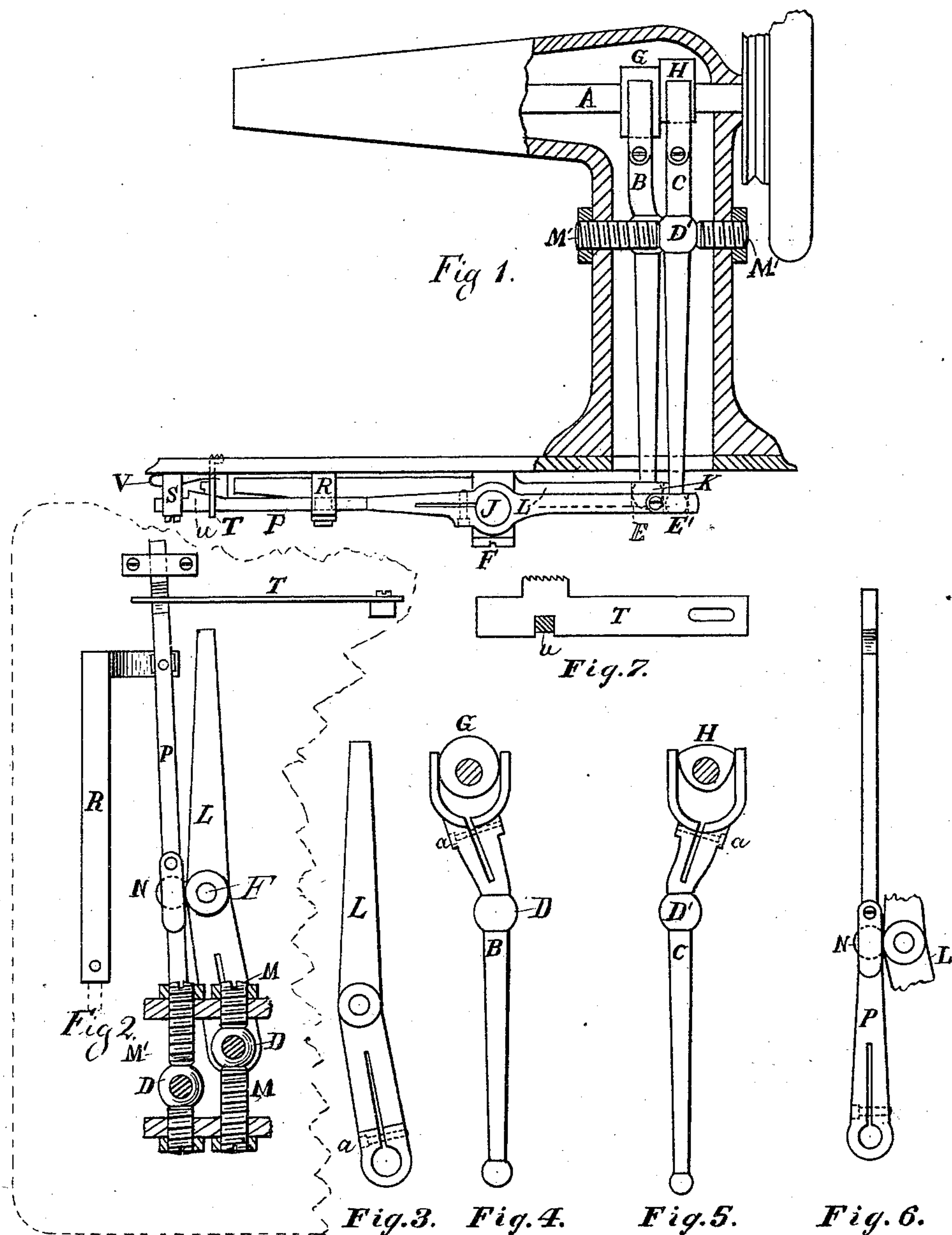


H. E. DIETERLE.

Feeding Mechanism for Sewing Machines.

No. 232,010.

Patented Sept. 7, 1880.



Witnesses

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HENRY E. DIETERLE, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO GUSTAV BANDELOW, OF SAME PLACE; SAID DIETERLE AND BANDELOW ASSIGNORS TO FRANK MACK, OF CLEVELAND, OHIO.

FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 232,010, dated September 7, 1880.

Application filed February 28, 1880.

To all whom it may concern:

Be it known that I, HENRY E. DIETERLE, of the city of Chicago, in the county of Cook and State of Illinois, have invented certain
5 new and useful Improvements in Feeding Mechanism for Sewing-Machines; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, of which—

10 Figure 1 is a side elevation, partly in section, of a sewing-machine embodying my improvements; Fig. 2, a plan view of my improvement and its connections, the bed-plate of the machine being indicated by dotted lines; and
15 Figs. 3, 4, 5, 6, and 7, detail views.

My invention relates to mechanism for imparting a four-movement to a feed-bar; and my object is to communicate all four of the movements to the feed-bar by means of a single lever and a spring.

The specification of my shuttle-actuating mechanism, which forms the subject of Letters Patent of the United States No. 218,811, dated August 20, 1879, accurately describes
25 so much of my present device as relates to the imparting to the feed-lever of two of its four movements—viz., the forward and back movements—for it will be seen that the lever C, which actuates the feed-lever P, is mounted
30 side by side with the lever B, which actuates the shuttle-lever L; also, that it is supported by means of a ball, D', embraced between the concave ends of threaded pins M'; that it is forked at its upper end to receive an actuating-cam, H, on the driving-shaft A; and that
35 the joint E' at its lower end, which connects it with the feed-lever P, consists of a ball sitting within a circular hole extending through the end of the said lever, all these parts according literally with the corresponding parts
40 of the shuttle-actuating mechanism, as shown in the patent above referred to.

It is desirable, however, to make the cam H triangular instead of circular, like the eccentric G, in order that the feed T, when in
45 the act of rising or falling, may be at rest with respect to the forward and back movements. So far, therefore, as my feed-actuating mechanism operates to produce the forward and

back movement of the feed-bar, it consists merely of a new application of the mechanism described and claimed in my said former Letters Patent, and accordingly no claim is made to it herein, save in its relation to other parts, to which I am about to refer.

The principal novelty of my present invention lies in the means by which I obtain the other two movements of the feed-bar T—viz, the upward and the downward—all from the same lever P, and this I shall now proceed to
60 describe.

Upon the side of the fulcrum-point of the shuttle-lever I form a short horizontal projection, terminating in a ball, N, which sits and slides within a circular hole, J, formed horizontally through the lever P, and of such diameter as just to receive the said ball. Thus the vibration on its fulcrum of the lever L causes the ball N to vibrate in a short arc, and to impart to the lever P a longitudinally-
70 reciprocating motion.

The lever P has its fulcrum at the point of its connection to the stitch-regulator R, (in which it also slides back and forth to the extent of its longitudinal reciprocation,) and not
75 at its point of connection to the lever L. As a consequence, at each vibration induced by the lever C it moves in and out upon the ball N. This it is obviously perfectly free to do without in the least affecting the regularity
80 of the longitudinally-reciprocating action imparted to it by the vibrating ball N, and almost without friction, owing to the smoothness and ease with which the joint operates.

S is a bearing at the outer end of the bed
85 of the machine, upon which the lever P rests and slides. Near its outer extremity the said lever is provided on its upper side with a wedged projection, u, which sits within a notch formed in the feed-bar T. Thus the lateral
90 vibration of the said lever P, imparted to it by the lever C, communicates to the feed its forward and back movement, while the longitudinal reciprocation imparted by the vibrating shuttle-lever communicates through the medium of the wedged projection u the required
95 upward movement.

The feed upon being raised is carried down

again by the action of a spring, V, which bears upon it.

The stitch-regulator R is made adjustable by means of a set-screw passing through a slot 5 in the bed of the machine to different points along the lever P, thus permitting the variation at will of the relative lengths of the arms of the said lever, and hence of the sweep of the short arm which carries the feed, and the 10 feed-plate is provided with a slot, and is secured to its bearings by a pin passing through the slot to give it the requisite play, all in the usual manner.

The several levers are slotted inward from 15 their sockets and forks, and provided with set-screws *a* near the outer ends of the said slots to permit their accurate adjustment to the various balls or eccentrics, as the case may be.

From the foregoing description it will readily be seen that, important as the universal joint at the point of suspension of the actuating-lever is in the case of the shuttle mechanism, it is even more so in that of the feed mechanism, owing to the additional movement to 25 which the actuating-lever is required in the latter case to accommodate itself, and hence of its more extensive vibration—that is to say, in the case of the lever B the lateral sliding of the fork upon the eccentric G is only in proportion to the arc described by the end of the 30 lever L, while in the case of the lever C the sliding of the fork upon the cam H is necessarily much greater, being in proportion to the longitudinally-reciprocating movement of

the lever P. The joint, moreover, is required 35 to adapt itself to a much more complicated movement in the latter case than in the former, though this circumstance does not in the smallest degree impair or affect the action of the device. 40

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

1. The feed-lever P, provided with the round hole J, extending horizontally through it, in combination with the vibrating shuttle-lever 45 L, provided at its fulcrum-point with a rigid horizontal projection, the ball N, fixed upon the said projection and sitting within the hole J, mechanism for imparting to the said feed-lever a lateral vibrating movement, and the 50 feed-bar T, substantially as described, and for the purpose set forth.

2. The combination of the feed-lever P, provided with a round hole, J, as shown, vibrating shuttle-lever L, provided at its fulcrum-point with a rigid horizontal projection, ball 55 N upon the said projection and sitting within the hole J, stitch-regulator R, feed-bar T, actuating-lever C, connected to the said feed-lever by the joint E', and provided at its point 60 of suspension with the ball D', supporting-pins M', having concave ends to receive the ball D', and mechanism for vibrating the said lever C, substantially as described.

HENRY E. DIETERLE.

In presence of—

P. C. DYRENFORTH,
GUSTAV BANDELOW.