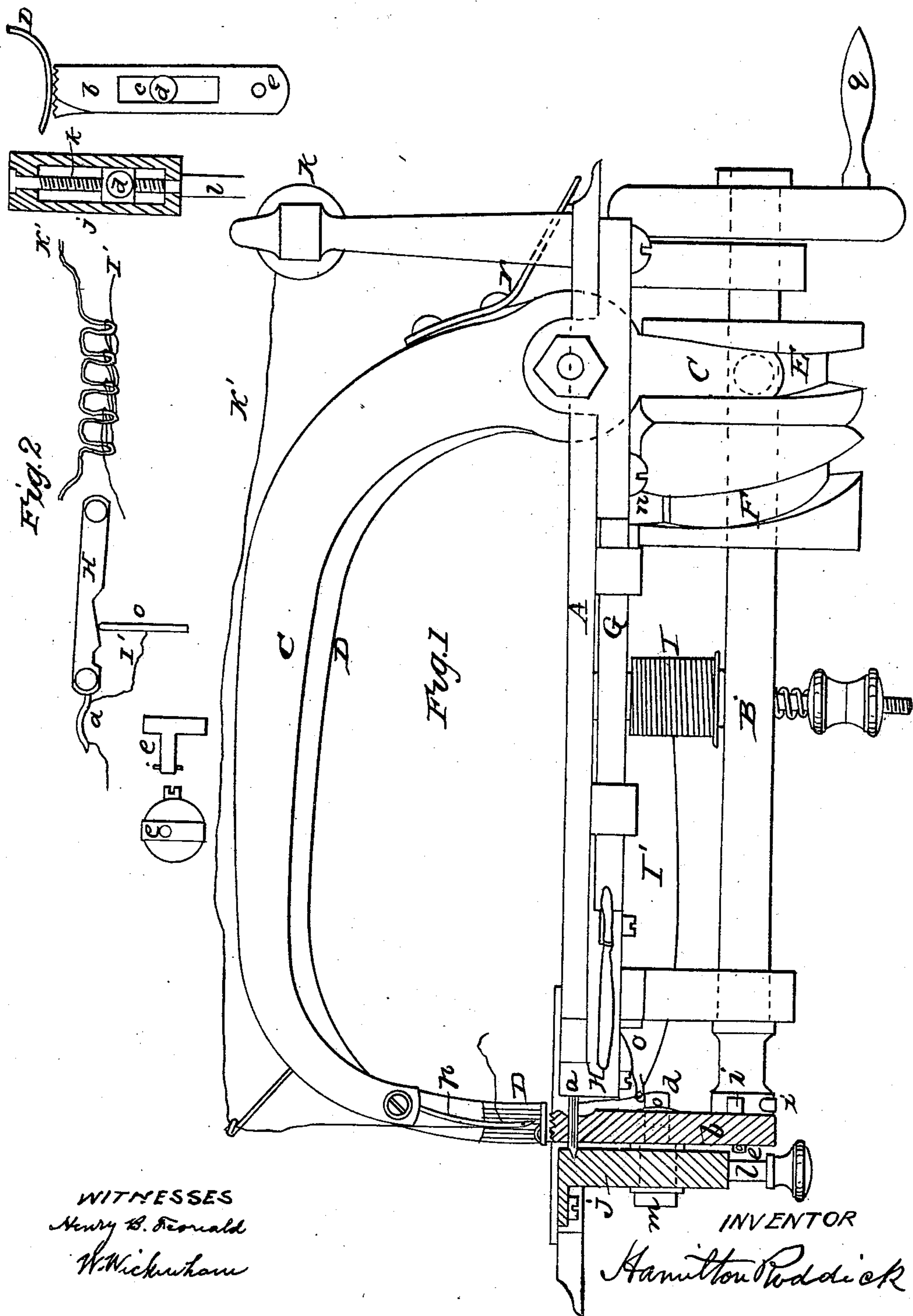


H. RUDDICK.
Sewing Machine.

No. 28,538.

Patented May 29, 1860.



WITNESSES
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HAMILTON RUDDICK, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF
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IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 28,538, dated May 29, 1860.

To all whom it may concern:

Be it known that I, HAMILTON RUDDICK, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement on the Sewing-Machine; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side sectional view, showing each part of the machine in its working position. Fig. 2 shows separately and in section, the parts of the feeding apparatus; also, it shows the lower needle, together with the bar which holds it and gives it the necessary motion.

My invention consists in an improvement in the feed motion, or, in other words, in that part of the sewing-machine which moves the cloth far enough for a stitch each stitch that is sewed.

Although I have applied my improvement to a particular kind of machine, yet it may be applicable to any sewing-machine.

In the illustration of my machine, A is the table. B is the revolving shaft. C is the needle-lever. D is a cloth-presser. E is the cam which gives motion to the needle-lever. F is the cam which gives motion to the slides G and H and the horizontal needle *a*. I is the lower, K is the upper, spool of thread. *b* is the feed-lever, which has the upper surface roughened, and has a slot, *c*, in it, which is made of suitable size for the pin or movable fulcrum *d*. Said lever has a hole, *e'*, in the lower end for the crank-pin *e* to work in. This crank-pin *e* is attached to a movable slide, *i*, which is fitted into a groove in the end of the shaft B in such manner as to enable the operator to adjust the crank motion to any desirable length by moving the crank-pin *e* nearer or farther from the center of the shaft; and when it is thus adjusted it is secured in its position by means of a set-screw. The object of this arrangement is to cause the upper or feeding surface of the feed-lever *b* to rise a less or greater distance above the table, if desired, as some kinds of fabrics need the feeding-surface to rise higher than others to feed perfectly. Simply lengthening or shortening the said crank, as just described, will effect this. One end of the pin

or fulcrum *d* is made square and fitted adjustably into the groove or slot *k* in the stand *j*. This fulcrum *d* is moved up to shorten the stitch, and down to lengthen it, by means of the screw *l*, and then fastened, when adjusted, by the nut *m*.

Motion to the upper needle, *p*, is given by the cam E through the needle-lever C. The longitudinal motion of the slide G and the lower needle, *a*, are given by the cam F through the roll *n*; but the lateral motion of said needle *a* is given by the side of the needle-holder H, being made of a suitable form, and passing against the projection *o* as it is moved forward. By turning the crank *q* the upper needle is made to pass down through the cloth and through the loop of the lower needle. The lower needle then withdraws, leaving its thread around the upper needle, and then passes forward through the loop of the upper needle. The upper needle then withdraws and passes down through the cloth in another place, and through the loop of the lower needle, as before described, and thus alternately, by a kind of knitting process, producing a seam, as shown at I' K', Fig. 2; but as the feed-motion is the subject of this application it will not be necessary to describe the other parts of the machine any further than merely to show the connection of said feed-motion with sewing-machines generally.

The operation of the feed-motion is as follows: When the top of the shaft B is made to turn toward the operator, the crank-pin *e* will cause the lower end of the feed-lever *b* to move with a circular motion, and as the fulcrum *d* is stationary when adjusted the upper end of said lever will be caused to move with nearly a circular motion; and yet it is plain that its lateral motion will be in one direction when the crank *e* is above the center of the shaft, and in the other when the crank is below the center. To illustrate further, when a piece of cloth is placed on the table over the roughened surface of the feed-lever *b*, the cloth-presser D is made to press the cloth upon the table by means of a spring, *r*, at its other end, and when the top of the shaft is made to revolve toward you the upper end of the feed-lever will be pressed up against the cloth, and at the same time moving laterally and from you, causing the cloth to move from you as it slips

on the under side of the cloth-presser until the said lever sinks away from the cloth by means of its circular movement, always moving toward you when it is down and from you when it is against the cloth, producing a regular intermittent feed-motion to the cloth for each stitch sewed.

As before stated, the fulcrum *d* is movable by turning the screw *l*; and it will readily be seen that if the said fulcrum *d* is moved up nearer the table it will make the feeding motion of the upper end of said lever shorter, and if the fulcrum is moved downward it will, on the contrary, make the feeding motion longer

After having thus explained my machine, what I claim as my invention, and wish to secure by Letters Patent, is—

Adjusting the length of the crank *e* by means of the slide *i*, or its equivalent, in combination with the feed-lever *b*, vibrating on the adjustable fulcrum *d*, in order to cause said feed-lever to pass a greater or less distance above the surface of the table or cloth-plate, substantially as and for the purpose herein specified.

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Witnesses:

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