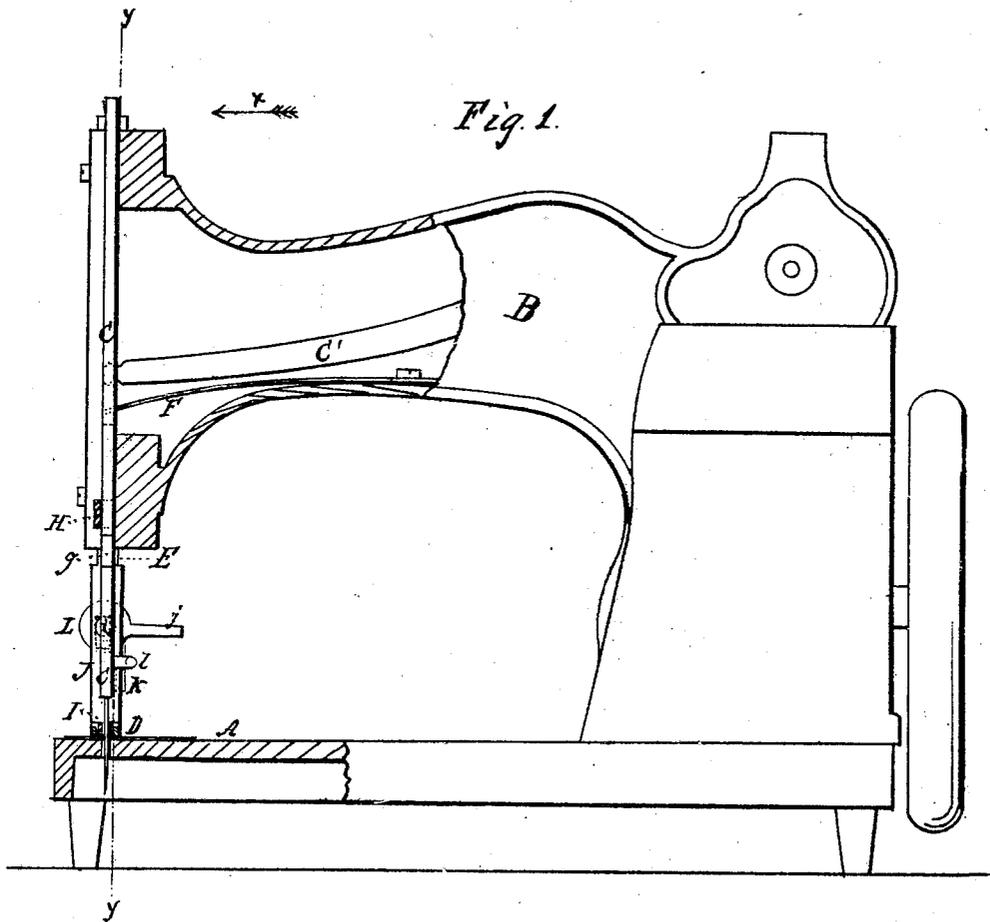


D. KELSEY.
FEED MOTION FOR SEWING MACHINES.

No. 24,939.

Patented Aug. 2, 1859.



Witnesses.
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IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 24,939, dated August 2, 1859.

To all-whom it may concern:

Be it known that I, DAVID KELSEY, of Harper's Ferry, in the county of Jefferson and State of Virginia, have invented a new and useful Improvement in Feed-Motions of 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—

Figure 1 is a front view, partly in section, of those parts of a sewing-machine which are necessary to illustrate my invention. Fig. 2 is a vertical section at right angles to Fig. 1, taken nearly in the plane indicated by the line *yy* of that figure, looking in the direction of the arrow *x*. Fig. 3 is a side view of the feeding-dog. Figs. 4 and 5 are vertical sections of the feeding-dog and pressure-pad parallel with Fig. 1.

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

My invention relates to what is known in sewing-machines as a "top feed;" and it consists in a certain arrangement of and mode of combining the pressure-pad and feeding-dog, whereby when the dog is pressed upon the material the pad is caused to be raised therefrom, and is prevented interfering with the action of the dog in the feeding operation.

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

A is the bed-plate of the sewing-machine, and B is the upper frame. C is the needle-bar, sliding vertically in a guide in the upper frame, B, and operated in the usual way by a lever, C', or in any suitable manner.

D is the pressure-pad, smooth-faced and of the usual form, and attached to a stem, E, which is fitted to slide up and down in a vertical guide, *aa*, provided for it in the upper frame, B, and is so tapered, as shown in Fig. 2, as to be capable of vibrating in the said guide in planes parallel with the desired direction of the feed movement.

F is the spring by which the necessary downward pressure is given to the pad, applied in a well-known way to the stem E; and G is the lever for raising the pad, applied in the usual manner to the stem.

H is a slide fitted to work horizontally through the frame B in a direction parallel

with the desired direction of the feed movement, and containing a recess, *bc*, to receive the needle-bar C, and another recess, *de*, to receive the stem E of the pressure-pad. The recess *bc* has its ends inclined, as shown in Fig. 2; but the recess *de* has its ends vertical. The needle-bar has two inclined steps, *gh*, one on each side, for the purpose of acting upon the inclined ends of the recess *bc* of the slide H, and thereby moving the said slide longitudinally back and forth as the needle-bar moves up and down. In one end of this slide H there is fitted a screw, *f*, tightened by a jam-nut, *n*, and to the stem E of the pressure-pad there is attached a stiff spring, *s*, which always keep the said stem in contact either with the said screw *f* or with the side of the guide *aa* that is nearest the said screw.

I is the toothed feeding-dog, fitted into a slot in the pressure-pad in such a manner as to be incapable of longitudinal or lateral movement therein, but to be capable of rising and falling therein. The said dog has a stem, J, which fits close against the stem E of the pressure-pad.

L is an eccentric or cam working in a recess, *rr*, in the stem J, between it and the stem E on a pin, *i*, which is secured in the latter, and which passes through a slot, *p*, in the latter. The said eccentric has two horns, *jk*, between and against the inner edges of which works a stud or projection, *l*, that is secured to the needle-bar, and by the oscillation of the eccentric on the pin *i* the two stems are caused to work longitudinally the one against the other.

The operation of the pressure-pad and feeding-dog is as follows: As the needle descends, the stud *l*, striking the lower horn, *k*, of the eccentric L, knocks it down to the position shown in Fig. 4, thus making the eccentric, by its action within the recess *rr*, lift up the feeding-dog from the cloth or other material on the bed-plate A, and leaving the pressure-pad subject to the full pressure of its spring F. The stud *l*, having knocked the said horn *k* to a vertical position, passes down it and holds it stationary while the needle-bar completes its descent; but before such descent is completed the step *g* of the said bar, passing in contact with the inclined end *b* of the recess *bc* of the slide H, moves the said slide in the direction of the arrow shown near it in Fig. 2, and the said

slide carries with it the pressure-pad stem and the pad, and the latter carries the feeding-dog. This is the backward movement of the dog. As the needle-bar rises the stud *l* strikes the upper horn, *j*, of the eccentric and knocks it up to the position shown in Fig. 5, thus making the eccentric force down the dog against or into the material, and thereby causing it to lift up the pressure-pad and throw the whole pressure of the spring *F* on the dog. The stud *l*, having brought the horn *j* to the vertical position, passes up it and holds the eccentric stationary, while the step *h* of the needle-bar passes along the inclined surface *C* of the recess *b c* and moves the slide *H* in the opposite direction to that indicated by the arrow in Fig. 2, and the said slide, carrying with it the pressure-pad and feed-dog, feeds the material. Thus it will be seen that while the dog acts the pad is raised, and while the dog moves back the pad bears on the material, but the dog

is raised out of contact and prevented dragging. The length of feed is regulated by means of the screw *f*.

I do not claim applying a feeding-dog and a pressure-pad to operate separately upon the outside or upper surface of the material to be sewed in such manner that when one is in operation the other is raised up; but

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

The horned eccentric or cam *L*, applied substantially as herein described, in combination with the vibrating pressure-pad *E* and the feeding-dog sliding on the stem of said pad and operated, for the purpose herein specified, by means of a stud, *l*, or its equivalent, attached to the needle-bar.

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Witnesses:

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