(No Model.)

A. SPEAR.

FEED MECHANISM FOR SEWING MACHINES.

No. 260,906. Patented July 11, 1882.

Fig. 1.

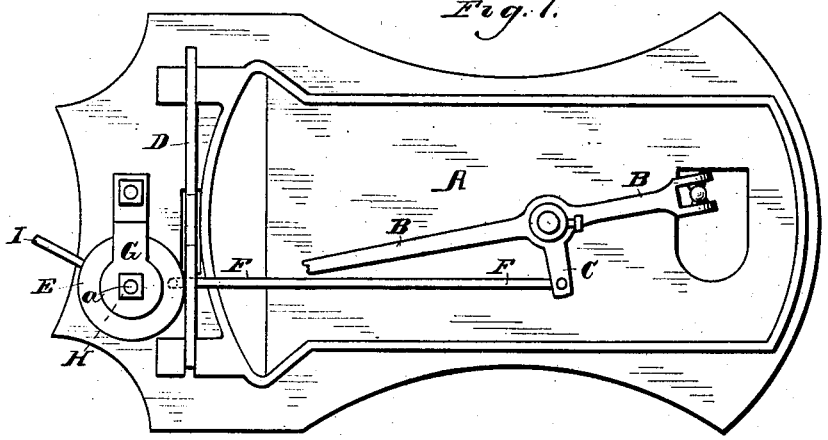


Fig. 2.

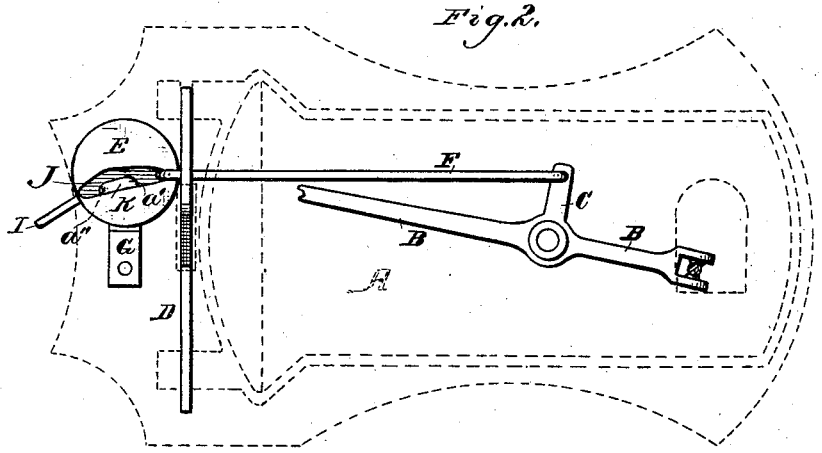


Fig. 3.

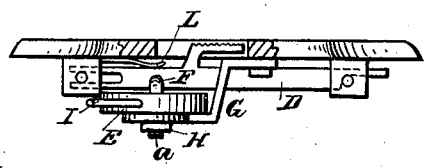


Fig. 4.

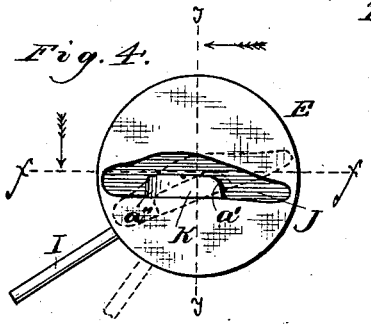


Fig. 5.

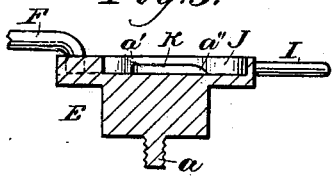
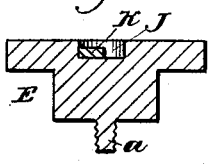


Fig. 6.



Witnesses.

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UNITED STATES PATENT OFFICE.

ARTHUR SPEAR, OF CHICAGO, ILLINOIS.

FEED MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 260,906, dated July 11, 1882.

Application filed October 17, 1881. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR SPEAR, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sewing-Machines, of which the following, in connection with the accompanying drawings, is a specification.

In the drawings, Figure 1 is a bottom view of a sewing-machine embodying my invention. Fig. 2 is a top view of the parts applied to the bottom of the machine, the bottom plate being represented by dotted or broken lines and the other parts by full lines. Fig. 3 is an end view of the parts shown in Figs. 1 and 2. Fig. 4 is a top view of the feed-regulating cam; and Figs. 5 and 6 are sections in the planes of the lines *x x* and *y y*, respectively.

Like letters of reference indicate like parts.

My invention relates to that class of sewing-machines having a "four-motion" feed; and it consists in the means, substantially as hereinafter set forth, which I employ for the purpose of actuating and regulating the feed-bar.

A represents the bottom of the machine. B is a laterally-vibrating shuttle-carrying lever. C is an arm extending laterally from the lever B. D is the feed-bar. E is the feed-regulating cam, and F is a rod passing freely through the feed-bar, one end of which is bent to travel in the cam E, and the other end of which is pivoted to the arm C. G is an offset fastened to the bottom of the machine and supporting the cam E. H is a nut run on a screw, *a*, depending centrally from the cam E, by which means the cam is held to its seat. The cam E is capable of being partially rotated on its seat, and I is an arm or lever entering the cam to facilitate rotation. J is a cam-groove or depression in the working-face of the cam, and K is a cam-projection in the said groove. The bent end of the rod F stands in the groove J, as is clearly indicated in Fig. 2, and that end of the part K then next to the rod F is rounded off, or has a rounded outer corner, as shown at *a'*, so that the rod F, in moving toward that corner, will strike it and be diverted off around the vertical or exposed edges of the part K and left behind the opposite or rear end thereof, the form of the groove J being such as to leave rod F behind the part K when the rod has completed its back-stroke. The rear end of the projection K is beveled or inclined, as indicated at *a''*, so that the rod F, on its forward stroke, will ride over the projection K. While the rod F rides over the part K it is also pushed forward slightly by that side of the groove J next the part K. L is a spring exerting a downward pressure on the feed-bar.

It will be perceived from the foregoing description and on reference to the drawings that the reciprocation of the rod F produces four movements of the feed-bar—an up movement to throw the serrated feed-plate against the goods, a forward movement to feed the goods, a drop to take the feed-plate from the goods, and a back movement to set the feed for its next forward stroke. It will also be perceived that the length of the stitch may be varied or regulated by setting or turning the cam E in different positions. It will also so operate as to cause a proper feeding of the goods when the machine is run either backward or forward. It will also be perceived that I dispense with a number of parts heretofore deemed necessary in producing a practical four-motion feed. The movement at one working point—the point of connection of the rod F to the arm C—suffices for the production of the four movements of the feed-bar. The rod F may be reciprocated by any suitable means, preferably by means of the lever B and its arm in machines containing such a lever.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the feed-bar, the reciprocating rod F, and the cam E, the latter having therein the cam-groove J, in the bottom of which is the cam-projection K, substantially as and for the purposes specified.

2. The combination of the feed-bar, the reciprocating rod F, and the adjustable cam E, having in its working-face the cam-groove J, containing the cam-projection K, substantially as and for the purposes specified.

3. The combination of the feed-bar, the reciprocating rod F, the vibrating arm C, pivoted to the said rod, and the cam E, contain-

ing in its working-face the cam-projection K, arranged in the bottom of a cam-groove in the said face, substantially as and for the purposes specified.

4. The combination of the feed-bar, the reciprocating rod F, and the adjustable cam E, the latter having thereon the arm or handle I and containing the cam-groove J, having therein the cam-projection K, substantially as and for the purposes specified.

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