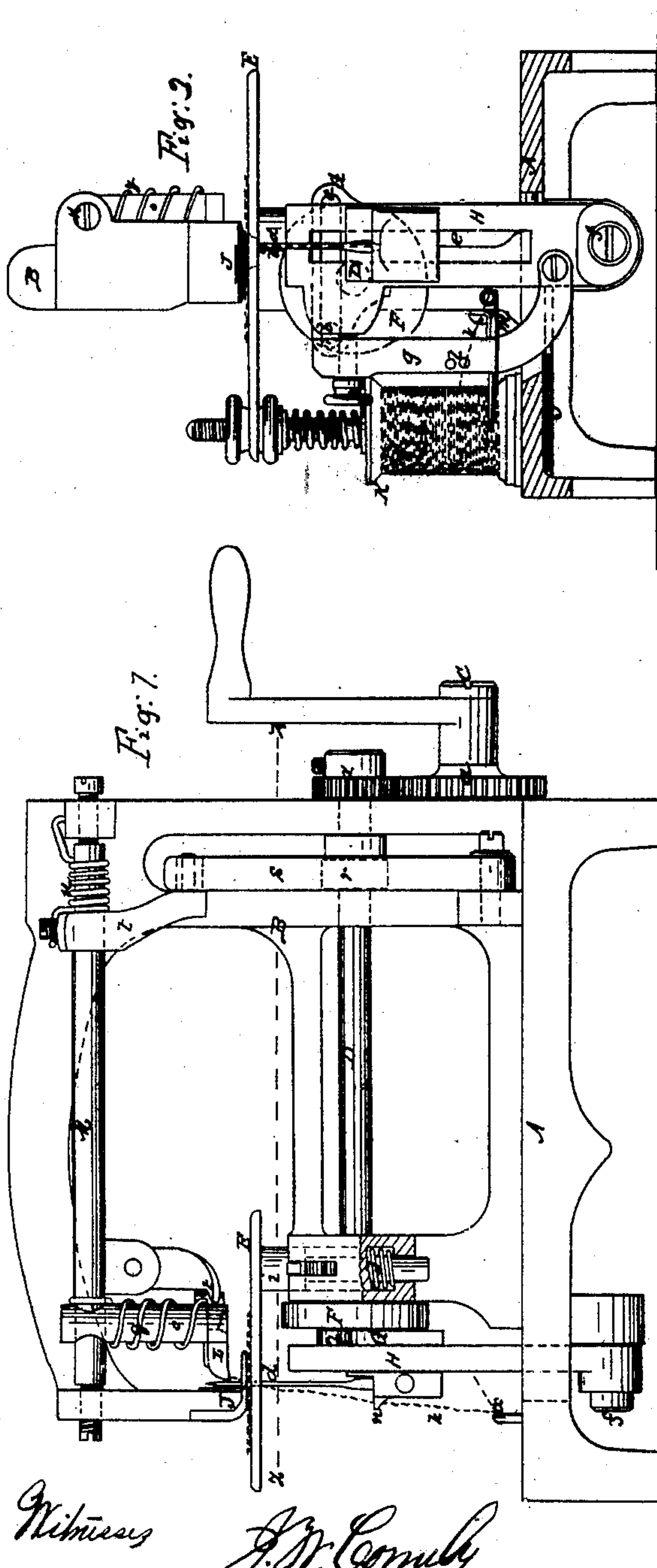


J. C. DRIGGS.
SEWING MACHINE.

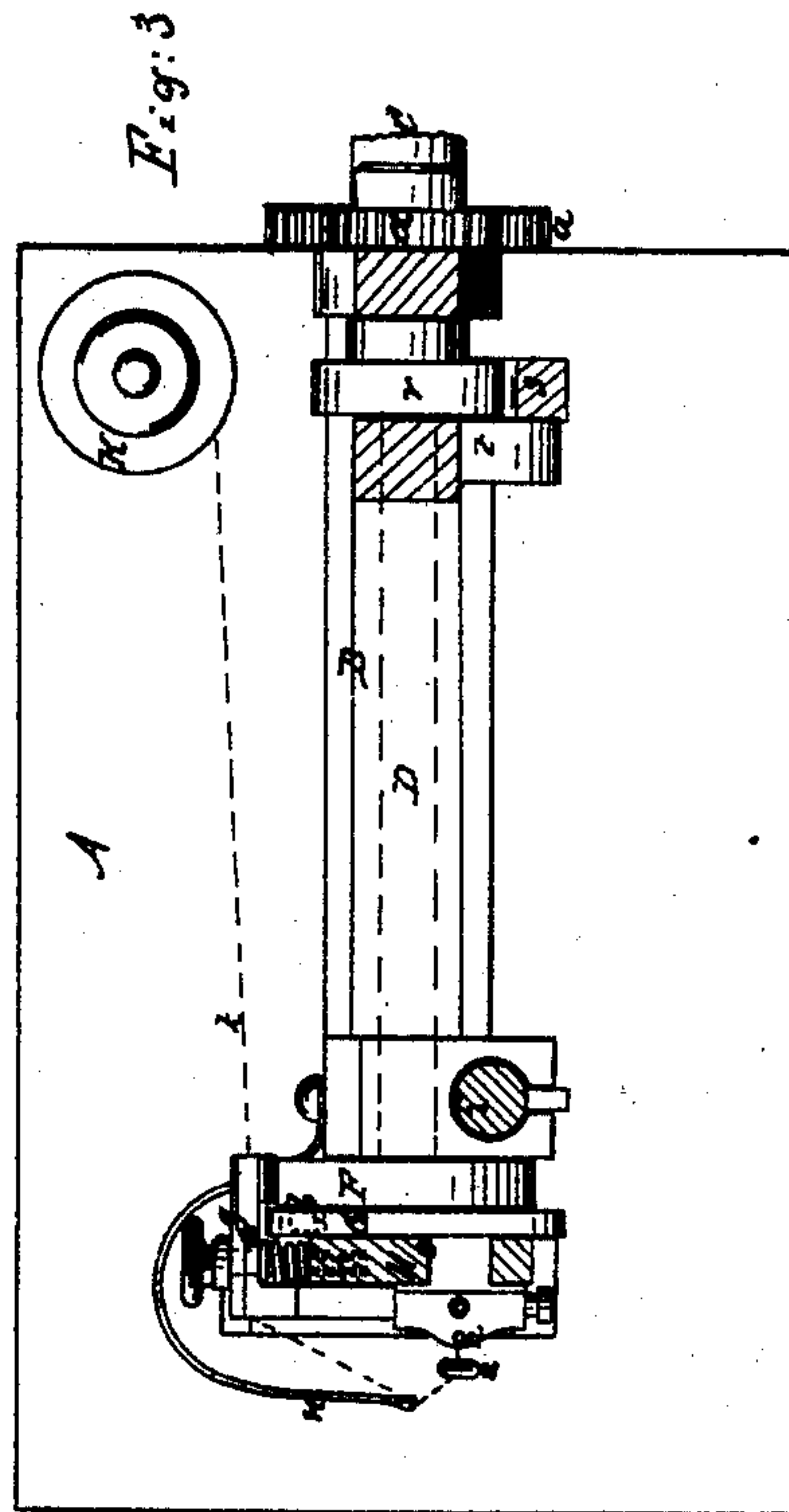
No. 61,176.

Patented Jan. 15. 1867.



Witnesses

J. W. Combs
G. W. Reed.



Inventor

J. C. Driggs.

United States Patent Office.

JEHIEL C. DRIGGS, OF NEW YORK, N. Y., ASSIGNOR TO MATTHEW T. HIGGINS.

Letters Patent No. 61,176, dated January 15, 1867.

IMPROVEMENT IN SEWING MACHINES.

The Schedule referred to in these Letters Patent and making part of the same

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JEHIEL C. DRIGGS, of the city, county, and State of New York, have invented a certain new and useful Improvement in Sewing Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, which forms part of this specification, and in which—

Figure 1 represents the side view of a sewing machine constructed according to my invention.

Figure 2, a front elevation of the same with the base-plate in section; and

Figure 3, a horizontal section, taken as indicated by the line *z z* in fig. 1.

Similar letters of reference indicate corresponding parts throughout the several figures.

The one part of my invention relates to the gripe or hold of the cloth or other work upon the table of sewing machines, and the nature of it consists in giving the table a lifting or upward pressure, so as to hold the cloth against a fixed foot above, whereby the insertion of the cloth between the foot and table and removal therefrom are facilitated. The nature of another part of my invention, which is specially applicable to those machines that employ a needle-feed, consists in a novel combination of a rotating crank or eccentric pin working in a horizontally-slotted arm or piece that is made to slide up and down or reciprocate in another vertically-slotted arm, which serves as a guide to direct the up-and-down motion of the needle, said latter arm being made capable of rocking by means of a spring to throw it in one direction, and a cam on the needle-operating shaft acting upon a lever to work it in the other, for the purpose of producing a needle-feed, and whereby, in both the up-and-down and lateral or feeding actions of the needle, not only is the usual needle-bar dispensed with, but much complication avoided, and a greater compactness insured; and the nature of my invention further consists in a novel combination, with a needle working from below upwards through the table, of a looper above the table, attached by a pivot to an arm radiating from a rocking-shaft, and operated by a guide and spring, to give it, in a simple and efficient manner, its necessary movements to catch and spread out the loop in the formation of a chain stitch.

To enable others skilled in constructing and making sewing machines to understand its construction and operation, I will now proceed to describe my invention as exhibited in the accompanying drawing.

Though applicable in part to other machines, my invention is here shown as embraced in a single-thread machine employing a needle-feed, the needle working from below and looper above the table. In the drawing, the portion marked A represents the base-plate of the machine; B, the upper framework mounted thereon; C, a driving-shaft, giving motion by gear *a a* to the needle-operating shaft D, which is arranged to run from back to front below the level of the table E. Projecting from the face of a cam, F, carried by the needle-shaft in front, is an eccentric pin, *b*, that plays in a horizontal slot, *c*, of an arm or piece, G, to produce the necessary up-and-down motion through and out of the cloth to the needle *d*, which it carries, said horizontally-slotted arm being guided in said motion by a box or projection from it working in a vertical slot, *e*, of a rocking-arm or lever, H, that has its fulcrum *f* below. This lever H is rocked intermittently at intervals, that is, in a forward direction along or across the table through a slot therein, to produce the feed of the cloth, when the needle, by the action of the eccentric pin *b* and horizontally-slotted arm G, has passed up through the cloth, and afterwards, when the needle is out of the cloth, in a reverse or backward direction, to establish a fresh feed by means of the cam F on the needle-shaft D, acting on or against a branch, *g*, of the lever H, to produce the feeding stroke of the needle, and a spring, *J'*, pressing against said lever to throw it back after the feed has been effected. To regulate the amount of feed, each stroke, and, of a consequence, the length of stitch, the branch *g* is jointed or hinged below to the lever H, and connected with it at the top by a set-screw, *h*, that, accordingly as it (the screw) is turned to the right or left, adjusts the distance of the branch *g* from the cam F, and consequently the throw of the rocking-lever H, that carries in its vertical slot the horizontally-slotted needle-arm or piece G. By this simple combination of the transversely-slotted arms G and H, operating together and operated as described, and rotating cam F actuating the one-slotted arm H, not only may the one shaft D serve to communicate both the up-and-down and lateral or feeding motions to the needle, and the cam which gives the feeding stroke be the carrier of the eccentric pin, that by its gear with the horizontally-slotted arm secures to the needle its penetration of and withdrawal from the cloth, but the usual needle-bar is dispensed with, and the whole forms a compact arrangement that may lie below the table. The cloth-table E is made free to move up and down, or,

in other words, has an upward spring or pressure by means of a stem, *i*, projecting from its bottom and fitting so as to be capable of sliding vertically in a box of the frame B, that carries the spring *j*, which, acting against the table or stem thereof, has a tendency to press the table upwards, but which, yielding on force being applied to the top of the table, allows of the latter being depressed for the introduction and removal of the cloth between it (the table) and a presser-foot, J. This presser-foot is stationary in relation to the vertical motion of the table, and may be rigidly secured to the frame B at its front upper end. To keep the table E from turning, it may be guided by a projection from its stem *i*, working in a slot in the box of the frame that carries the stem, as shown in figs. 1 and 2. This combination of a table having a spring or upward pressure and stationary presser-foot gives increased facility for putting in and taking out work, as the pressure of the hand of the operator on the table whilst inserting or removing the work depresses the table, and consequently opens the space between the table and presser-foot, thus dispensing with a separate application of force or motion to accomplish the same. K is the bobbin or reel, and *k* the needle thread, which, passing through an eye, *l*, in the lever-branch *g*, is led through a loop in a spring, *m*, that acts as a take-up to the slack of the needle thread, and from thence through a fixed loop, *x*, and hole *n* in the needle-slide up through the eye of the needle. As the needle in its descent or back motion through the usual slots in the presser-foot and table forms a slack of the thread above the cloth or work, the loop so established is caught and spread or held open for the next upward movement of the needle to pass thread through, in the formation of a chain stitch, by a looper, L. To secure this necessary action of the looper, it is made capable, after having caught the loop and towards the completion of and return from its forward stroke, of reciprocating horizontally, by pivoting it to a rod or arm, *o*, radiating from a rocking-shaft, M, said looper being directed in its one horizontal swing by a guide, *p*, and in the other by a spring, *q*, and said rocking-shaft M, the motion of which causes the looper to enter and retire from the loop, being operated by a cam, *r*, on the driving-shaft acting against a lever, *s*, which is pivoted to an arm, *t*, fixed to the rocking-shaft, a spring, *x*, serving to return the rocking-shaft after having been swung by the action of the cam *r*.

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

1. The combination, in needle-feeding machines, of the horizontally-slotted arm G, operated by a crank or eccentric pin D, and carrying the needle, vertically-slotted arm H, with its adjustable branch and spring J, and rotating cam F, for giving to the needle its twofold motion, substantially as specified.
2. The combination, with a needle working from below up through the table, of a looper L above the table, acted upon by a spring *q* and guide *p*, and pivoted to a rod or arm *o*, radiating from a rocking-shaft M, essentially as herein set forth, and for the production of a single-thread or chain stitch.

J. C. DRIGGS.

Witnesses:

A. LE CLERC,
J. W. COOMBS.