T. L. MELONE.

Sewing-Machines.

No. 140,787. Patented July 15, 1873.

Fig. 1.

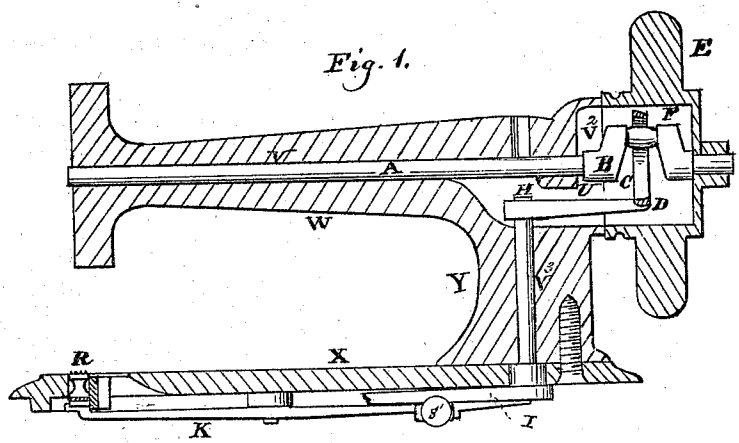


Fig. 2.

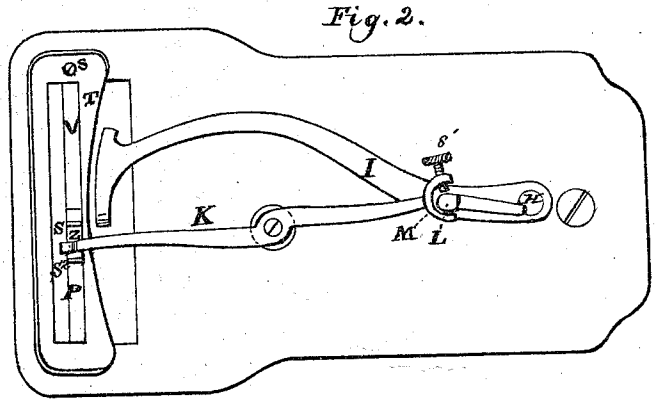


Fig. 3.

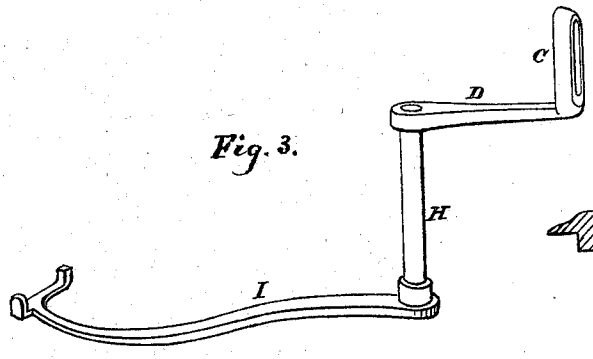
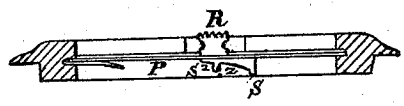


Fig. 4.



Thomas L. Melone, Inventor.

Chas. S. Whitman Attorney

Witnesses:

D. B. Gallatin

H. A. Daniels

UNITED STATES PATENT OFFICE.

THOMAS L. MELONE, OF MOUNT GILEAD, OHIO.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **140,787**, dated July 15, 1873; application filed May 16, 1872.

To all whom it may concern:

Be it known that I, THOMAS L. MELONE, of Mount Gilead, in the county of Morrow, Ohio, have invented a certain Improved Sewing-Machine, of which the following is a specification:

This invention relates to that class of sewing-machines in which the reciprocating shuttle and four-motion feed are employed. The nature thereof consists in certain improvements in details of construction whereby a simple and cheap machine is produced with the most approved movements and adapted for general use. The improvements consist, first, in a recessed balance-wheel and standard inclosing the crank of the driving-shaft and its appurtenances, so as to conceal and shield the same; and, second, in an elastic feed-bar depressed by its own resiliency, and with both ends guided. Thus the feeding-surface is always parallel to the bottom of the presser-foot, and rises and falls at right angles thereto, so as to operate smoothly and regularly without interference with the presser-foot.

In the drawing, Figure 1 is a vertical longitudinal section of the upper works of a sewing-machine illustrating the invention. Fig. 2 is an under-side plan view of the same. Fig. 3 is a perspective view of the shuttle-carrier arm and its appurtenances. Fig. 4, is a vertical transverse section in the line of the feed-bar.

X represents the bed-plate of the machine; Y, the standard, and W the arm, which parts are rigidly united. The arm W is constructed with a longitudinal bore, V, for the reception of the driving-shaft A, and a concentric cavity, V^2, and a vertical bore, V^3, for the reception of a vertical shaft, H, are formed in the standard Y. A pendent bearing, U, within the cavity V^3 supports the rear end of the driving-shaft. The vertical shaft H is furnished at its upper end with an arm, D, terminating in a vertical yoke, C. An oscillating motion is thus imparted from the horizontal driving-shaft A to the vertical shaft H without strain. E represents the balance-wheel, which is secured on the rear end of the driving-shaft by set-screw or otherwise; and constructed with a cavity, F, which, with the cavity V^2, incloses the crank B, yoke C, and arm D, so as to conceal and shield the same. I represents an arm projecting from the lower end of the vertical shaft H, and terminating in the shuttle-carrier. P represents the feed-slide, which consists of a spring-bar furnished with feeding-points R on top, occupying an opening of suitable shape and size in the bed-plate. This elastic bar is supported at both ends in guides on the bed-plate, and is constructed with a pair of depending lugs, S S^2, and an incline, Z, between the same. These are engaged by the end of a lever, K, which is pivoted to a projection, G, cast on the bottom of the bed-plate. A lug, L, cast on the arm I, engages with a yoke, M, on the end of the lever K to actuate the same. A set-screw, s', in one arm of the yoke M, regulates the length of movement imparted to the feed-bar. In order to resist the friction of the incline Z a spring, T, is pressed against the under side of the feed-bar P, by a tempering-screw, *s*. The arm I is curved so as to avoid the projection G, to which the lever K is pivoted.

It will be observed that the feeding-surface is depressed by the elasticity of the feed-bar, and is moved back and forth horizontally by the vibrating arm K engaging with the lugs S S^2. The feeding-surface is lifted by the bending of the feed-bar between its ends by the action of the arm K on the incline Z, the friction-spring T co-acting by resisting longitudinal movement. Thus under the alternating lateral pressure of the arm K the feeding-surface is lifted, then the far lug S is engaged, and the feed-bar receives its effective stroke, then the feeding-surface is lowered by the elasticity of the bar, as the end of the lever moves backward, and finally the lug S^2 is engaged and the return movement of the bar is accomplished.

Owing to the elasticity of the feed-bar and its elevation at a central point, by bending it, to project the feeding-points, as described, the feeding-surface is always horizontal and parallel with the bottom of the presser-foot, and it rises and falls perpendicularly to the same. There is, therefore, no interference between them.

The feed is adjusted to vary the length of stitch by means of the set-screw s'.

The action of the frictional spring T is regulated by means of the set-screw *s*.

I claim as new and of my invention—

1. The balance-wheel E constructed with a central cavity, F, and arranged as described, to inclose the crank B and slotted yoke C, so as to conceal and shield the same.

2. The standard Y, supporting the arm W, and constructed with the cavity V^2 V^3 and internal pendent bearing U, the driving-shaft A constructed with a crank, B, the wrist of which is oval in form, and the balance-wheel E having a cavity, F, to inclose said crank, when all are combined, and operate substantially as herein described, for the purpose set forth.

3. The feed-bar working in suitable guides and constructed with lugs S S^2 and an incline, Z, between the same, the friction-spring T, and the lever K provided with a yoke and set-screw, when combined and operating together as and for the purposes described.

In witness whereof I have hereunto subscribed my name this 29th day of April, 1872.

THOMAS L. MELONE.

Witnesses:

W. J. MEEKER,

S. N. CLARK.