

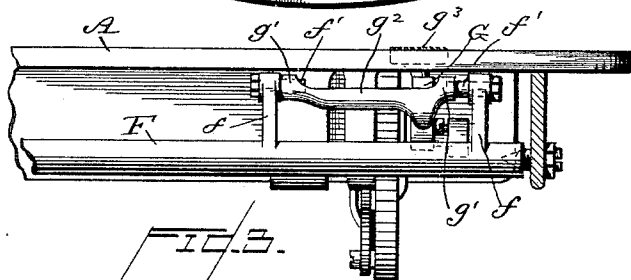
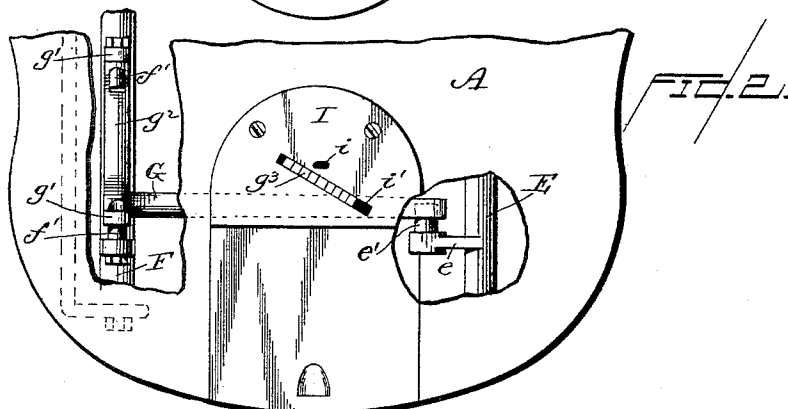
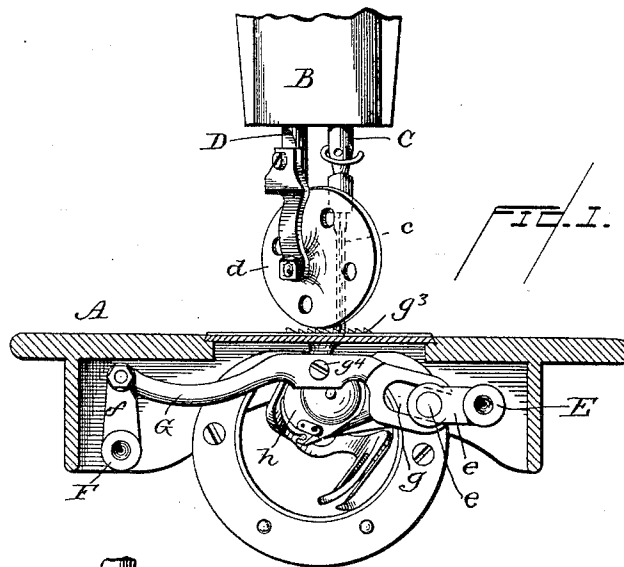
(No Model.)

P. DIEHL.

FEEDING MECHANISM FOR SEWING MACHINES.

No. 460,954.

Patented Oct. 13, 1891.



Witnesses:

A. S. Cushman.
J. G. Meyers Jr.

Inventor:

Philip Diehl,
by Henry Kalow,
Atty.

UNITED STATES PATENT OFFICE.

PHILIP DIEHL, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY OF NEW JERSEY.

FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 460,954, dated October 13, 1891.

Application filed February 14, 1891. Serial No. 381,434. (No model.)

To all whom it may concern:

Be it known that I, PHILIP DIEHL, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Feeding Mechanism for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to a diagonal feed, such as is shown by patent to Cummings, No. 427,556, dated May 13, 1890, and which is especially designed to be used in connection with two needles to form two rows of closely-placed stitches, the object of my invention being to provide a feeding mechanism of the class referred to which may be more cheaply constructed than that shown by the said patent, which will work with less friction, and which will be equally effective in operation.

To this end the feed-dog, which moves in a diagonal slot in the throat-plate, as in the patent referred to, is rigidly attached to the feed-bar, and the latter is so mounted on the arms of its operating rock-shafts that it will be free to move laterally on said arms as it is reciprocated back and forth, thus accommodating itself to the diagonal movements of the feed-dog.

In the accompanying drawings, Figure 1 is a partial end view, with the work-plate in section, of a "Singer" sewing-machine with my invention applied thereto. Fig. 2 is a partial plan view, with a portion of the bed-plate broken away, of the same; and Fig. 3 is a partial rear side view, or from the left of Figs. 1 and 2.

A denotes the work-plate of the machine; B, a portion of the head of the overhanging bracket-arm; C, the needle-bar; *c*, the needles carried thereby; D, the presser-bar, and *d* the diagonally-placed roller-presser, these parts being the same as in the machine shown by the patent above referred to.

Beneath the work-plate are mounted the feed-operating rock-shafts E and F, the former having the arm *e*, provided with a pin *e'*, entering a slot *g* in the forward end of the feed-bar G and serving to raise and lower said bar, and the rock-shaft F, which moves the feed-bar horizontally, having arms *f*, provided with

pins *f'*, entering ears *g'*, formed in the shaft *g*² at the rear end of the feed-bar, all of these parts last described, as also the oscillating shuttle *h*, being constructed and operating as in the well-known Singer machine, with the exception that in said machine no provision is made for lateral movements of the feed-bar.

The throat-plate I is provided with a slot *i* for the reception of the needles *c*, and with a diagonal feed-slot *i'*, in which works the diagonally-arranged feed-dog *g*³, rigidly attached to the feed-bar. The diagonally-arranged roller-presser *d* bears on said feed-dog.

The space between the arms *f* of the rock-shaft F is somewhat greater than the length of the shaft *g*² of the feed-bar, so that the latter will be free to move laterally (as it is moved back and forth by the rocking movements of the shaft F) on the pins *f'*, passing loosely through the ears *g'* of the feed-bar, the pin *e'*, carried by the arm *e* of the lifting rock-shaft being of sufficient length so that as the feed-bar moves away from said arm it will not lose engagement with said pin, as will be understood by reference to Fig. 2.

From the foregoing it will be apparent that as the feed-bar is reciprocated back and forth the diagonal guiding-slot in the throat-plate, in which the feed-dog fits closely laterally, will cause the diagonal feed-dog working therein to follow its direction, and as the feed-bar thus moves back and forth in making its feeding and return movements it will also reciprocate laterally on the pins *e'* and *f'* with but little friction, this construction requiring but little change in the machine as ordinarily made.

The needles *c* are placed directly one behind the other in a line transverse of the machine, or in the plane in which the shuttle *h* oscillates, so that the loops of both needles are readily taken by the shuttle, and as the work is fed diagonally to the needles two lines of closely-placed stitches are formed, as is desirable in much work in ladies' shoes and boots.

The terms "diagonal" and "diagonally-arranged" as herein used will therefore be understood to mean diagonal or diagonally-arranged relative to a line or plane directly transverse of the machine, and the term "laterally" as

herein employed in connection with the feed-bar and feed-dog will be understood to mean laterally of these parts, or, in other words, having reference to a plane at right angles, 5 or approximately so, to the longitudinal or feeding movements thereof.

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

1. In a sewing-machine, the combination, 10 with a throat-plate provided with a diagonal feed-slot, of a diagonally-arranged feed-dog fitting closely laterally in said slot, a laterally-movable reciprocating feed-bar, to which said dog is rigidly attached, and means for operating said feed-bar. 15

2. In a sewing-machine, the combination,

with a throat-plate provided with a diagonal feed-slot, of a diagonally-arranged feed-dog working in said slot, a feed-bar to which said dog is rigidly attached, and feed-operating 20 rock-shafts having pins or supports, on which said feed-bar is loosely mounted and on which it moves laterally as it is reciprocating back and forth in its feeding and return movements. 25

In testimony whereof I affix my signature in presence of two witnesses.

PHILIP DIEHL.

Witnesses:

J. G. GREENE,
W. J. PETTIT.