2 Sheets—Sheet I.

H. FEYH.

FEED MECHANISM FOR SEWING-MACHINES.

No. 187,113. Patented Feb. 6; 1877.

Fig. 1.

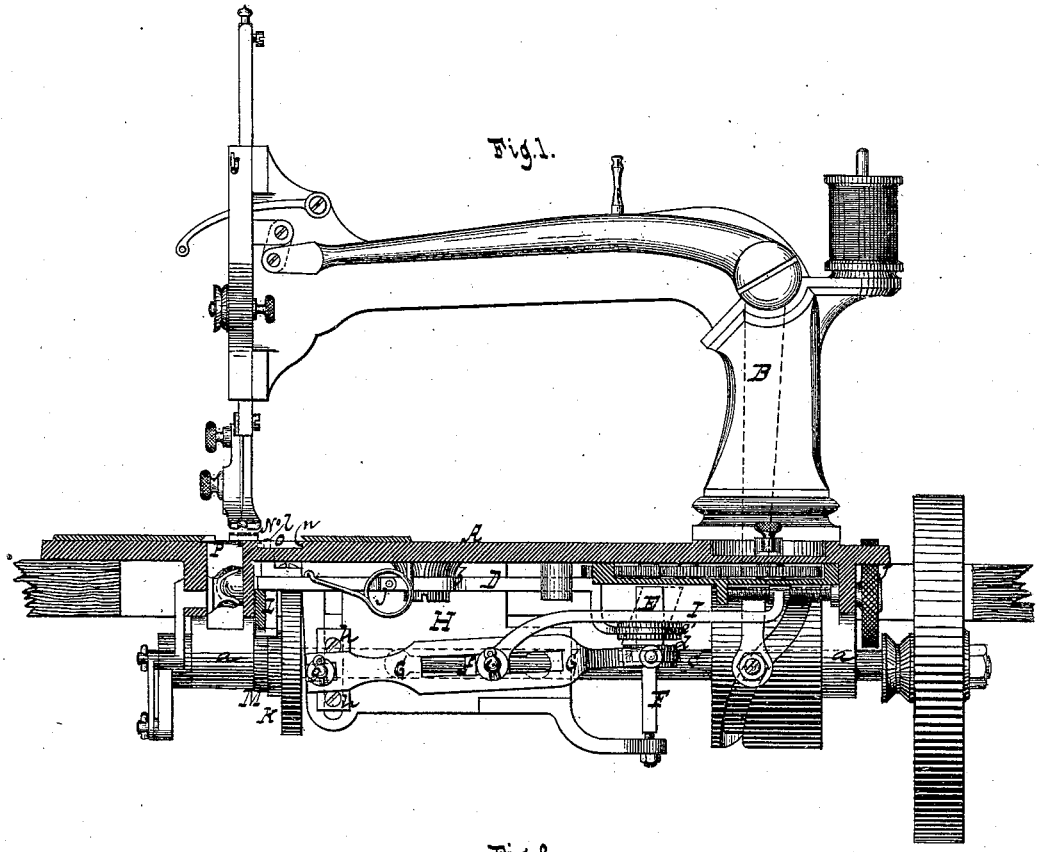
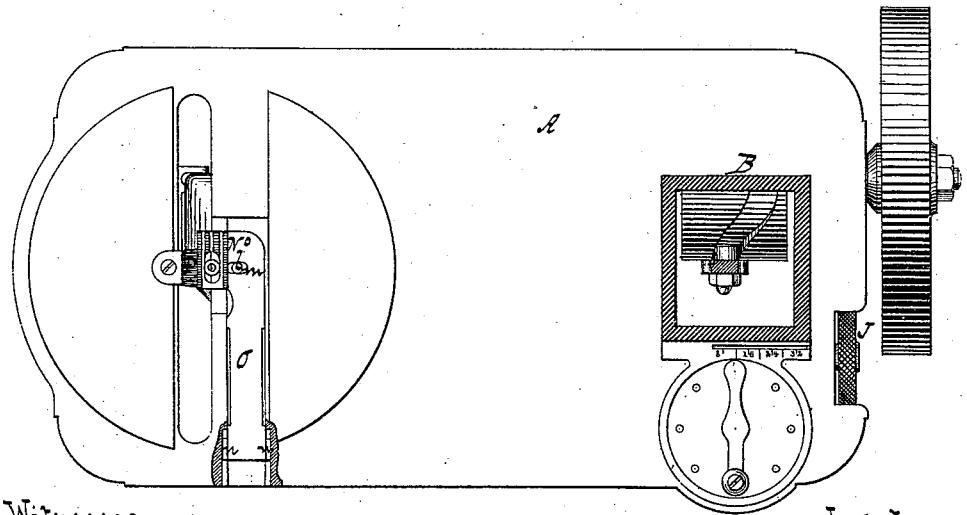


Fig. 2.



Witnesses.
Otto Hufland
Robt. E. Miller.

Inventor
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his attorneys

2 Sheets—Sheet 2.

H. FEYH.

FEED MECHANISM FOR SEWING-MACHINES.

No. 187,113. Patented Feb. 6, 1877.

Fig.3.

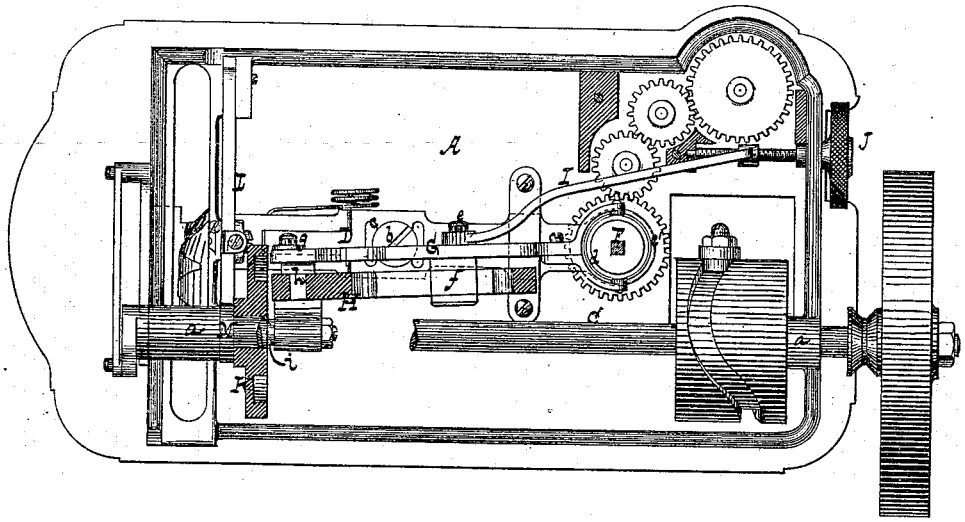
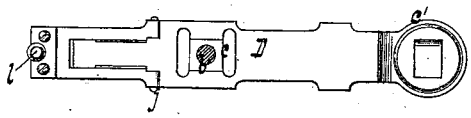


Fig.4.



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UNITED STATES PATENT OFFICE.

HENRY FEYH, OF NEW YORK, N. Y., ASSIGNOR TO SETH W. JOHNSON, OF SAME PLACE.

IMPROVEMENT IN FEED-MECHANISMS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **187,113**, dated February 6, 1877; application filed December 18, 1876.

To all whom it may concern:

Be it known that I, HENRY FEYH, of the city, county, and State of New York, have invented a new and useful Improvement in Sewing-Machines, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a longitudinal vertical section. Fig. 2 is a horizontal section. Fig. 3 is an inverted plan. Fig. 4 is a view of the feed-bar and bracket.

Similar letters indicate corresponding parts.

This invention relates to certain improvements in that class of sewing-machines in which a universal under-feed is used—such, for instance, as that described in Letters Patent granted to John L. Coles and David H. Coles, October 20, 1868, which feed mechanism consists of a bar that is free to move in the direction of its length, and also to assume an oscillating motion, and which carries the feed-dog, in combination with a cam which acts on the feed-bar, and which can be adjusted so as to produce a feed-motion in any desired direction. In machines of this class the feed-dog always assumes a slight oscillating motion; and, if a rectilinear seam is to be made, great care must be taken to prevent the work from being thrown out of the right direction by the action of the feed-dog itself.

This defect I have endeavored to remove by my invention, which consists in the combination, with a feed-bar, which is free to move in the direction of its length and also to assume an oscillating motion of a rectilinear feed-slide, so that the feed-dog which forms a part of the feed-slide cannot be thrown out of its rectilinear path by the oscillating motion of the feed-bar.

In the drawings, the letter A designates the cloth-plate of my sewing-machine, from which rises the arm or goose-neck B, the face of which forms the guides for the needle-slide and for the presser-slide. From the under surface of this cloth-plate project two lugs, *a*, which form the bearings for the main shaft C, from which motion is transmitted to the working parts of the machine. The feed-bar D has its fulcrum on a screw-stud, *b*, which is secured in the under side of the cloth-plate, and which passes through a slot, *c*, in said feed-bar, so that this bar is free to move in the direction of its length and also to assume an oscillating motion. The rear end of the feed-bar forms a ring or eye, *c'*, which embraces a cam, E. This cam consists of a cylinder, which is placed in an oblique position and feathered on a vertical arbor, F. It is provided at its lower end with a circular groove, into which is fitted a ring or strap, *d*, that is pivoted to the forked end of a lever, G. This lever has its fulcrum on a stud, *e*, which extends from a slide, F, that is guided in a slotted bracket, H, secured to the under side of the cloth-plate, and said slide connects, by a rod, I, with a thumb-screw, J, so that by turning this thumb-screw the position of the slide *f* and of its stud *e* is changed, and thereby the length of the stitches is regulated. The front end of the lever G is fork-shaped, and it catches over a stud, *g*, which extends from a slide, *h*, that moves in a slot in the bracket H. From this slide extends a stud, *i*, which engages with a cam-groove formed in a disk, K, that is mounted on the main shaft. By turning this main shaft, therefore, an oscillating motion is imparted to the lever G, whereby the oblique cam E receives a reciprocating motion, and, as this cam slides back and forth in the eye of the feed-bar D, the required feed-motion is produced. By moving lever G the oblique cam E receives a reciprocating motion, and as this cam slides back and forth in the eye of the feed-bar D, the required feed-motion is produced. By turning the shaft which carries the oblique cam E, the direction of the feed-motion is changed, and by moving the fulcrum of the lever G the throw of the oblique cam is increased or decreased, and thereby the length of the stitches is regulated, as above stated.

The feed-bar is made in two sections, its front section being connected to the main section by means of a pivot, *j*, and subjected to the action of a spring, which depresses the same upon a lever, L, that rests upon a cam, M, mounted on the main shaft. By the combined action of this cam and spring the front section of the feed-bar is alternately raised or

lowered, so that the teeth of the feed-dog N, which rests on said front section of the feed-bar, are caused to engage with the work, when the feed-motion is to take place, and then said teeth are lowered out of contact with the work, in order to allow the feed-dog to recede, ready for a fresh forward movement.

The feed-dog, which has been generally used in connection with this universal feed mechanism is made circular, being firmly secured to the feed-bar, and made to embrace the needle-throat, so that by turning the oblique cam said feed-dog is adapted to feed in any desired direction. If a rectilinear seam is to be produced, however, with this feed mechanism, the work is liable to be thrown out of the right line, and it requires constant attention to maintain the proper direction. In order to overcome this difficulty I remove the circular feed-dog from the feed-bar, and substitute therefor a bracket carrying a pin, *l*, (see Figs. 1 and 2,) which engages with a slot, *m*, in a slide, O, that carries the feed-dog N°. The slide O is fitted into a recess in the cloth-plate, and it is provided with projections *n*, which catch in grooves in the sides of said recess, and prevent the slide from being displaced accidentally. The feed-dog N°, which is firmly secured to or made solid with the slide O, may be made square, or in any desirable form, and in the example shown in the drawings it is provided with teeth on different sides of the needle-throat. By these means the feed-slide O is compelled to move in a straight line.

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

The combination of the feed-bar D, which is free to move in the direction of its length, and also assume an oscillating motion, of the bracket carrying the pin *l*, the rectilinear feed-slide O, carrying the feed-dog N°, and provided with slot *m* to receive said pin *l*, and the cloth-plate, substantially as described, whereby the feed-dog is prevented from being thrown out of its rectilinear path by the oscillating motion of the feed-bar, as set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 11th day of December, 1876.

HENRY FEYH. [L. S.]

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.