a bar carrying a slide, a plate carrying a rotating cam-block, and an arm or lever controlling the slide and acting on and being acted on by the rotating cam-block; the object of the invention being to impart to the slide a reciprocating motion in one plane for each reciprocating motion of the bar or plate in a plane at right angles thereto.

In the accompanying drawings, Figure 1 is a perspective view of the parts composing my new mechanical movement; Figs. 2, 3, 4, 5, 6, and 7, diagrams illustrating the action of the same; and Fig. 8, an enlarged sectional view of the inner side of the rotating cam-block, showing the retaining device.

A is a plate, to which is hung, by means of a pin, *a*, a cam-block, B, which can be rotated in one direction, in the manner described hereinafter, backward movement of the block being prevented by means of a weighted catch-lever, *b*, Fig. 8, which acts on a notched plate, *d*, secured to or forming part of the inner face of the block B.

D is a bar, carrying at the end a frame, E, in which is guided a slide, *e*, the frame also carrying the pivot *f* of a lever, J, the lower end of which fits between lugs *i* *i* on the slide. The upper end of the lever carries a spring-finger, *m*, so pivoted to the lever that its end can rise when pressure is exerted upon it from below, but so that it will not yield to downward pressure.

The block B has in the present instance four cams, 1, 2, 3, and 4, the face of each cam comprising an inclined portion, *w*, and a straight portion, *x*.

The block A or the bar D, or both, may be reciprocated by any suitable devices. In the present instance we will suppose that the block A is stationary and that the bar D has a reciprocating motion imparted to it. In this case the operation of the parts will be as follows: In Fig. 2 the bar D is at the limit of its downward movement and the slide *e* at the limit of its rearward movement, the upper end of the le-

ver J being inclined toward the block *a*, and the cam 1 of the block B being in position to act on the finger *m*. As the bar D rises said finger *m* comes into contact with the inclined face *w* of the cam 1, and as the finger cannot yield downwardly, it is moved to the left by said cam, thereby operating the lever J so as to move the slide *e* in the direction of the arrow, Fig. 3. The finger *m* is now in contact with the straight portion *x* of the cam 1, and the upward movement of the bar D continuing, said finger acts on this portion of the cam, so as to cause the block B to turn on its pin, as shown in Fig. 4, in which the block has been turned one-quarter way around, the bar D being at the limit of its upward movement. As the bar D descends the finger *m* strikes the back of the cam 2 and yields, as shown in Figs. 5 and 6, so as to pass said cam, the finger resuming its normal position as soon as it has passed the cam. (See Fig. 7.)

On the next upward movement of the bar D the cam 2 acts on and is acted on by the finger *m*, so as to cause a movement of the lever J in a direction the reverse of that above described, and a consequent rearward movement of the slide, the block B being turned so as to bring the cam 3 into position for acting on the finger *m* on the succeeding rise of the bar D. By this means each reciprocation of the bar D effects a reciprocation of the slide *e* in a plane at right angles to that in which the bar D moves.

By varying the pitch of the inclined faces *w* of the different cams on the block B, the extent of reciprocation of the slide *e* may be varied as circumstances may suggest, and its movement may be made regular or differential, as desired.

The device may be used in any case where it is desired to produce a reciprocating movement of one body by the reciprocation in a different plane of another body—as, for instance, in valve-motions, reversing devices of planing-machines, cross-stitch or button-holing attachments for sewing-machines, &c.

Instead of using the catch-lever *b* and the notched plate *d* on the block B, the latter may be fitted so closely to its pin that backward movement will be prevented, and, in some cases, the block B may be allowed to yield

laterally, and the finger may be made rigid, or a rigid arm projecting from the slide may be substituted for the lever J.

I do not desire to claim, broadly, the combination of the slide carried by a rod, and having an arm or lever, with a device for acting on and being acted on by said arm or lever, for the purpose of effecting the reciprocation of the slide, as such a combination is shown in the Patent of J. F. Snediker, No. 211,600, January 21, 1879, the main feature of my invention being the rotating cam-block B, which can be operated at a high rate of speed, and does not require the use of a spring-retainer.

I claim as my invention—

1. The combination of a plate, A, and a rotating cam-block, B, hung to said plate, a bar,

D, carrying a slide, *e*, and an arm or lever controlling the said slide, and arranged, in respect to the rotating cam-block, as set forth, so that upon each reciprocation of the plate A or bar D, the slide *e* will be reciprocated and the block B partially rotated, all substantially as set forth.

2. The combination of the plate A and the rotating cam-block B, hung thereto, the bar D, and slide *e*, and the arm or lever J, having a spring-finger, *m*, as specified.

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

SAMUEL Y. LOVE.

Witnesses:

WILLIAM J. COOPER,  
HARRY SMITH.