(No Model.) 2 Sheets—Sheet 1.

A. BOECHER.

FEEDING MECHANISM FOR SEWING MACHINES.

No. 345,948. Patented July 20, 1886.

Fig. 2.

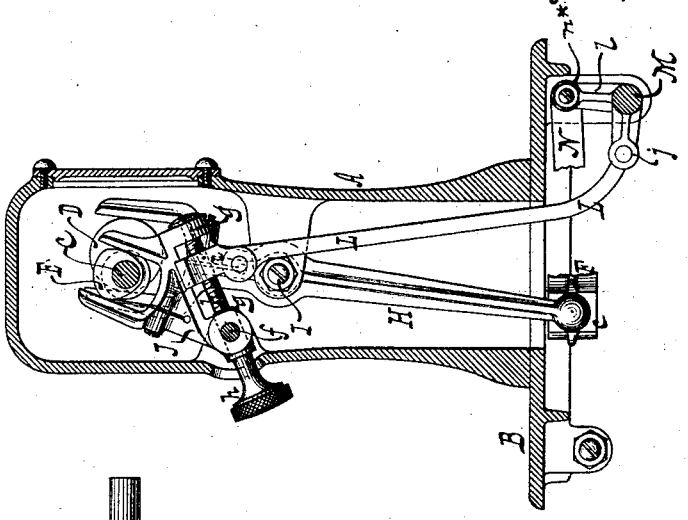
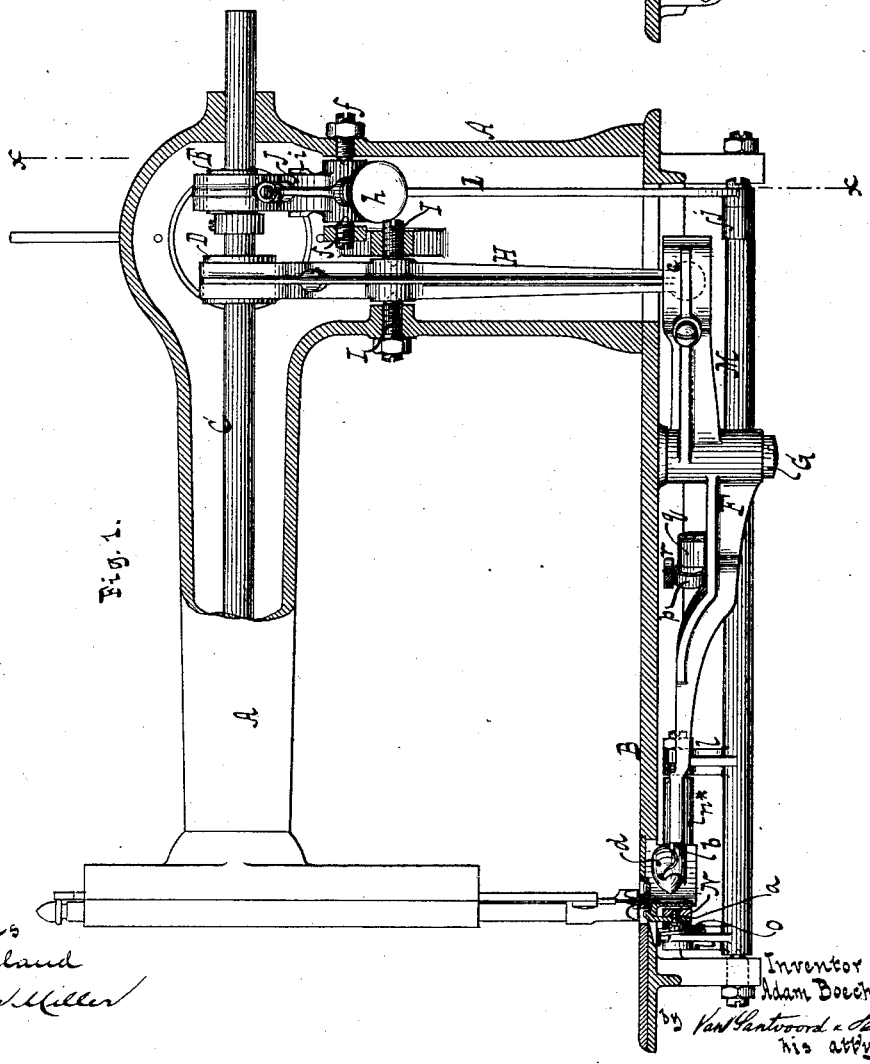


Fig. 1.



Witnesses
Otto Hufeland
William Miller

Inventor
Adam Boecher
by Van Santwood & Hauff
his attys

(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

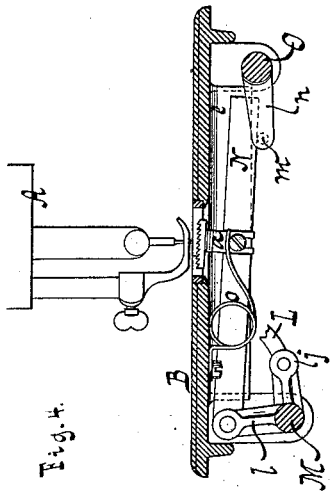


Fig. 5.

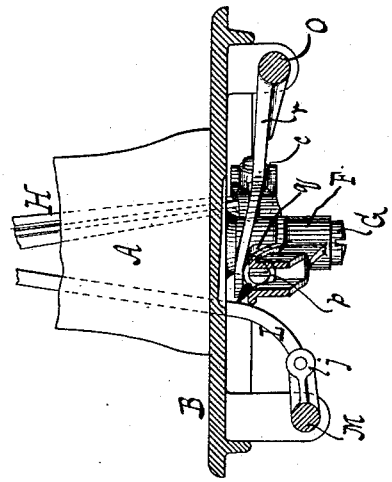


Fig. 3.

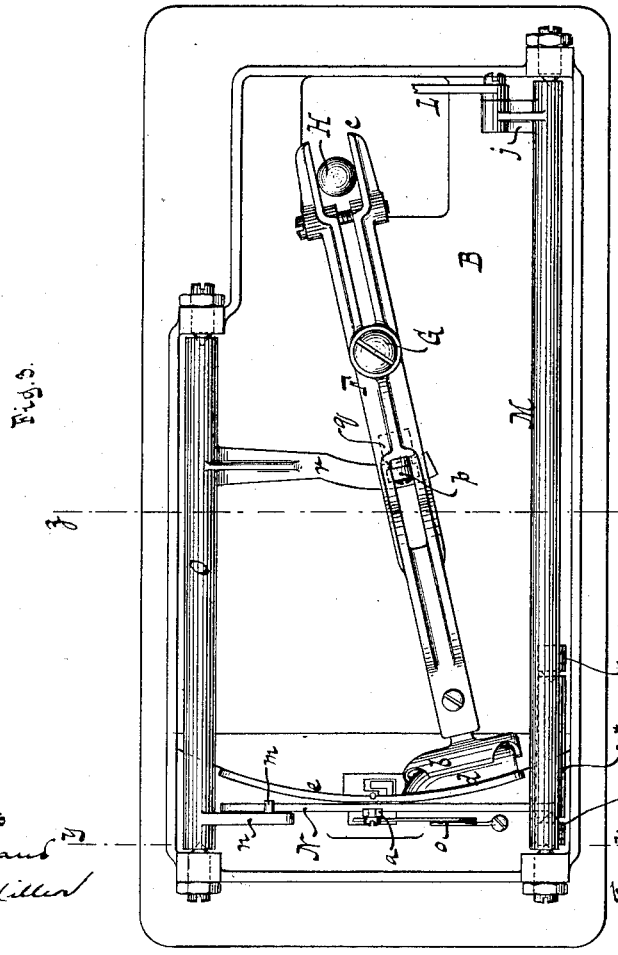
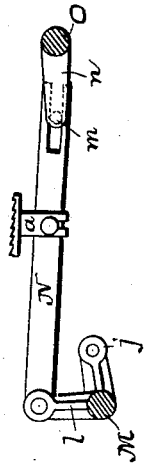


Fig. 6.



Witnesses
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UNITED STATES PATENT OFFICE.

ADAM BOECHER, OF NEW YORK, N. Y.

FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 345,948, dated July 20, 1886.

Application filed November 21, 1885. Serial No. 183,550. (No model.)

To all whom it may concern:

Be it known that I, ADAM BOECHER, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Feeding Mechanisms for Sewing-Machines, of which the following is a specification.

My invention relates to improvements in feeds for sewing-machines; and it consists in certain novel features of construction, which are fully pointed out in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a sectional side view. Fig. 2 is a section in the plane *x x*, Fig. 1. Fig. 3 is an inverted plan or bottom view. Fig. 4 is a section in the plane *y y*, Fig. 3. Fig. 5 is a section in the plane *z z*, Fig. 3; and Fig. 6, a detail view showing a modification hereinafter explained.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates the arm or standard of a sewing-machine rising from the cloth-plate B.

C is the main or operating shaft, which is journaled in the arm A and from which the needle-bar is operated. On this shaft are mounted two cams, D and E, by which a four-way motion is imparted to the feed-dog *a*, and also an oscillating motion to the shuttle-carrier *b*. The shuttle-carrier *b* is secured to one end of a horizontal lever, F, which is pivoted at G to the under side of the cloth-plate, while the other end of this lever is connected by a universal joint, *c*, to an upright oscillating lever, H, pivoted at I in the arm A of the machine. The upper end of this lever is forked and embraces the cam D, secured to the main shaft C. When the latter is rotated, the action of the cam on the lever H will cause the same to oscillate on its pivot I, and by means of the universal joint *c* a similar motion will be imparted to the lever F, whereby the shuttle *d* will be properly carried back and forth in the shuttle-race *e*. The forked ends of both the levers J and H are split, and are provided with clamping-screws to admit of a compensating adjustment for wear at those points.

The feed-bar is operated as follows: The cam E on the main shaft is embraced by the forked end of the elbow-lever J, which is pivoted at *f* in the arm A of the machine. This elbow-lever connects with the rod L by a slide, *i*. In the example shown in the drawings this slide is moved by a thumb-screw, *h*, which has its bearings in two lugs, *g*, projecting from said elbow-lever. The rod L connects the elbow-lever J with an arm, *j*, projecting from the rock-shaft M, and the arms *l*, Fig. 1, projecting from the same rock-shaft, carry the feed-bar N, to which the feed-dog *a*, is attached, so that its upper roughened surface will act on the work under the needle when the machine is in operation. By means of the thumb-screw *h* the slide *i* may be adjusted to a greater or less distance from the fulcrum *f* of the elbow-lever J, Fig. 1, whereby the motion of the connecting-rod L may be varied, thereby varying the throw of the feed-bar and regulating the length of the stitch. The feed-bar N is provided with a hub, *n**, which is carried loosely between the arms *l*, projecting from the rock-shaft M, and to permit the feed-dog to operate properly a rising and falling motion is imparted to it by a pin, *m*, projecting from an arm, *n*, on the rock-shaft O, the rotation of which causes the pin on the arm *n* to raise the feed-bar, while the action of the coiled spring *o* serves to depress the same as the arm *n* recedes. The rocking motion necessary for the latter operation is imparted to the rock-shaft O by an anti-friction roller, *p*, secured to a lug, *q*, projecting from the horizontal oscillating lever F. In the example shown in the drawings this roller acts on an arm, *r*, which projects from the rock-shaft O and has an incline on its outer end, Fig. 5, and, when the lever F oscillates, the rock-shaft O is rotated as the inclined surface of the arm *r* follows the motion of the roller *p*, on which it rests, of its own weight and by the action of the coiled spring *o*.

It will be evident that the spring *o* may be dispensed with if the pin *m*, instead of pressing against the outside of the feed-bar, is inserted through a slot in the arm *n*; but I prefer the above-described construction.

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

1. The combination, with a feed-bar, N, pivoted at one end, and devices for reciprocating the bar, of the rock-shaft O, having the inclined arm *r* and the arm *n*, having a

pin, *m*, engaging one end of the feed-bar, and the horizontally-oscillating shuttle-carrying lever F, having a roller or stud, *p*, between its pivot and shuttle-carrier, which acts directly on the inclined arm for rocking the said shaft O and raising and lowering the feed-bar, substantially as described.

2. The combination, with a feed-bar, N, pivoted at one end, and devices for reciprocating the bar lengthwise, of a rock-shaft, O, provided with the lateral arm *n*, engaging the feed-bar, and having the curved arm *r*, the horizontally-oscillating shuttle-carrying lever F, pivoted between its ends, and having a roller, *p*, between its pivot and the shuttle-carrier, which acts directly on the inclined arm, the main shaft C in the arm of the machine, the cam D, and the pivoted lever H, connecting with the cam and with one end of the shuttle-carrying lever, substantially as described.

3. The combination, with the rock-shaft M and the feed-bar N, pivotally connected at one end with said shaft, of the rock-shaft O, having the inclined arm *r*, and the arm *n*, having a pin, *m*, engaging the feed-bar and the shuttle-carrying lever F, oscillated horizontally from the main shaft C, and having a roller or stud, *p*, acting directly on the inclined end of the arm *r*, to rock said shaft O, substantially as described.

4. The combination, with the rock-shaft M, the feed-bar N, pivotally connected at one end therewith, and the spring *o*, for depressing the feed-bar, of the rock-shaft O, having an inclined arm, *r*, and an arm, *n*, provided with a pin, *m*, engaging the under side of the feed-bar, for lifting the latter, and the horizontally-oscillating shuttle-carrying lever F, extending beneath the inclined arm and acting directly against the under side of the inclined end thereof, substantially as described.

5. The combination, with the rock-shaft M and the feed-bar N, pivoted at one end thereto, of the rock-shaft O, having an inclined arm, *r*, and an arm, *n*, provided with a pin, *m*, engaging one end of the feed-bar, and a horizontally-oscillating shuttle-carrying lever, F, extending beneath the inclined arm, and provided on its upper side with a lug, *q*, and a roller, *p*, journaled to said lug and acting directly on the inclined end of the arm *r*, substantially as described.

6. The combination, with the rock-shaft M, having the attached arm *j*, the feed-bar N, pivotally connected with the shaft, and means for raising and lowering the feed-bar, of the pivoted elbow-lever J, having attached pendent lugs *g*, the main shaft C, having a cam, E, for oscillating said lever, a set-screw, *h*, journaled in the pendent lugs on the elbow-lever, the slide *i* on the screw, and the rod L, connected with the slide and with the arm on the rock-shaft, substantially as described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

ADAM BOECHER. [L. S.]

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