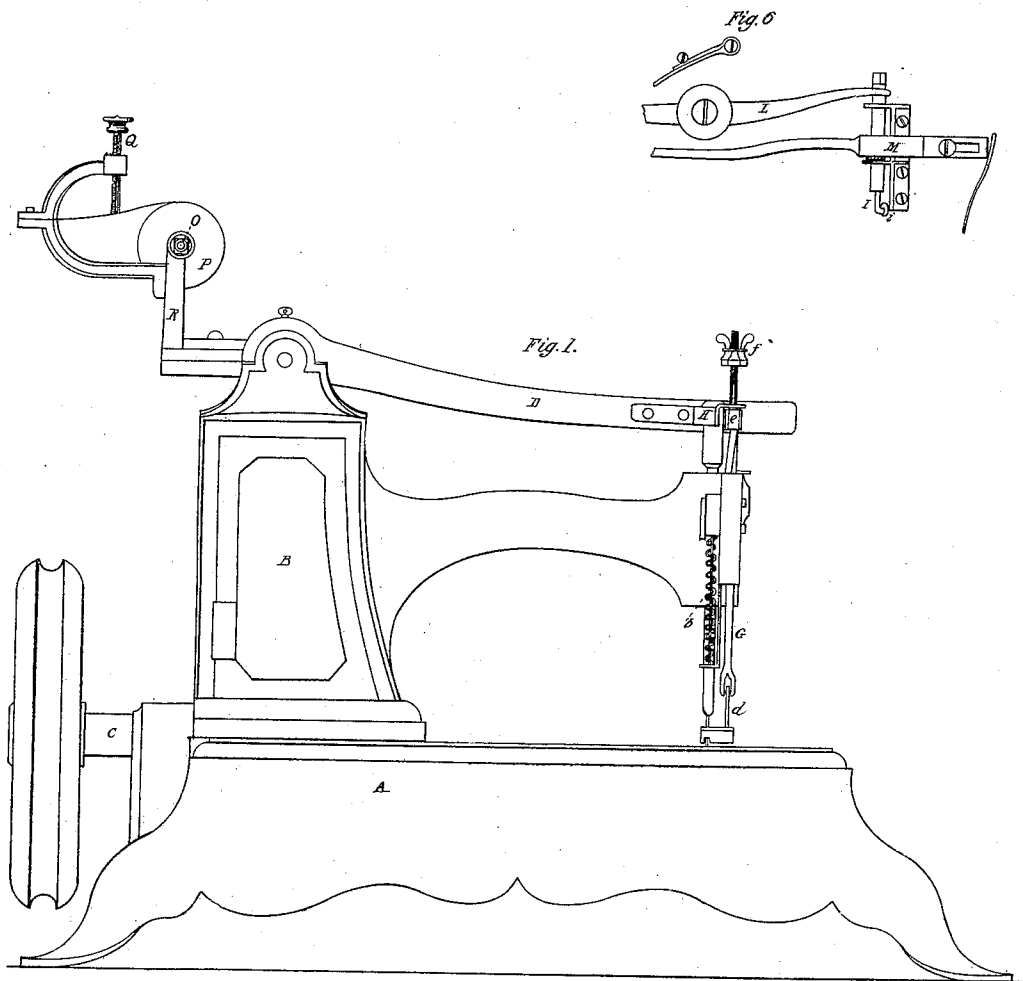


J. E. HENDRICK.
SEWING MACHINE.

No. 19,660.

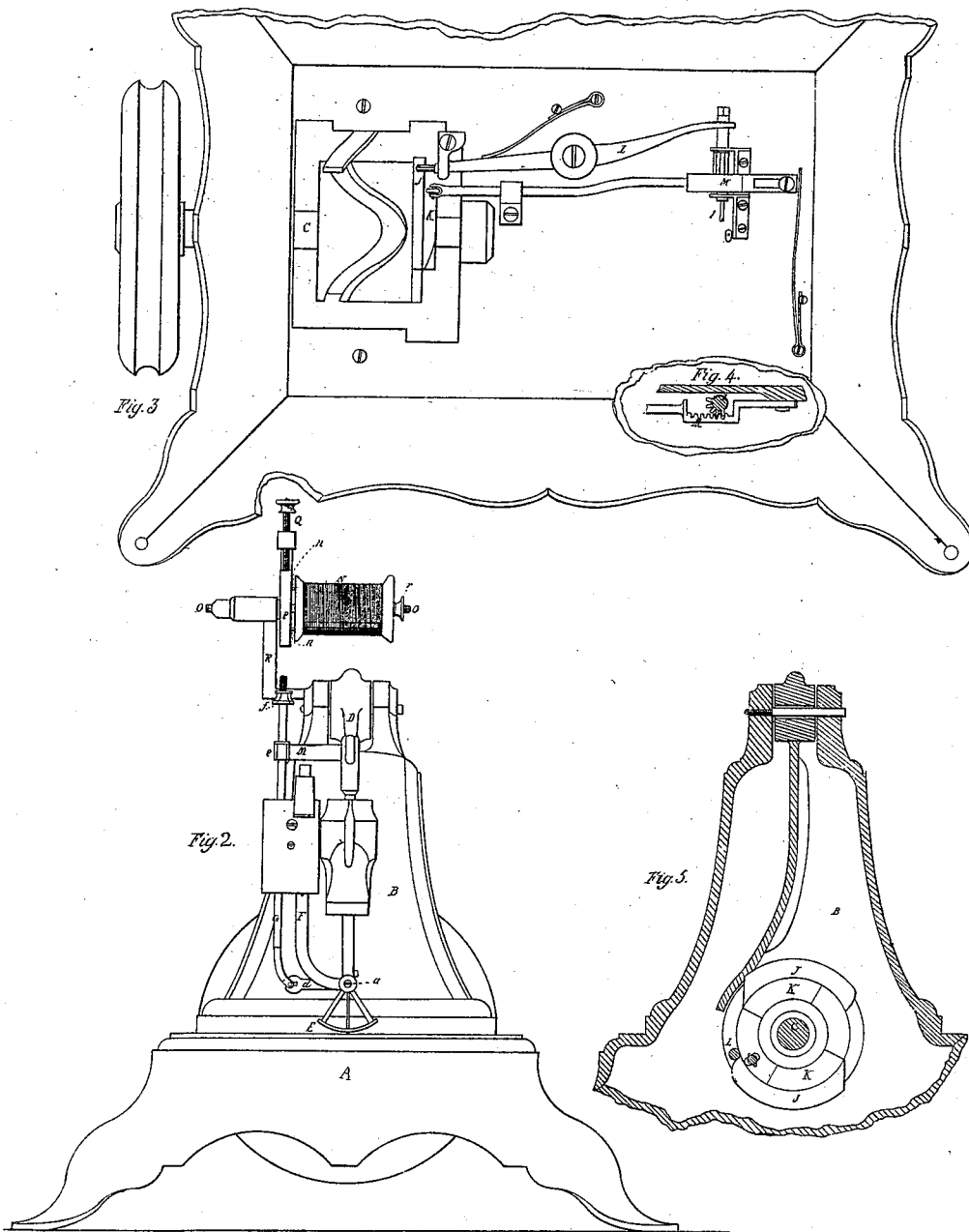
Patented Mar. 16, 1858.



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UNITED STATES PATENT OFFICE.

JOSEPH E. HENDRICK, OF BROOKLYN, E. D., NEW YORK, ASSIGNOR TO HIMSELF AND WILLIAM HOLMES, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 19,660, dated March 16, 1858.

To all whom it may concern:

Be it known that I, JOSEPH E. HENDRICK, of Brooklyn, Eastern District, in the county of Kings and State of New York, have invented certain Improvements in Sewing-Machines, the construction and operation of which I have described in the following specification and illustrated in the accompanying drawings with sufficient clearness to enable competent and skillful workmen in the arts to which it pertains or is most nearly allied to make and use my invention.

My said invention consists in, first, a combination of parts, hereinafter described, which constitutes a reciprocating rotary feed above the bed or table upon which the cloth upon which the work is to be performed is placed; second, the peculiar construction of the looper which receives the loop and delivers it to the needle, and in its connection with other parts described, set forth, by which a more efficient action and cheaper construction are obtained; third, attaching the thread-spool to a carrier which is allowed to rotate under the control of an adjustable friction-brake, as herein more fully set forth.

In the accompanying drawings, Figure 1 is a side elevation of my improved machine. Fig. 2 is an end elevation of it. Fig. 3 is an inverted plan, showing the under work. Fig. 4 is a detail view, showing in some respects the mode of operating the loop-former. Fig. 5 is also a detail view showing in elevation the cams which give motion to the working parts. Fig. 6 is a detail view showing the loop-former in a different position from that shown in Fig. 3.

A is the bed-plate of the machine. B is the upright in which the needle-beam is hung. C is the cam-shaft. D is the needle-beam. Most of the parts are made in the usual manner in which such parts of sewing-machines are made.

A segmental pad is hung upon a journal at *a*, which attaches it to a slide-bar, F, which, by means of the spring *b*, keeps the pad E down to the cloth. An arm, *d*, is attached to the pad to which arm the slide G is attached to give the necessary feed motion to the cloth or other fabric to be sewed. This is done by the arm H, attached to the needle-beam, striking against stops *e* and *f* on the slide G—the

stop *f*, so as to vary the feed, as the distance between the stops being increased reduces, and vice versa. The cloth is fed forward when the needle is in its highest position, and the return motion of the feeder is made when the needle is in the cloth. As soon as it commences its upward motion a loop-former, I, is driven forward by cam motion, so as to seize the loop upon the fork in the end of it. As the needle continues to rise this loop-former is pushed forward and turned over by the cams, which operate in such a manner as to open the loop for the reception of the needle when it shall again descend through the cloth. This position of the loop-former is shown in Fig. 6. As soon as the descent of the needle has secured the loop the loop-former is turned so as to bring the hook *i* downward to allow it to pass the needle when it is withdrawn, and the loop is thus released. The loop-former then goes on to secure the next loop in the same manner, one of the thin edges of the fork at the end of the loop-former passing in each case between the needle and the thread as the latter slacks, and causing the thread to enter the fork.

The longitudinal motion is given to the loop-former by the lever L, attached to the end of it, which is operated by the cams J, attached to the cam-shaft, said loop former being so hung in its bearings as to be allowed to slide in the manner above stated. The rotation to turn the hook into the position required is secured by the cams K, operating the rack M, which meshes into the segment of a pinion on the shaft of the loop-former.

The thread-spool N is placed upon a shaft, O, and secured to the disk P by two pins or points, *n n*, which are set in the disk and project a short distance from it for that purpose. The rotation of this disk P, and consequently the tension of the thread, is controlled by a spring-friction brake, which is made adjustable by the thumb-screw Q, as shown in the drawings. The thread-spool is driven up against the pins or points *n n* by the nut *r*, which secures it firmly to the disk. The journal of the shaft O, to which the disk P is attached, has its bearing and support in the bracket R.

I am aware that a rectilinear motion has

been given to various devices for securing the loop; and I am also aware that a rotary motion has been given to other contrivances for the same purpose. I am further aware that a rotary motion has been given to a looper which vibrates in the arc of a circle; but this arrangement, while it secures the rotation of the looper, is open to the objection that the longitudinal motion of the looper is not in a right line, and that its position relative to other parts is consequently so changed while giving the rotation as to interfere seriously with its perfect operation, which is not the case with my machine.

I am also aware that a vibrating feeding-pad has been operated upon an axis placed above the bed upon which the cloth is laid, but which pad is not concentric with the axis, and does not have a uniform pressure upon the cloth, subject entirely and only to the spring or other device by which it is held down upon it.

I am also aware that the rotation of the spool and the tension of the thread has been controlled by a friction-brake placed in direct contact with the spool, various instances of which might be cited. The difficulties to which this is exposed are, first, the spool-heads are not always or generally smooth and true in their configuration, and the adhesion of the brake and consequent tension of the thread are, for that reason, constantly changing, which of course interferes with the perfection of the work; and, second, that spools differ somewhat in size, and the brake has to be adjusted to the size of every fresh spool. To obviate these difficulties to some extent a pair of conical chucks have been placed upon the shaft, the lower one, or the one farthest from the outer end, resting upon a spring intended to act as a friction-brake, the tension of the thread being adjusted by screwing down

the outer cone against the spool. This arrangement is unsatisfactory for the reason that the numerous points of contact by which the tension is regulated are liable, in chucking the spool, to assume a position out of truth, and as the result the tension of the thread is changing at every stage; and, besides, the rotation of the outer chuck upon the adjusting-nut is apt to turn it upon the shaft, so as to increase or decrease the tension of the spring-brake; and, still further, the tension has to be, as before, adjusted in attaching every fresh spool. In my machine the changing of a spool has no effect upon the action of the brake, nor can it change the position of any of the parts by the friction of which the tension of the thread is governed, and no displacement of the parts or derangement of the tension can be produced by the rotation of the spool.

The particular improvements which constitute my said invention, and which I claim as having been originally and first invented by me, are—

1. A concentric rotary feeding-pad vibrating upon an axis which yields to pressure in an upward direction, giving a pressure upon the cloth which is entirely subject to the tension of the spring or other device by which the pad is forced down upon it, without being subjected to the action of a toggle-joint, as set forth.

2. The combination of an adjustable spring friction-brake with a rotary thread-carrier, consisting of the shaft O, disk P, and points or pins *n n*, or their equivalents, as set forth.

JOSEPH E. HENDRICK.

Witnesses:

JOHN GIBBS,
E. C. REMER.