

C. GULLMANN.  
Sewing-Machine.

No. 127,867.

Patented June 11, 1872.

Fig: 1.

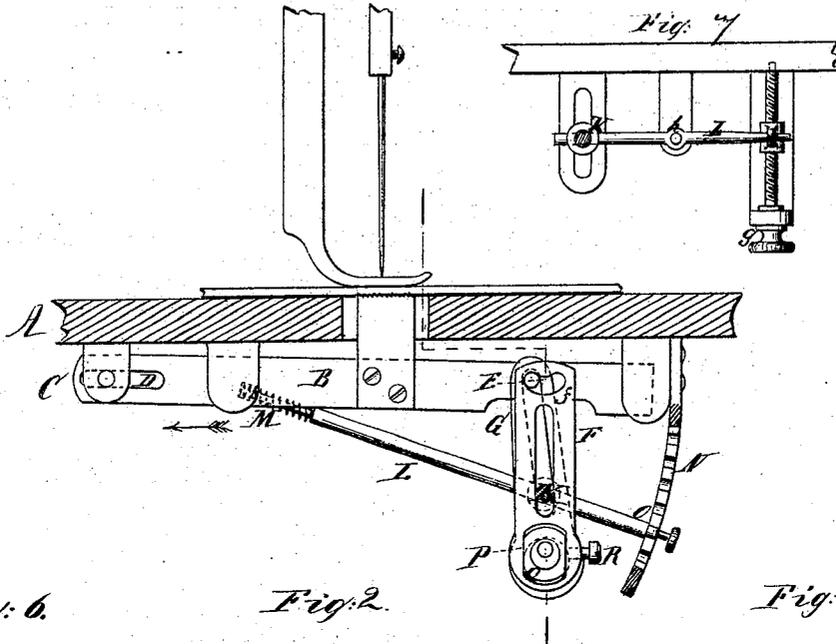


Fig: 7

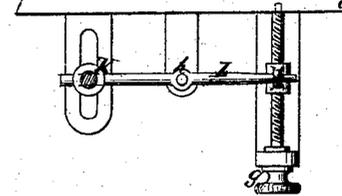


Fig: 6.



Fig: 2.

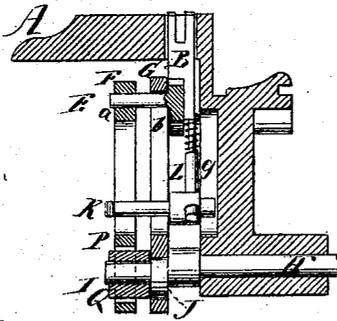


Fig: 5.

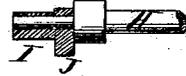


Fig: 3.

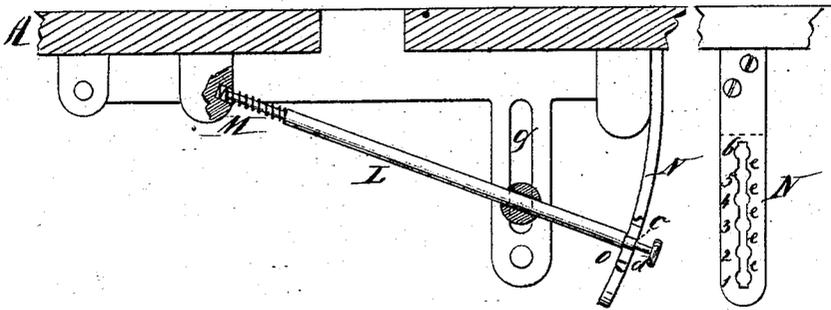


Fig: 4.

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# UNITED STATES PATENT OFFICE.

CHRISTOPHER GULLMANN, OF PATERSON, NEW JERSEY.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 127,867, dated June 11, 1872.

*To all whom it may concern:*

Be it known that I, CHRISTOPHER GULLMANN, of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Improvement in Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 is a front elevation of my improvement, shown in connection with the table of a sewing-machine, the table and some other parts being in section, taken in a line parallel with the feed-bar. Fig. 2 is a vertical section taken in the line *xx* of Fig. 1. Fig. 3 is a vertical section, which shows the adjustable fulcrum-rod of the feed-levers and its connections, the feed-levers and the feed-bar being omitted. This section is also in a line parallel with the feed-bar. Fig. 4 is a detached front view of the gauge-plate. Fig. 5 is an axial section of the eccentrics I J in the driving-shaft. Fig. 6 is a detached view of the outer end of the fulcrum-rod.

Similar letters indicate corresponding parts.

This invention relates to the feed of sewing-machines; and consists in a feed-motion composed of two independent feed-levers mounted on eccentrics on the same shaft, and having a common adjustable fulcrum, and connected with the feed-bar of a sewing-machine by means of a stud which projects from the feed-bar into slots provided in both levers. That one of the feed-levers which imparts vertical motion to the feed-bar is made capable of adjustment radially on the shaft, so that it can be set higher or lower thereon, as desired, the means employed for this purpose consisting of an independent journal-box, having two of its sides straight, and fitted in the heel of the lever in such a manner that the lever can be raised or lowered thereon and fastened by a set-screw. The adjustable fulcrum consists of a stud that projects from a rod into or through suitable slots provided in both the feed-levers, the rod which carries the stud being held by one end in a yielding manner in a convenient part of the frame beneath the table, while its other end is fitted in a notched plate in such a manner that when the rod is

pushed backward its free end can be moved up or down opposite a higher or lower notch, and when released and allowed to move against the notched plate it engages with one of the notches and is held stationary therein.

The letter A designates a portion of the table of a sewing-machine, in connection with which my invention is illustrated in this example. The feed-plate B is supported at one end on a stationary pin, C; which projects into a horizontal slot, D, made in the feed-bar, and at the opposite end the feed-bar is supported by the feed-levers by means of a stud, E, which projects from the feed-bar into the slots *a b* in the levers. The feed-levers are seen in section in Fig. 2, where the letter F designates the lever which imparts the vertical motion to the feed-bar, and the letter G designates the lever which imparts horizontal motion thereto. These levers are also shown in Fig. 1, the lever G being partly hidden by lever F. Both levers obtain motion from the same shaft H, the lever F being mounted upon an eccentric, I, on that shaft, and the lever G upon the eccentric J, the arrangement and proportions of said eccentrics in this example being about as shown in Fig. 5, which is an axial section of that portion of the shaft which carries them, the direction of the feed being as indicated by the arrow in Fig. 1. If the feed is to take place in the opposite direction the eccentric for the feed-lever which imparts vertical motion should be placed on the shaft opposite to the other eccentric instead of on the same side, as is here shown. It will be necessary, in case of such a change, and in cases where changes are made in the positions of the feed-levers relatively to the feed-bar, as where the levers are placed on the opposite side of the machine, that the eccentrics be arranged in such relative positions to one another that the movements of the feed-levers shall occur at the proper times relatively to each other. The feed-levers F G have a common fulcrum, consisting of a pin, K, on a rod, L, one end of which rod is inserted in a socket, M, in a convenient part of the frame of the machine beneath the table, in which socket it has a yielding bearing, composed of a spiral spring arranged around the rod, one end of the spring resting on the bottom of the socket while the other end abuts against a shoulder

formed on the rod. The other end of the rod passes through a curved gauge-plate, N, which extends downward from the table of the machine, and is provided with a series of circular holes that are connected to each other so as to form a series of contracted openings numbered 1, 2, 3, 4, &c., the numbers indicating the gauge at which the fulcrum can be set in the levers. The rod passes through the openings in the gauge-plate as far as the shoulder O, formed on the rod. Next to the shoulder O the rod is reduced for a space equal to the thickness of the plate to such a diameter as to fit in any of the openings 1, 2, 3, &c., of the plate, as indicated at *c*, and is then again reduced in diameter, as at *d*, so that it can pass through the contractions *e* between the openings, which reduced end of the rod protrudes through the plate, and is provided with a thumb-piece, upon which pressure is made when it is desired to change the position of the rod, the operation being that the rod is, by such pressure, moved inward in the socket M so as to move the part *c* out of the plate and bring the reduced part *d* in the line of the openings, when the rod can be moved up or down to the proper position; and if then released its spring will push it outward, so that the part *c* will occupy that one of the openings 1, 2, 3, &c., which is opposite to it. The fulcrum-pin *k* is kept always in the same vertical line by means of a vertical guide-slot, *g*, in the frame of the machine, into which slot the rear of the pin extends, and the body of the fulcrum-pin being perforated to let the rod L extend through it loosely, so that the pin and rod can move on each other. The fulcrum-pin *k* of the rod moves with the rod in slots *a*, *b*, arranged longitudinally in the levers, the slot *a* in lever G extending nearly to its end, so as to receive the stud which projects from the feed-bar. The lever F has also a transverse slot, *f*, near its end, which receives the stud of the feed-bar, as is shown in the drawing. The feed-lever G is bored out at its lower end to fit directly upon its eccentric J; but the lower end of the feed-lever F has an opening, P, with straight sides, in which fits a journal-box, Q, that is bored out to fit on the

other eccentric I, the lever F being adjusted and secured to the box in a higher or lower position by means of the set-screw R.

By the construction and arrangement here described I produce a feed-motion in right lines, and am able to adjust the extent of motion with facility.

It will be observed that while the horizontal movements of the feed-bar are produced by the lever G and its vertical movements by the lever F, yet both levers have a continual mutual control upon each other through the agency of the pin E of the feed-bar, which is limited in its horizontal movements by the form of the slot *a* in lever G, and in its vertical movements by the slot *b* of lever F; and, furthermore, the conjoint action of the levers on the pin E so controls the feed-bar that the revolution of the eccentrics I J causes it to move in straight lines and produce a four-motion feed, so called, the feed-bar being first raised, then, while it is raised, moved forward in a horizontal direction, then brought down to its lower position, and next backward horizontally to the place it started from.

Fig. 7 is a modification of my arrangement for raising and lowering the fulcrum-pin so as to change its position in the slots *a*, *b* of the feed-levers, the fulcrum-rod being operated by a worm or screw, *g*, working in a nut formed on the movable end of the rod, the fulcrum-pin on the end of the rod L being movable, and the middle part of the rod being pivoted to the frame at *h*.

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

1. The feed-levers F G and eccentrics I J, connected and combined with the feed-bar B, substantially as described.

2. The adjustable fulcrum for the feed-levers, composed of the yielding rod L provided with a fulcrum-pin, K, that engages with feed-levers, as described, when combined with the gauge-plate N, substantially as described.

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