

G. W. MITCHELL
Sewing Machine.

No. 26,366.

Patented Dec. 6, 1859.

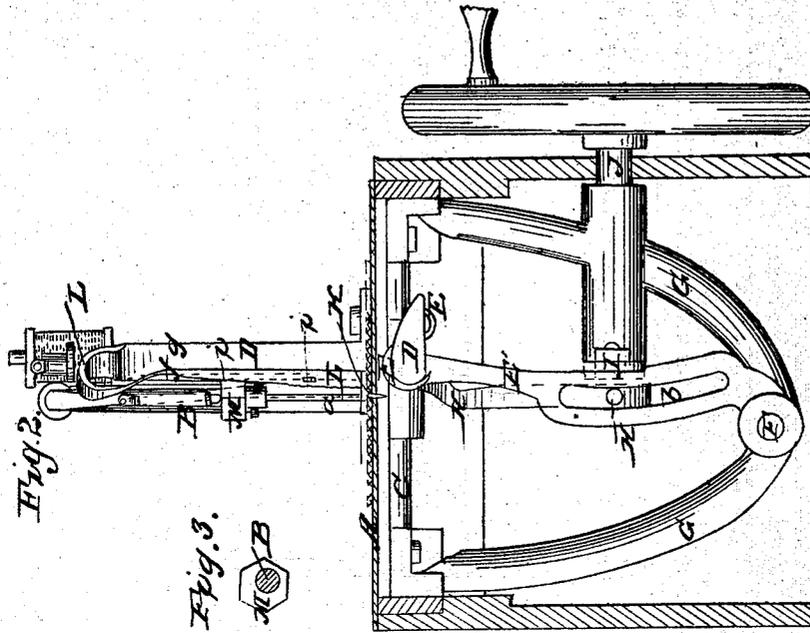


Fig. 2.



Fig. 3.

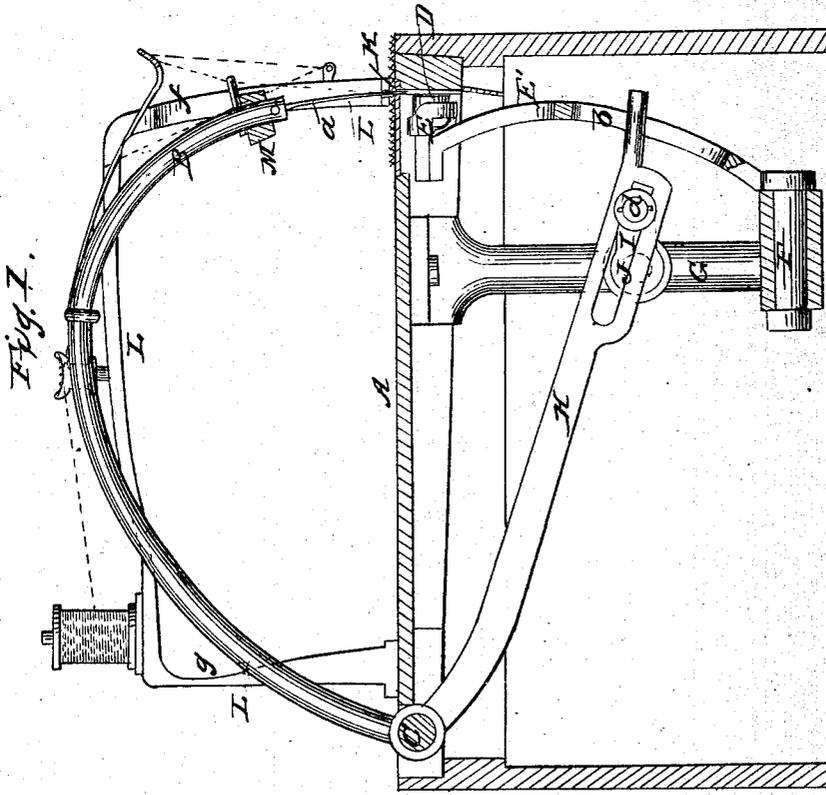


Fig. 1.

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UNITED STATES PATENT OFFICE.

GEORGE W. MITCHELL, OF JACKSON, TENNESSEE.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 26,366, dated December 6, 1859.

To all whom it may concern:

Be it known that I, GEORGE W. MITCHELL, of Jackson, in the county of Madison and State of Tennessee, have invented certain new and useful Improvements in Sewing-Machines; 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, in which—

Figures 1 and 2 are vertical sections, taken at right angles to each other, of a machine with my improvements. Fig. 3 is a transverse section of the needle-arm and part of the feed apparatus.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in a novel and very simple combination of mechanism for driving the needle and shuttle or looper, whereby a sewing-machine is much simplified.

It also consists in a certain novel and very simple construction of and mode of applying an elastic presser to confine the cloth or other material to the work-plate or bed of the machine, whereby it is made capable of operating as a feeder without any joints or other fittings; and it further consists in a novel contrivance through which the needle-arm is made to operate upon the presser for the purpose of producing the feed movement.

To enable others to make and use my invention, I will proceed to describe its construction and operation.

A is the work-plate or bed of the machine, upon which the cloth or other material is placed to be sewed.

B is the vibrating needle-arm, attached to a horizontal rock-shaft, C, which is fitted to bearings provided in the bed A.

a is a curved eye-pointed needle, of the usual kind, attached to the vibrating arm B in the usual or any well-known manner.

D is the shuttle, fitted to a driver and carrier, E, of well-known construction, which is attached rigidly to the upper end of a vibrating lever, E', carried by a horizontal rock-shaft, F, that is arranged parallel with the plane of vibration of the needle-arm in a bearing in a hanger, G, below the bed A. This lever E' has a slot, *b*, provided in it to receive the end of an arm, H, that is attached to the needle-arm rock-shaft C, and forms a portion of the same lever as the needle-arm, and the said arm H,

working below the bed, has provided in it a slot, *c*, which receives the wrist *d* of a crank, I, that is carried by the horizontal main shaft J, said shaft working in a bearing in the hanger G. The revolution of the crank-wrist in the slot *c* produces a vibratory motion of the arm H, and so gives the necessary motion to the needle rock-shaft C, the needle-arm B, and the needle; and the end of the said arm H, working in the slot *b* of the shuttle-carrier lever E', produces the necessary movement of the shuttle-carrier and shuttle, and the lower part of the slot *b* having a proper curvature, as represented in Fig. 2 of the drawings, the movement of the shuttle is properly timed in relation to the movement of the needle. This mode of driving the needle and shuttle, it is obvious, may be used in machines which employ an under needle or looper in place of a shuttle, the needle or looper being attached to the lever E' in the place occupied by the shuttle-carrier E.

K is the presser or foot by which the material is held down upon the bed while being sewed, and by which it is moved to make the stitches, having a serrated face to enable it to serve as a feeder. This presser is made in the same piece with a bent arm, L, which is bolted firmly to the bed-plate near the needle rock-shaft by a bolt, *e*. This arm L is made thin enough and sufficiently elastic at *f* to permit the presser to move in the direction indicated by an arrow in Fig. 2, in which it is desired to feed the material, and in the opposite direction; and it is also made thin enough and sufficiently elastic at *g*, Fig. 1, to permit the presser to be raised up from the bed to place the material in or remove it from the machine, but yet must be stiff enough to hold the cloth firmly upon the bed when it is left free. That portion of the arm L below the part *f*, where elasticity is provided, and some distance above the foot K, is made to present an inclined plane toward the needle-arm, as shown at *i*, Fig. 1, and the needle-arm is fitted with a collar, M, which, as the needle-arm descends to drive the needle through the material, operates like a wedge against this inclined plane, and so moves the portion of the arm below *f* and the foot K in the contrary direction to that in which the cloth is to be fed. When the needle-bar rises again and the needle is drawn out of the cloth, the collar leaves the arm K and foot-piece free, and they are moved back again by the elasticity of the arm, thus giving motion to the

cloth. The serrated face of the presser, it may be proper to state, has its teeth so set as to facilitate the passage of the presser over the surface when the arm is moved by the collar M, but as to bite the cloth in moving the other way. To provide for varying the feed movement to make stitches of different lengths, at the pleasure of the operator, the collar M is made of polygonal form, as shown in Fig. 3, and the hole which is drilled through it, to fit the needle-arm B, is made eccentric to a circle circumscribing the polygon, so that the sides of the said collar project different distances from the needle-arm. The collar is fitted to turn easily upon the needle-arm to present either side toward the latter, and, according as a more or less projecting side of the collar is turned toward the arm L, the movement of the said arm is greater or less and a longer or shorter stitch is produced.

By combining in the same machine my improved mode of driving a needle and shuttle and my improved mode of applying the presser and using the same for feeding I obtain a practical and useful sewing-machine, which I believe to be more simple than any really useful machine heretofore constructed.

I do not claim, broadly, the driving of a shuttle or looper by means of the same lever which carries or drives the needle; neither do I claim,

broadly, effecting the feed movement by the action of an appendage of the needle-bar upon the presser; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the crank I on the driving-shaft, the slotted arm H, forming a portion of the same lever with the needle-arm, and so extended as to operate the lever E', and the lever E', carrying the shuttle or looper, the whole arranged and operating, substantially as herein described, to drive the needle and shuttle.

2. The vertically and horizontally elastic arm L, having the presser attached and constructed and applied, substantially as herein described, so as to be operated upon by an appendage of the needle to feed the material, substantially as herein set forth.

3. The polygonal collar M, fitted to turn upon the needle-arm, so that any one of its sides may be presented to act upon the presser-arm for the purpose of feeding the cloth more or less, according to the wish of the operator, as herein set forth.

G. W. MITCHELL.

Witnesses:

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