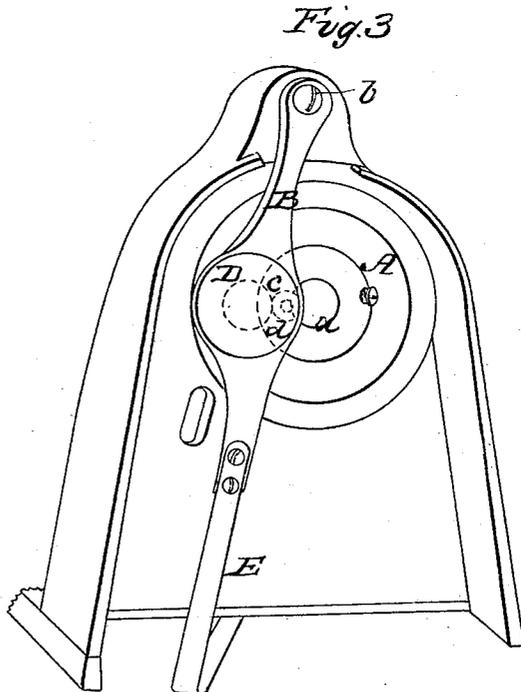
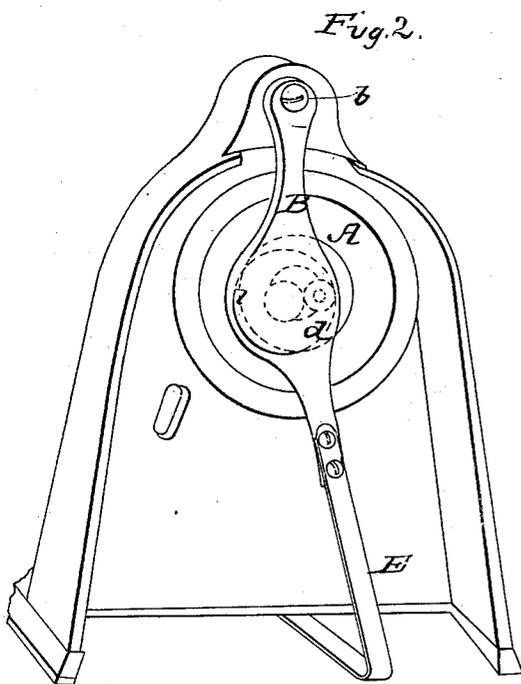
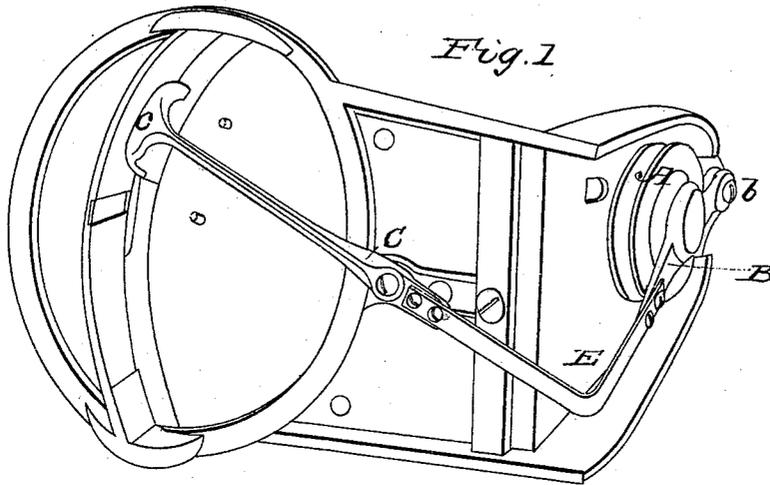


J. A. DAVIS.  
Sewing Machine.

No. 27,208.

Patented Feb. 21, 1860.



WITNESSES

*E. F. Davis*  
*J. D. Law*

INVENTOR

*J. A. Davis*

# UNITED STATES PATENT OFFICE.

JOB A. DAVIS, OF NEW YORK, N. Y.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 27,208, dated February 21, 1860.

### *To all whom it may concern:*

Be it known that I, JOB A. DAVIS, of the city and State of New York, have invented a new and Improved Method of Operating the Shuttles of Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof and of its construction and mode or manner of operation, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The general character or advantage of my invention consists in operating or giving the proper and required motion to the shuttle-driver and shuttle by means of or through a suspended lever which is worked directly from and by the driving-wheel of the machine, and connecting such lever with the shuttle-bar by means of a flexible spring or joint.

Figure 1 is an end and bottom view of the machine, showing the position of the suspended lever in respect to the driving-wheel and the manner of its connection with the shuttle-driver. Figs. 2 and 3 are end views, showing the suspended lever in two positions and the manner of working it from and by the driving-wheel.

A is the driving-wheel, which is revolved by a belt or in any convenient manner, and is fixed to the shaft *a*, which gives motion to the needle-bar.

To the frame of the machine, and above the driving-wheel, as at *b*, is attached a suspended lever, B, and which has free lateral oscillating motion on its place of suspension. This lever passes down in front of or over the driving-wheel A, and is moved by such wheel substantially as follows:

In the wheel A, a little at one side of its center, is fixed a pin, *c*, upon which is a small loose ring or roller, *d*, which fits into and moves in a circular depression or cavity, D, in the suspended lever B, the position of which is shown by dotted lines. As the wheel A is revolved the ring *d* is revolved eccentrically, and, working in the groove D, gives an oscillating motion backward and forward to the lever B, and through it to the shuttle bar or holder C.

In order to give to the shuttle the desired quickness of motion at the time the loop of the

stitch is made, and keep it stationary while the threads are drawn up, and not have the movement of the shuttle interfere with the thread, the circular cavity in the lever B is also placed at one side of the perpendicular axis of such lever, as seen in the drawings. By this arrangement of placing the pin and roller in the driving-wheel at one side of its center, and also placing the cavity of the lever, in which said ring moves, at one side of the lever B, an unequal or interrupted motion is given to such lever, so that the shuttle is sent quickly in one direction—that is, when it passes through the loop of the needle's thread and completes the stitch, and, after having so passed through the loop, remains stationary, while the two threads are drawn together into the fabric, when it returns back to the other limits of its motion, and then at once is sent again through the next loop, and again stands still, as before, while the stitch is being completed. The shuttle is thus caused to pass through the loop at precisely the right time, and is stationary while the stitch is tightened by the upward motion of the needle-bar.

The suspended lever B is connected with the shuttle-driver holder C by the bent spring E, which is stiff enough to secure all required certainty and firmness of motion in the shuttle, and at the same time sufficiently elastic and yielding to allow of all necessary variation in position and motion of the lever B and bar D in respect to each other.

As will be apparent from considering the motion of the lever B and bar C in respect to each other, these parts must necessarily have motion upon each other or the equivalent thereof, and attention must be had to the fact that, the ends of the bar C connecting with the lever B moving in an arc of a circle, it becomes at every vibration longer and shorter in respect to the plane in which B oscillates. The application and use of the spring E permit, however, all the necessary movements of these parts B and C upon and in respect to each other. As the lever and bar vibrate backward and forward the slight twist of the spring E which its elasticity permits acts as an equivalent of a universal joint, while the natural action of such spring readily adapts

it to all changes in position of the parts Band C and prevents their varying lengths, consequent upon their moving in circular arcs, from interfering with their proper action.

What I claim as my invention is—

Connecting the lever B, having its fulcrum near to the power-shaft, as set forth, with or

to the driver C by the spring E or flexible bar, as and for the purposes herein described.

JOB A. DAVIS.

Witnesses:

E. F. BARNES,  
S. D. LAW.