

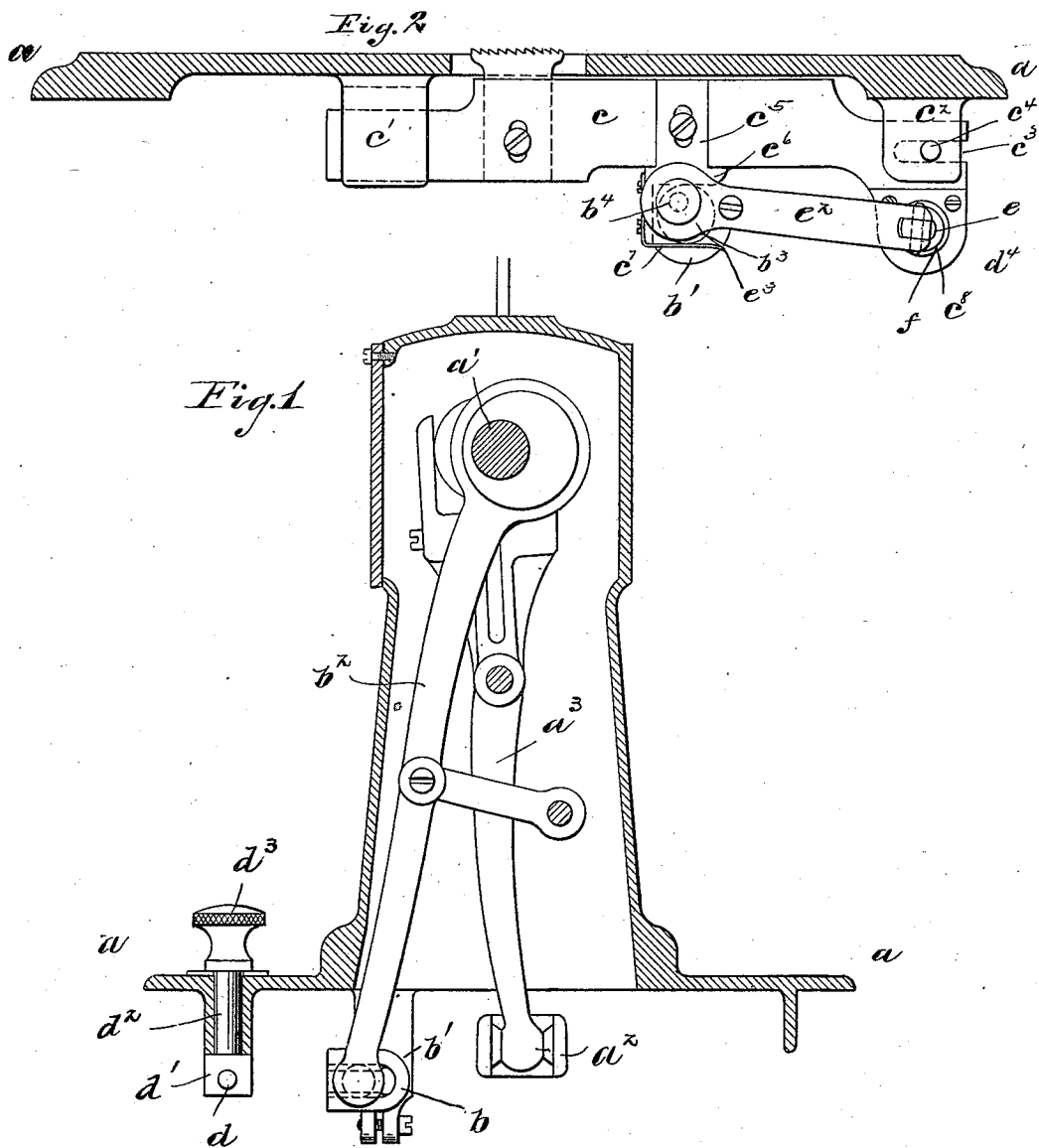
(No Model.)

2 Sheets—Sheet 1.

J. N. KELLY.
SEWING MACHINE FEED.

No. 507,737.

Patented Oct. 31, 1893.



WITNESSES:
J. E. Nash
D. H. Graham

INVENTOR
Joseph N. Kelly
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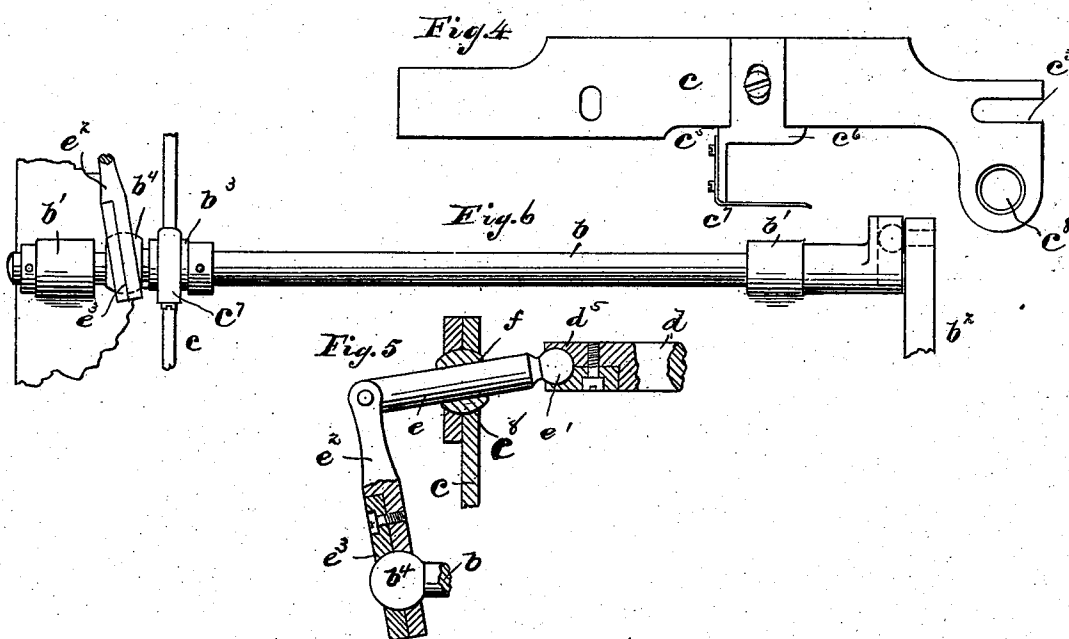
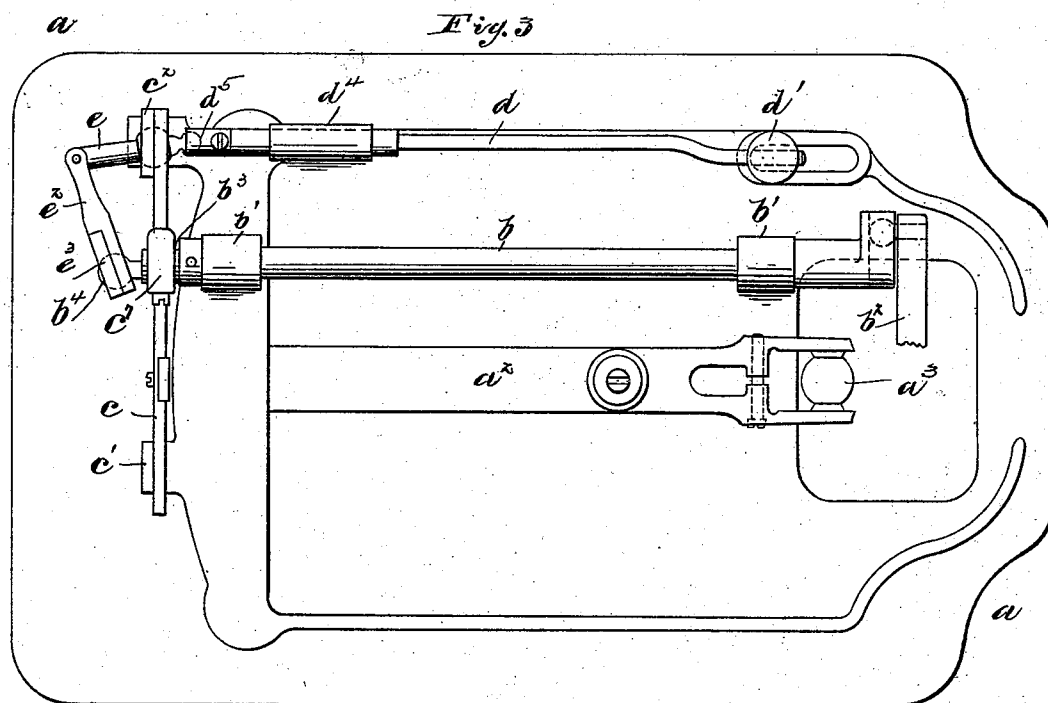
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SEWING MACHINE FEED.

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Patented Oct. 31, 1893.



WITNESSES:

J. E. Kelly
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INVENTOR

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UNITED STATES PATENT OFFICE.

JOSEPH N. KELLY, OF ARLINGTON HEIGHTS, ILLINOIS.

SEWING-MACHINE FEED.

SPECIFICATION forming part of Letters Patent No. 507,737, dated October 31, 1893.

Application filed April 3, 1893. Serial No. 468,772. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH N. KELLY, a citizen of the United States, residing at Arlington Heights, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sewing-Machine Feeds, of which the following is a specification.

My invention relates to improvements in sewing machine feeds; and the object of my invention is to provide a simple device capable of ready adjustment to vary the length of stroke of the feeding bar; the construction being such as to be readily adapted to machines of any desired character.

My invention consists in the various constructions and combinations of parts herein-after described and pointed out the claims.

In the accompanying drawings Figure 1 is a partial sectional view of the upper portion of a sewing machine, showing the means for driving the feeding mechanism. Fig. 2 is a sectional view of the plate, showing the feeding bar and some of the attachments therefor. Fig. 3 is a bottom plan view of the bed plate, showing the arrangement of the feed operating devices. Fig. 4 is a view in detail of the feeding bar. Fig. 5 is a detail view of some of the operating parts. Fig. 6 is a view of the feed operating shaft showing a slight modification.

Like parts are represented by similar letters of reference in the several views.

In the said drawings *a*, *a*, represents the frame or head of an ordinary sewing machine; *a'*, is the main shaft thereof, to which power is transmitted from any suitable device in the ordinary manner.

*a*², is the shuttle carrying device, which is driven from the shaft *a'*, by a vibrating lever *a*³, in the usual way.

On the bottom of the frame or head *a*, is a shaft *b*, supported in suitable bearings *b'*, *b'*, and receiving a rotary motion from the shaft *a'*, in any desired manner; a crank lever *b*², being illustrated for this purpose in Fig. 1. The shaft *b*, I term the feed shaft. It is provided near one end with a cam *b*³, and with an eccentrically arranged ball-shaped bearing *b*⁴. Arranged above the cam *b*³, at right angles to the shaft *b*, is the feed bar *c*, adapted to move longitudinally in suitable bearing supports *c'*, *c*², at each end, and provided at one

end with a slotted opening *c*³, adapted to slip over a pin *c*⁴, in the bearing *c*², which permits a longitudinal movement of said bar in the bearings, at the same time allowing it to rise and fall at one end on the pin *c*⁴, as a pivot. Connected adjustably to the feed bar *c*, is a bearing plate *c*⁵, the bottom of which has a bearing surface *c*⁶, in line with the cam *b*³, adapted to contact therewith. Arranged parallel with this bearing surface *c*⁶, and on the opposite side of the cam *b*³, therefrom, is a flexible cap or cover *c*⁷, also secured to the bearing plate *c*⁵; this flexible cap or cover consisting preferably of a flexible piece of steel or other suitable metal, adapted to bear on the cam *b*³, and press the same firmly against the bearing plate *c*⁶; said flexible cover being adapted to compensate for any irregularity in a diametrical size of the cam.

Extending parallel with the shaft *b*, is a longitudinally moving rod or shaft *d*, connected at one end to a sliding head *d'*, having an upwardly projecting stud *d*², which extends through the frame *a*, and is provided with a clamping screw *d*³, by means of which the head may be clamped to the frame and held in different positions of adjustment. This rod *d*, extends through a bearing *d*⁴, and is provided at the end with a socket bearing *d*⁵, adapted to receive a ball shaped journal *e'*, on the end of a vibrating arm or lever *e*. This shaft or pin *e*, is pivotally connected at its outer end to a link connection *e*², also formed with a socket bearing *e*³, which fits over the eccentric ball-shaped bearing *b*⁴, on the shaft *b*. Arranged loosely on the vibrating arm or lever *e*, is a ball-shaped bearing *f*, which fits in a corresponding socket *c*³, in the feed bar *c*.

The operation of the device is as follows: A revolution of the shaft *b*, causes a vertical vibrating movement of the feed bar through the medium of the cam *b*³. A vibrating movement of the arm or lever *e*, is also produced by the eccentric ball *b*⁴, operating through the link *e*³, which produces a longitudinal movement of the feed bar, which is journaled on said arm or lever through the medium of the movable ball-bearing *f*. The end of the arm or lever *e*, being journaled in the end of the rod *d*, a sliding movement of said rod changes the pivotal point of said arm or le-

ver *e*, with reference to the feed bar, and thus changes the length of stroke of the same; the ball joints described permitting the ready adjustment of the parts to any degree desirable.

5 In Fig. 3 I have shown the bearing *b'* arranged back of the cam *b³*, and the ball *b⁴*. It is obvious, however, that this bearing may be arranged at any point. In Fig. 6 I have shown it arranged at the outer extremity of
10 the shaft, with the ball *b⁴*, between the bearing and the cam. Other modifications of the arrangement may be made without departing from the spirit of my invention.

15 Having thus described my invention, I claim—

1. In a sewing machine feed, the combination with the feeding bar and revolving shaft, a cam for operating said feeding bar, a vibrating arm having a ball-shaped end journaled
20 in an adjustable bearing, a sliding ball-shaped sleeve on said arm journaled in said feed bar, and a connection from said vibrating arm to the cam on said shaft, substantially as specified.

25 2. The combination with the feeding bar, of a revolving shaft, a cam on said shaft, a vibrating arm connected to said cam, a ball-shaped sleeve on said arm journaled in said feeding bar, and an adjustable bearing for
30 supporting the end of said arm, whereby the same may be adjusted through said sleeve, to vary the stroke of the feeding bar and means for giving a rise and fall to said feed bar, substantially as specified.

3. The combination with the feeding bar, of 35 a revolving shaft, a cam on said shaft to contact with said bar and produce a vertical movement thereof, a vibrating arm having a ball-shaped end an adjustable bearing to support said arm, a ball-shaped sleeve loosely
40 mounted on said arm, and a bearing for said sleeve in said feed bar, and means, substantially as described, for producing a vibratory movement of said arm from said revolving shaft, substantially as specified. 45

4. The combination with a revolving shaft, of the feeding bar having a bearing surface, and an oppositely arranged yielding cap, a cam on said shaft between said bearing and
50 cap, a vibrating arm having a universal bearing in said bar, an adjustable support for the end of said arm, and a connection from said arm to said shaft, adapted to produce a vibratory movement thereof by the revolution of
55 said shaft, substantially as specified. 55

5. The combination with the revolving shaft *b*, feed bar *c* vibrating arm *e* connection
60 *e²* cam *b⁴* bearing *f* on said arm, adjustable bearing for supporting said arm and means for giving a rise and fall motion to the feed bar substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand this 29th day of March, A. D. 1893.

JOSEPH N. KELLY.

Witnesses:

LOUIE C. HAEFELI,
FRED H. LOVENZEN.