T. K. KEITH.

Feeding Mechanism for Sewing-Machines.

No. 195,932. Patented Oct. 9, 1877.

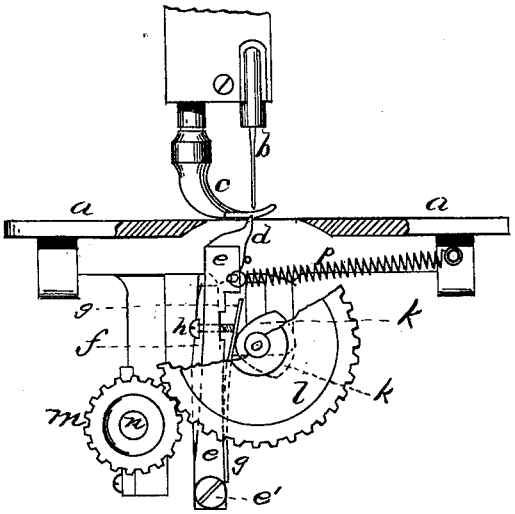

Fig. 1

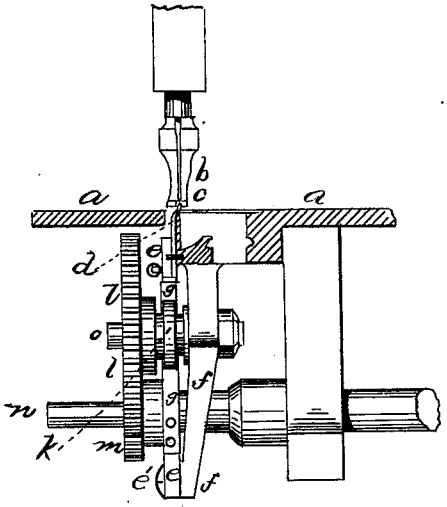

Fig. 2.

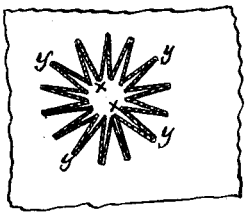

Fig. 3.

WITNESSES

John E. Fanning.

J. Banfield

INVENTOR

Thos. K. Keith

By his Att'ys.

Henry W. Williams & Co

UNITED STATES PATENT OFFICE.

THOMAS K. KEITH, OF HAVERHILL, MASSACHUSETTS.

IMPROVEMENT IN FEEDING MECHANISMS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **195,932**, dated October 9, 1877; application filed May 25, 1877.

To all whom it may concern:

Be it known that I, THOMAS K. KEITH, of Haverhill, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Feeding Mechanism for Sewing-Machines, of which the following, when taken in connection with the accompanying drawings, is a full, clear, and exact specification.

This invention has for its object to adapt the feed-dog of a sewing-machine to reciprocate the material being stitched, instead of propelling it in one direction, and to enable the material to be turned laterally by the operator, without detriment, while the presser-foot bears against the feed-dog, the reciprocating and lateral movement thus imparted causing the formation of elongated stitches, which may be combined so as to radiate or form star-shaped or other ornamental figures, according to the will of the operator.

My invention consists in the combination, with the stitch-forming mechanism of a sewing-machine, of a feed-dog, provided with a single point to bear against the material and act as a pivot therefor, and mechanism to reciprocate said feed-dog in a substantially horizontal plane, whereby the material is reciprocated, instead of being propelled in a single direction, all of which I will now proceed to describe.

Figure 1 is a front elevation of a portion of a sewing-machine, provided with mechanism for producing the feed-motion above described. Portions are represented as broken out, the better to exhibit the parts. Fig. 2 is a side elevation of the same, the table being shown in section. Fig. 3 is a representation of a sample of the simplest class of work which the feed and mechanism performs.

Similar letters of reference indicate corresponding parts.

In the drawings, *a*, *b*, and *c* represent, respectively, the table, needle, and presser-foot, all constructed as usual. *d* is the feed-dog, which is fixed to the lever *e*, pivoted at *e'* to the stationary bar *f*, extending downward from the table. The upper portion of this lever is held by the spiral spring *p*. The feed-dog *d* is pointed at its upper end, and is adapted to bear against the material to be stitched, and act as a pivot therefor, allowing the material to be turned laterally by the operator in any direction. *g* is a spring, secured at its lower end to the lever *e*, and bent out from the lever at its upper end by means of the regulating-screw *h*, which passes through the lever *e*, and presses against the spring *g*. *k* is a cam or eccentric, (its shape being represented, in part by dotted lines, in Fig. 1) fixed to the shaft *o*, upon which is also fixed the gear-wheel *l*. The wheel *m*, having a circumference just one-half that of the wheel *l*, meshes into it, and is fixed upon the main or actuating shaft *n*.

Thus it will be seen that with each revolution of the wheel *l* (requiring two revolutions of the wheel *m*) the cam *k* forces the feed-dog *d* attached to the lever *e* back once, and the spring *p* pulls it forward once, so that two motions, a back and a forward, are made by the feed with each revolution of the wheel *l* and cam *k*, both motions being in the same plane, which is substantially horizontal, so that the material to be stitched is reciprocated, instead of being propelled in a single direction, as by an ordinary feed-dog.

In stitching the figure or design of a star, (shown in Fig. 3,) the inner stitches *x* are taken when the spring *p* has drawn the feed forward, and the outer stitches *y* are taken when the cam *k* has forced it back. After each inner stitch *x* the material is slightly moved, so that the star shape can be produced; otherwise the stitching would be simply back and forth on a single line.

By turning the screw *h* and forcing the spring *g* farther from the lever *e*, the course of the feed is lengthened, as the cam faces the lever farther from it, and vice versa.

Various designs may be produced by this feed, of which the one shown in Fig. 3 is but a single sample.

I claim as my invention—

The combination, with the stitch-forming mechanism of a sewing-machine, of a feed-dog, provided with a single point to bear against the material and act as a pivot therefor, and mechanism, substantially as described, to reciprocate said feed-dog in a substantially horizontal plane, whereby the material is reciprocated, instead of being propelled in a single direction, as and for the purpose set forth.

THOMAS K. KEITH.

Witnesses:

HENRY W. WILLIAMS,

FRANK E. DAVIS.