2 Sheets--Sheet 1.

G. S. & A. L. DARLING.

Sewing-Machine.

No. 163,639. Patented May 25, 1875.

Fig. 1

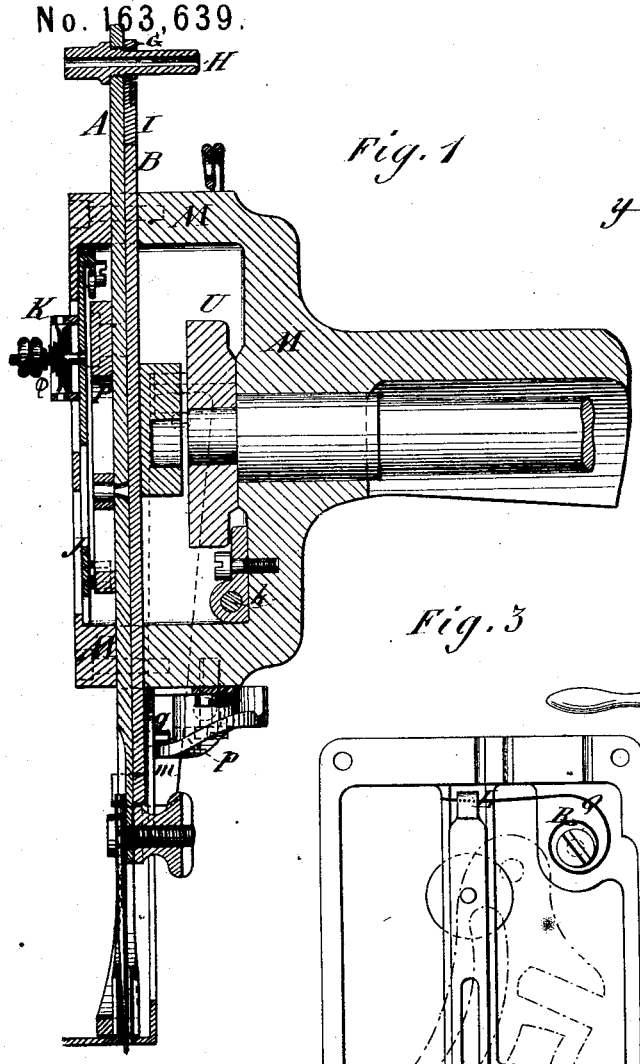


Fig. 2

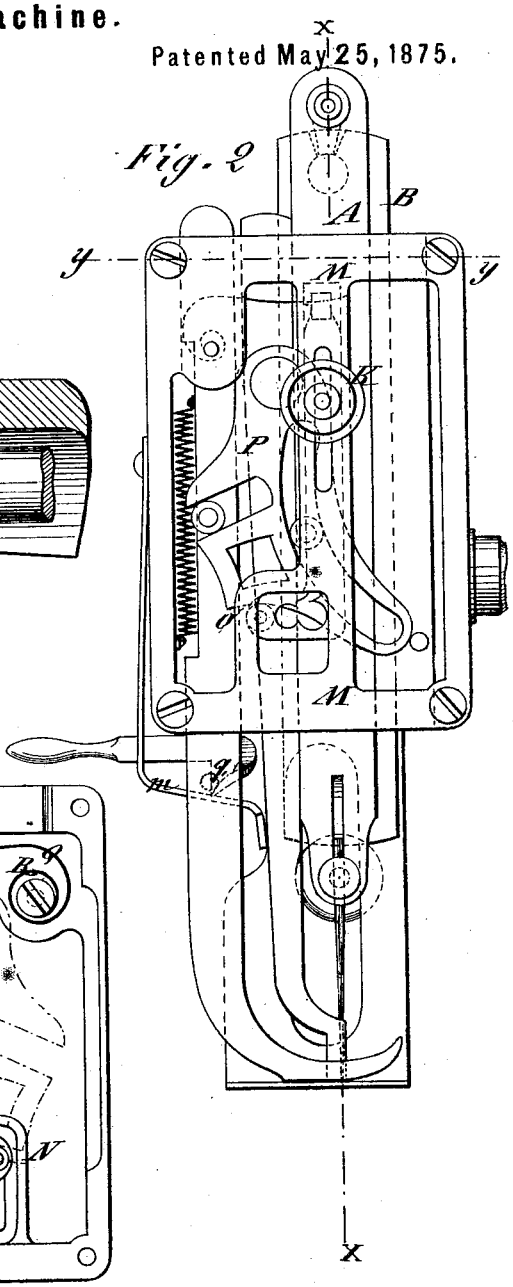


Fig. 3

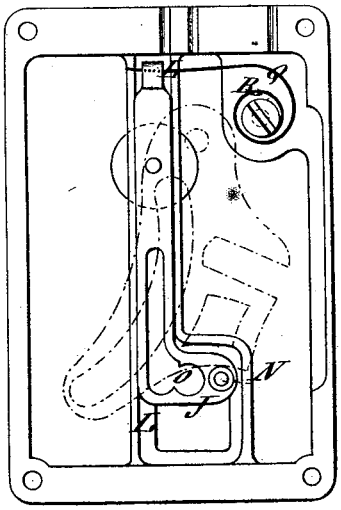
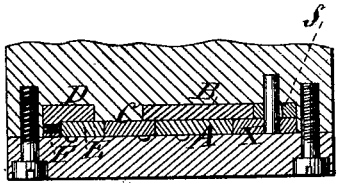


Fig. 4



WITNESSES:

C. Neveux

A. F. Terry

INVENTOR:

G. S. Darling

BY A. L. Darling

ATTORNEYS.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

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Fig. 5

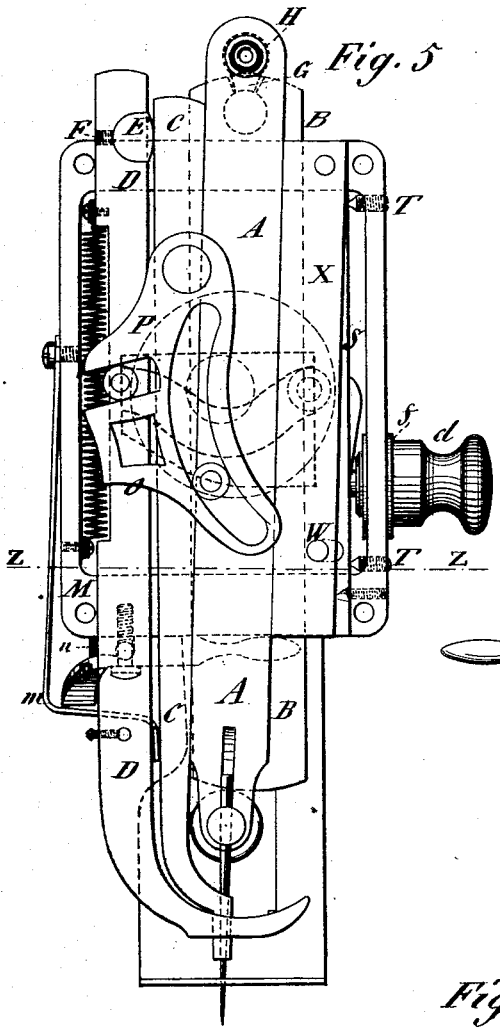


Fig. 6

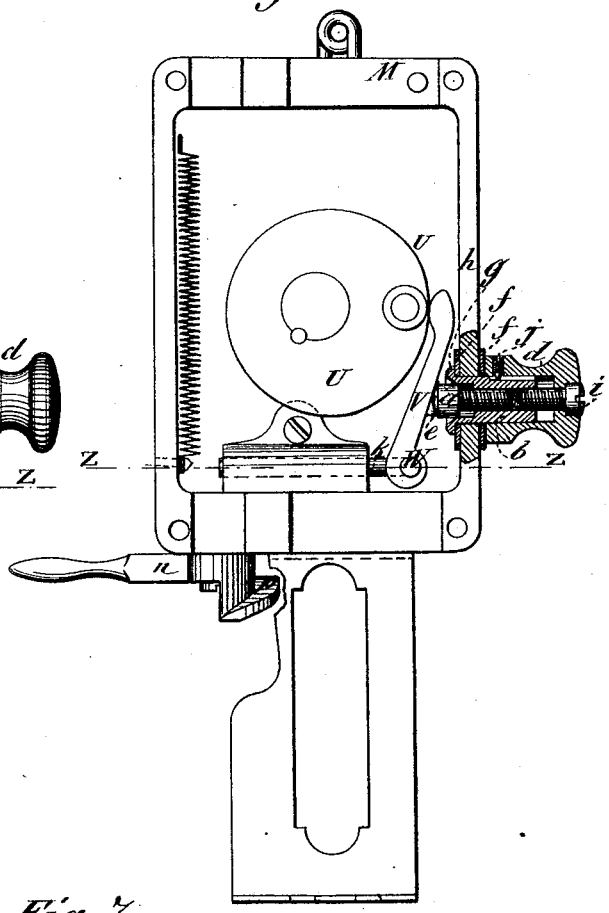
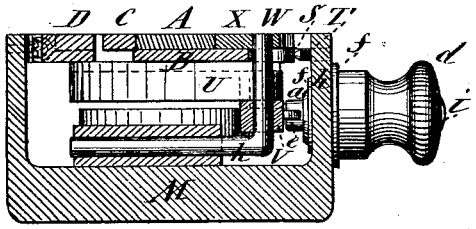


Fig. 7



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C. Neveux

A. F. Terry

INVENTOR:

G. S. Darling

BY A. L. Darling

Munn & Co

ATTORNEYS.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

GEORGE S. DARLING AND AUGUSTUS L. DARLING, OF WATERTOWN, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **163,639**, dated May 25, 1875; application filed December 12, 1874.

To all whom it may concern:

Be it known that we, GEORGE S. DARLING and AUGUSTUS L. DARLING, of Watertown, in the county of Jefferson and State of New York, have invented a new and Improved Sewing-Machine, of which the following is a specification:

Our invention consists of several improvements in the construction and arrangement of the Davis vertical-feed sewing-machine, whereby it is designed to increase the efficiency and durability of the machine, as hereinafter particularly described, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional elevation of the portion of the machine embracing our improvements, taken on the line *x x* of Fig. 2. Fig. 2 is a front elevation. Fig. 3 is an elevation of the reverse side of the front plate and the take-up. It also shows the tumbler which works the pressure-bar in dotted outline. Fig. 4 is a transverse section taken on the line *y y* of Fig. 2. Fig. 5 is a front elevation with the front plate removed. Fig. 6 is a front elevation with the front plate, needle-bar, cam-bar, helper, and presser removed, and a section of the stitch-regulator. Fig. 7 is a transverse section taken on the line *z z* of Figs. 5 and 6.

Similar letters of reference indicate corresponding parts.

A is the needle-bar; B, the cam-bar, by which the needle-bar is connected to the driving-crank. C is the helper, and D the presser. We propose to fit the adjusting-piece E and screw F in the presser-bar for taking up the slack of bars A, C, and D caused by wear. We also propose to connect the needle-bar to the cam-bar by the link G, pivoted at its upper end to the thread-tube H, and at the lower end pivoted, by the stud I, in a hole in the cam-bar, which has a groove from the hole to the top, in which the link is arranged, the groove being on the side next to the needle-bar, and the link being between the latter and the bottom of the groove, so that it is confined by them, and the metal remaining at the bottom of the groove prevents the stud from spreading the bar as it would without it. The thread-tube is made by this arrangement to serve for the pivot-pin of the link, as well as for its own legitimate purpose, being firmly screwed in the top of the needle-bar. We have also arranged the stirrup J of the thread take-up K in the groove L in the back of the face-plate M, with its stud N, so as to be acted on by the cam O at the lower end of the tumbler P, which is so shaped that at the same time that it swings to lift the presser it will work the take-up as it is required to operate, and there leave it at rest, to be afterward returned by the spring Q, which we propose to arrange in a volute coil, R, around the stud to which it is attached as being a better and more durable arrangement than the angular form in which it has been heretofore arranged in these machines.

To take up the edge wear of the cam-bar we have introduced the adjusting-bar S alongside of it, with adjusting-screws T, by which it can be shifted along against the cam-bar from time to time, as may be needed.

For adjusting the feed which is effected by the crank-disk U, lever V, pin W, and the feed-bar X, acting on the needle-bar and helper, we have provided the adjusting-screw *a* in the rotating tube *b*, which is turned by the knob *d*, to force the screw *a* forward and backward to alter the fulcrum of the lever, and thus vary its throw. The lever has a bit, *e*, on one side, which fits in a notch in the head of the screw to keep it in its proper relation to the screw, and also to prevent the screw from being turned by the tube. This tube is fitted with elastic washers *f*, between its collar *g* and the knob *d* and the plate *h*, and all are confined snugly by the knob, which is fastened to the tube by the screw *i*. The screw *j* insures the turning of the tube *b* by the knob.

The lever is fitted on a sliding pin, *k*, to be supported in position, and at the same time be allowed to shift by the adjuster.

m is the spring for throwing the feed mechanism back. *n* is the lifter, consisting of a lever with a spiral cam, *p*, to raise the presser by acting on the pin *q*.

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

1. The combination of the adjusting-piece E and screw F with the presser, helper, and needle-bar, substantially as specified.

2. The combination, with cam-bar, having a hole and groove leading therefrom, the needle-bar, and the thread-tube, of a pivoted link, provided with a stud, substantially as described.

3. The combination of screws *a i*, tubes *b d*, held together by screws *j*, and the elastic washers *f f*, with the plate *h*, as shown and described, for the purpose specified.

4. The tumbler P, having the take-up-actuating cam O arranged on the lower end, substantially in the manner described.

5. The take-up slide J, in combination with the cam O on the tumbler P, substantially as specified.

GEO. S. DARLING.
AUGUSTUS L. DARLING.

Witnesses:
J. W. WEEKS,
WATSON M. ROGERS.