D. WILLIAMSON.
Sewing-Machine.

No. 206,513. Patented July 30, 1878.

Fig. 1.

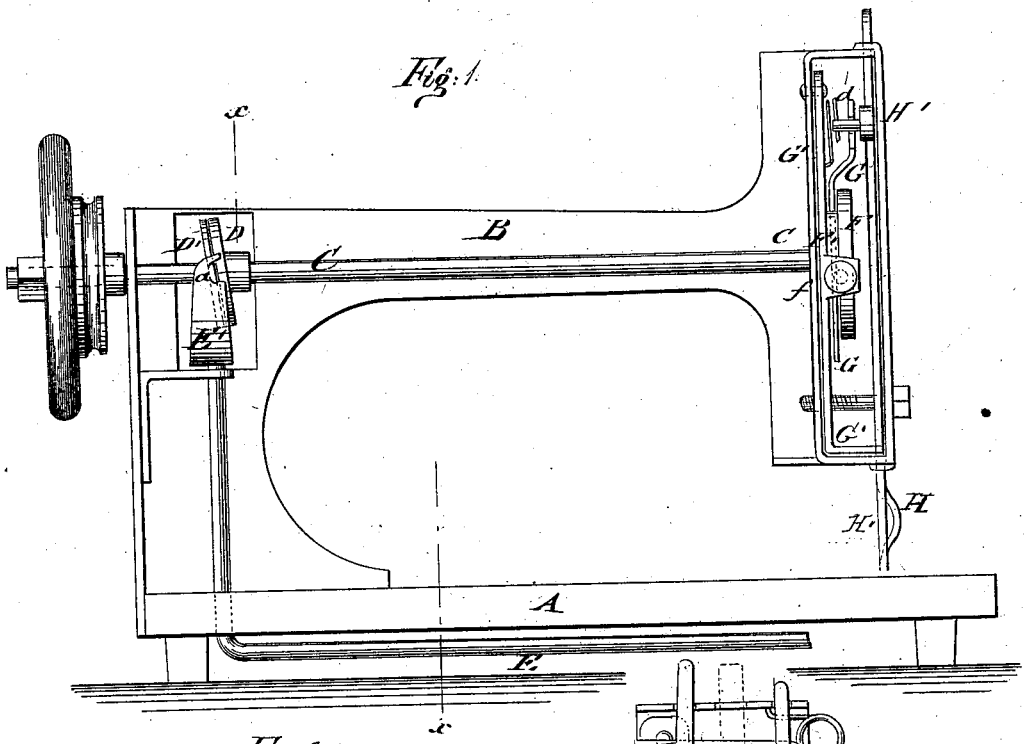


Fig. 2.

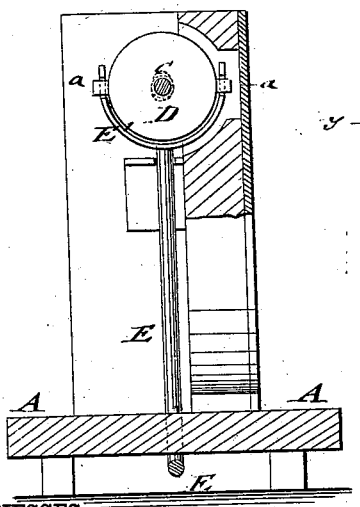


Fig. 3.

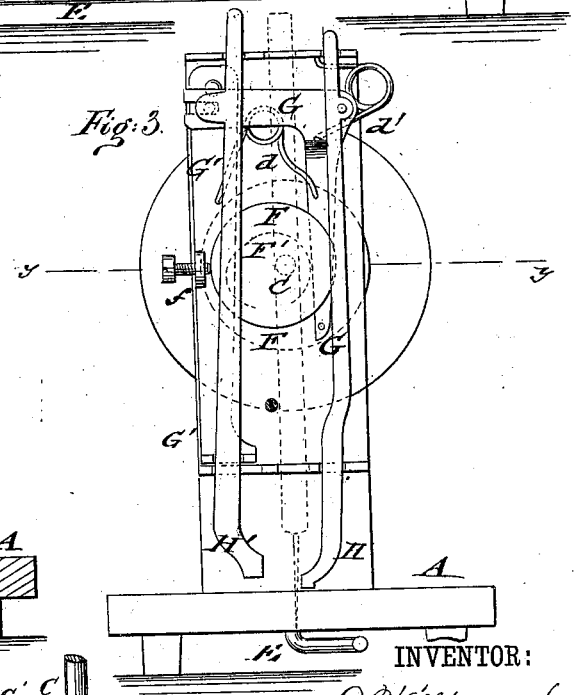
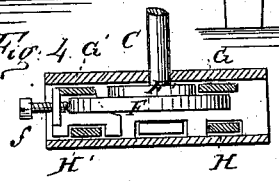


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

DANIEL WILLIAMSON, OF SUNBURY, PENNSYLVANIA, ASSIGNOR TO DANIEL BECKLEY AND SYBILLA WILLIAMSON, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **206,513**, dated July 30, 1878; application filed April 20, 1878.

To all whom it may concern:

Be it known that I, DANIEL WILLIAMSON, of Sunbury, in the county of Northumberland and State of Pennsylvania, have invented a new and Improved Sewing-Machine, of which the following is a specification:

In the accompanying drawing, Figure 1 repsents a side elevation of my improved sewing-machine; Fig. 2, a vertical transverse section of the same on line *x x*, Fig. 1; Fig. 3, an end elevation, with face-plate removed to show presser-foot and feed-bar; and Fig. 4, a horizontal section on line *y y*, Fig. 3, showing cam-motion and presser-foot and feed-bar.

Similar letters of reference indicate corresponding parts.

This invention has reference to such improvements in sewing-machines that a new and improved motion for the shuttle-driver, and also a simple cam-motion for operating the presser-foot, feed-bar, and needle-bar, is obtained.

The invention will first be described in connection with the drawing, and then pointed out in the claim.

Referring to the drawing, A represents the table, and B the horizontal supporting-arm, of my improved sewing-machine. The driving-shaft C turns in suitable bearings of the horizontal arm, and is revolved either by a hand-crank or by foot or other power, as desired.

The shuttle-motion is obtained by a fixed cam-wheel, D, that is placed obliquely on the driving-shaft C, and which engages a loose plate, D′, with elongated center slot, that follows readily the motion of the oblique cam. The loose plate D′ is provided at diametrically-opposite points with lugs *a*, that project beyond the circumference of the fixed cam, and engage recesses of the semicircular forked end E′ of the shuttle-driver E.

The shuttle-driver E is made of one continuous piece, and bent in the shape of a right angle at that point where it passes below the table A to the shuttle-race. It passes through a hole of the table A, that is provided with bearings for the shuttle-driver, and suitable means for preventing a change of position in a vertical direction.

The revolving driving-shaft, oblique cam, and loose plate impart a reciprocating motion to the lower horizontal end of the shuttle-driver. The shuttle-motion is thus given in a very simple and effective manner without any gearing or mechanism below the sewing-machine table.

To the front end of the driving-shaft C is keyed a double eccentric-cam, F F′, which revolves in the guide-casing of the needle-bar, presser-foot, and feed-bar. A needle-bar of the customary construction is used, the same being indicated in dotted lines in the drawing, and operated by the usual V-groove of the double cam. The inner smaller cam, F, engages an elbow-lever, G, that is fulcrumed at its angular part to the presser-bar, and is carried by the cam to one side and returned by the action of a suitable spring, *d*.

A second spring, *d′*, presses the elbow-lever downward, together with the pressure-foot H. The pressure-foot H is guided in top and bottom slots of the casing, and raised and lowered alternately with the feed-bar H′. The feed-bar is guided in similar manner in the casing, and moved forward and back simultaneously with its up-and-down motion by a lever-rod, G′, that is pivoted to the upper part of casing, and actuated by the larger cam, F, by means of a set-screw, *f*, which bears on said cam. The lower recessed part of the swinging bar G′ engages the lower part of feed-bar H′, which is hung by a pivot-pin at its upper end to the outer end of the horizontal arm of the fulcrumed elbow-lever G, so that the foot is raised and the feed-bar lowered, a compound motion being thus imparted to the feed-bar in connection with the swinging lever-bar G′, that is retained in contact with the cam F by a spring, *d′*, which is also applied to the elbow-lever.

The swinging lever-bar is retained in contact with the cam F by the presser-spring *d*, which is also applied to the elbow-lever G. The revolution of the driving-shaft operates alternately the foot and feed-bar, imparting vertical reciprocating motion to the former, and a compound reciprocating and forward and backward motion to the latter by a double

cam and lever mechanism, which also imparts motion, in the usual manner, to the needle-bar.

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

The combination, with the cams F F′, of the levers G G′, springs *d d′*, presser-foot H, and feed-bar H′, arranged as and for the purpose specified.

DANIEL WILLIAMSON.

Witnesses:
F. LOCH,
JACOB HUNSEEKER.